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July 30, 2024

British Columbia Utilities Commission
Suite 410, 900 Howe Street
Vancouver, BC
V6Z 2N3

Attention: Patrick Wruck, Commission Secretary

Dear Patrick Wruck:

Re: FortisBC Energy Inc. (FEI)

Application for Approval of a Certificate of Public Convenience and Necessity (CPCN) for the Okanagan Capacity Mitigation Project (OCMP) (Application)

Pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA), FEI applies to the British Columbia Utilities Commission (BCUC) for a CPCN for the Okanagan Capacity Mitigation Project (OCMP or Project).

In particular, FEI seeks the following approvals:

- The granting of a CPCN, pursuant to sections 45 to 46 of the UCA, for the construction and operation of the OCMP as described in this Application.
- Approval pursuant to sections 59 to 61 of the UCA for a depreciation rate of 3.33 percent and a net salvage rate of 0.5 percent applicable to the new small-scale liquefied natural gas (LNG) tank and vaporization (i.e., send-out) equipment as well as the LNG transport trailers related to the Project.
- Approval pursuant to sections 59 to 61 of the UCA to record the Application and Preliminary Stage Development costs related to the OCMP in the existing non-rate OCU Preliminary Stage Development Costs deferral account, attracting a weighted average cost of capital return. FEI proposes to rename this deferral account the “OCMP Application and Preliminary Stage Development Costs” deferral account. FEI seeks approval to transfer the balance in the deferral account to rate base on January 1 of the year following a decision on this Application and to amortize the balance over a four-year period.

- Approval pursuant to sections 59 to 61 of the UCA to recover the actual pre-construction development costs related to the original OCU CPCN project which were incurred from 2018 to 2023 through amortization of the newly titled OCMP Application and Preliminary Stage Development Costs deferral account over the requested four-year period.

Background

On December 22, 2023, the BCUC issued its Decision and Order G-361-23 (Decision) in which it denied FEI a CPCN for the OCU Project. However, in the Decision, the BCUC Panel agreed that there is an imminent capacity shortfall on FEI's Interior Transmission System (ITS) and an immediate need to address it.[1]

Consequently, the Decision directed FEI to:

- examine additional potential short term mitigation solutions and develop a plan which will allow the ITS to provide sufficient peak demand capacity in the event of a 1 in 20-year cold weather event occurring in the winter of 2026/2027 or the period following and to file this mitigation plan with the BCUC for review no later than July 31, 2024;[2] and
- file, within six months of the Decision, a compliance filing which sets out FEI's proposed accounting treatment for the pre-construction development costs, for BCUC review and approval.[3]

Request for Confidential Treatment of Certain Appendices

To support the Application, FEI has filed several Appendices, with the following ones being filed confidentially in accordance with the BCUC's Rules of Practice and Procedure regarding confidential documents as set out in Order G-72-23.

- Appendix A – IPP Basis of Estimate Report
- Appendices B-1 and B-3 – Jenmar Class 4 Scope and Estimate Report and Addendum
- Appendices F-1 and F-2 – Construction Cost Estimates (FEI)
- Appendix G – Risk Register
- Appendix H – Validation Estimating Contingency Report
- Appendix I – Validation Estimating Escalation Report
- Appendix J – Financial Schedules

FEI respectfully requests that the BCUC hold the above listed documents confidential, and believes that such information should remain confidential in perpetuity. FEI outlines below the reasons for keeping the information confidential.

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[1] Decision, p. 23.
[2] Decision, p. 25.
[3] Decision, p. 26. By letter dated May 22, 2024, the BCUC extended the filing date of the compliance filing from June 24, 2024 to July 31, 2024 as part of this mitigation plan filing.

Appendices B-1, B-3, and G

Appendices B-1, B-3, and G are engineering documents and should be kept confidential on the basis that they contain operationally sensitive information pertaining to FEI's assets. In particular, they identify areas of risk to the Project and include cost estimates.

They should be kept confidential on the basis that FEI may be going to the market to seek competitive bids for the materials and construction work for the Project. If the estimated costs for the material and construction work are disclosed, FEI reasonably expects that its negotiating position may be prejudiced. For instance, the bidding parties with knowledge about the estimated costs may use the estimate costs as a reference for their bidding.

Appendices A, F-1, F-2, H, I, and J

Appendices A, F-1, F-2, H, I, and J include cost estimates, containing capital cost estimates for the Project. They should be kept confidential on the basis that FEI may be going to the market to seek competitive bids for the materials and construction work for the Project. If the estimated costs for the material and construction work are disclosed, FEI reasonably expects that its negotiating position may be prejudiced. For instance, the bidding parties with knowledge about the estimated costs may use the estimate costs as a reference for their bidding.

Access to Confidential Information for Interveners

Should parties that choose to register in the review of this Application require access to some or all of the information filed confidentially, FEI has provided a proposed Undertaking of Confidentiality in Appendix K-3, to be executed before confidential information may be released to registered parties under the terms of the undertaking. FEI has no objection to providing confidential information to customary and routine intervener groups representing customer interests. FEI requests that the BCUC provide it with the opportunity to file comments on any objections or concerns that it may have, should any other registered parties seek access to confidential information.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Sarah Walsh

Attachments

cc (email only): Registered Interveners in the FEI Okanagan Capacity Upgrade Project CPCN Application proceeding.

FORTISBC ENERGY INC.

Application for Approval of a Certificate of Public Convenience and Necessity for the Okanagan Capacity Mitigation Project

July 30, 2024

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1. INTRODUCTION AND EXECUTIVE SUMMARY

1.1 *INTRODUCTION AND EXECUTIVE SUMMARY*

In this application (Application), FortisBC Energy Inc. (FEI) is seeking approval of the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) for the Okanagan Capacity Mitigation Project (OCMP or Project).

FEI has developed the OCMP in response to the BCUC's Decision and Order G-361-23 dated December 22, 2023 (Decision), in which the BCUC denied FEI's application for a CPCN for the Okanagan Capacity Upgrade (OCU) project (original OCU CPCN project). While the BCUC denied the original OCU CPCN project, the BCUC found that a capacity shortfall on FEI's Interior Transmission System (ITS) is imminent and that there is a need to address this shortfall.[1] The BCUC noted that additional stress on the ITS' capacity levels and existing mitigation efforts would only provide short-term relief ending in the winter of 2026/2027[2] and determined that "[r]egardless of the approach taken, it is clear there is a need for FEI to address the ITS' projected capacity shortfall in a timely manner."[3]

Consequently, the Decision directed FEI to:

- examine additional potential short term mitigation solutions and develop a plan which will allow the ITS to provide sufficient peak demand capacity in the event of a 1 in 20-year cold weather event occurring in the winter of 2026/2027 or the period following and to file this mitigation plan with the BCUC for review no later than July 31, 2024;[4] and

- file, within six months of the Decision, a compliance filing which sets out FEI's proposed accounting treatment for the pre-construction development costs, for BCUC review and approval.[5]

1.1.1 Project Objective and Scope

The objective of the OCMP is to implement a solution that will be in service before the winter of 2026/2027 to ensure that the capacity requirements in the Okanagan region can be met. The Project must also be able to serve customers' capacity needs through the winter of 2028/2029, as FEI requires the intervening time to assess how best to address the capacity requirements on the ITS in the longer term.

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1 Decision, p. 23.
2 Decision, p. 25.
3 Decision, p. 25.
4 Decision, p. 25.
5 Decision, p. 26. By letter dated May 22, 2024, the BCUC granted FEI's request to extend the filing deadline to July 31, 2024 so that FEI could include the proposed accounting treatment and request for recovery of the pre-construction development costs as part of the short-term mitigation plan (i.e., as part of this Application).

There are three short-term mitigation measures that FEI is currently utilizing, or could utilize, until a permanent solution is in place: (1) minimum pressure increase, in which Enbridge will attempt to temporarily maintain the Savona tap pressure at 650 psig (this measure is out of FEI's control); (2) temporary load shifting; and (3) station modifications. The current mitigation measures provide approximately 11 TJ/d of additional capacity. FEI considers the risk of relying on the availability of all the short-term temporary mitigation measures through the winter of 2028/2029 to be too great. Doing so would leave FEI with no room for error and FEI would be exposed to both the non-firm Savona tap pressure provision by Enbridge (which is out of FEI's control), and the human element required in operating the station modifications during a cold weather event. FEI therefore considers it necessary to scope the OCMP such that it alleviates the reliance on the short-term temporary mitigation measures to the extent possible.

1.1.2 Evaluation of Alternatives

Meeting the capacity shortfall anticipated on the ITS by the winter of 2026/2027 with significant time constraints is complex. FEI must not only consider alternatives, but also the extent to which it can rely on the existing short-term temporary mitigation measures in place, and the number of winters of capacity that the proposed OCMP should be able to meet. Given the timing constraints and complexity of this Project, FEI evaluated alternatives in the following sequence:

- First, FEI evaluated alternatives that could meet 2026/2027 winter demand (i.e., the most critical and time sensitive component of the Project objective).
- Second, FEI evaluated feasible alternatives in meeting demand through the winter of 2028/2029 (i.e., a reasonable period of time to develop and execute a future project as necessary).
- Third, FEI evaluated increasing the scope of the preferred alternative to alleviate the short-term temporary mitigation measures.

Using this evaluation process, FEI examined six project alternatives:

- Alternative 1 – Pipeline Extension
- Alternative 2 – Compressed Natural Gas (CNG) Storage Facility
- Alternative 3 – Liquefied Natural Gas (LNG) Production & Storage Facility
- Alternative 4 – CNG Trucking
- Alternative 5 – LNG Trucking
- Alternative 6 – Small Scale LNG Storage Facility

Ultimately, FEI determined that a Small Scale LNG Storage Facility best addresses the Project need, including scaling the Project to reduce the use of the existing short-term temporary mitigation measures that FEI determined were too risky to remain in place for an extended period.

1.1.3 Project Description

FEI is proposing to build a new small scale LNG storage and regasification facility in Kelowna, BC which consists of permanent LNG storage, vaporization, and send-out equipment. LNG would be produced at FEI's existing Tilbury LNG Plant utilizing existing liquefaction equipment. The LNG would be loaded on bulk LNG tankers at the existing truck-loading facilities, and these LNG tankers would travel to the new facility in Kelowna prior to the winter heating season where the LNG would be offloaded into six storage tanks. When required, the LNG would then be vaporized, odorized, and injected into the local distribution system to meet the energy needs of customers.

The proposed site is located inside an FEI-owned parcel of land at its Kelowna Gate Station at 1569 Spall Road in Kelowna, adjacent to a FortisBC Inc. (FBC) electric substation. FEI currently utilizes the site for activities such as storage of emergency transmission pipe and repair materials. The site is located on a major trucking route and in proximity to residences and commercial and retail businesses.

FEI has divided the Project into two phases in order to ensure that the Project will be in-service prior to the winter of 2026/2027:

- Phase 1 entails system modifications and equipment procurement to transport LNG from the Tilbury LNG facility to inject it into the Kelowna Gate Station. This includes the entirety of the scope except installation of the six permanent LNG storage tanks. One mobile day tank and three bulk LNG transport trailers will be filled and connected to the system to meet storage requirements at the Kelowna Gate Station for the 2026/2027 heating season.

- Phase 2 consists of installation of the six permanent LNG storage tanks when they arrive, ready for operation before the 2027/2028 heating season. The bulk LNG transport trailers will continue to be used to fill the permanent tanks annually, while the mobile day tank will enter the LNG fleet and be utilized as needed.

1.1.4 Project Costs, Rate Impact and Recovery of Pre-Construction Development Costs

FEI developed an AACE Class 4 cost estimate for the Project. The total cost estimate for the Project is $50.389 million in as-spent dollars and will result in an estimated rate impact of 1.35 percent in 2028 when all construction is complete and after all assets are placed in service. For an average FEI residential customer consuming 90 GJ per year, this equates to a bill impact of approximately $6.93 in 2028.

FEI is seeking approval for deferral treatment of the Application and Preliminary Stage Development costs related to the Project. FEI proposes to record these costs in the existing non-rate base OCU Preliminary Stage Development costs deferral account, attracting a weighted average cost of capital (WACC) return. However, FEI proposes to rename the deferral account the "OCMP Application and Preliminary Stage Development Costs" deferral account.

As directed by the BCUC in the Decision[6], the existing non-rate base OCU Preliminary Stage Development Costs deferral account currently contains the actual pre-construction development costs from 2018 to 2023 related to the original OCU CPCN project. FEI incurred a total of $19.841 million of pre-tax costs ($22.153 million net of tax and including AFUDC) related to the pre-construction development of the original OCU CPCN project between 2018 and 2023. FEI is seeking BCUC approval to recover these prior OCU CPCN development costs as part of this Application. FEI considers all the pre-construction development costs to have been necessary and prudently incurred.

1.1.5 Environment and Archaeology

Since the Project is located on an active FEI facility site with a disturbed, gravelled surface and limited vegetation, FEI expects minimal environmental and archaeological Project impacts, which is supported by its preliminary assessment. Potential environmental impacts of the Project can be mitigated through the implementation of standard best management practices and mitigation measures. Impacts to construction timelines and costs as a result of encountering species at risk, fish habitat, or contaminated soil or groundwater can be minimized through additional investigations during the detailed engineering phase prior to construction.

1.1.6 Consultation and Engagement

To guide Project consultation and engagement, FEI created a Consultation and Engagement Plan (Engagement Plan). The Engagement Plan takes into consideration the specific nature of the Project, which includes work entirely within an existing FEI facility. As a result, FEI's consultation and engagement activities are primarily targeted towards Indigenous groups, local governments, and those stakeholders who live and work in close proximity to the Project.

FEI will continue to work with stakeholders and Indigenous groups to address outstanding items related to the Project, and will track the Project specific interests, issues and concerns of those groups potentially impacted by the Project.

1.1.7 Provincial Government Energy Objectives and Long Term Gas Resource Plan

As an innovative solution to meet near-term peak demand that will create positive socio-economic benefits for the regional area, the Project is consistent with British Columbia energy objectives (d) and (k). A consideration of the remaining objectives is neutral vis-à-vis the Project, as many of the objectives are not applicable and the Project is designed to meet short-term peak energy needs in the region, for which there is currently no feasible alternative peak resource available. Further, the original OCU CPCN project was identified in FEI's most recently filed long-term gas resource plan (2022 LTGRP).[7] In the decision accepting the 2022 LTGRP (2022 LTGRP

[6] Page 26.
[7] 2022 LTGRP, Exhibit B-1, p. 7-29.

Decision), the BCUC noted that FEI projects a need for capacity upgrades on the ITS in the planning period.

1.2 *SUMMARY OF APPROVALS SOUGHT*

In this Application, FEI seeks approval of the following from the BCUC:

- The granting of a CPCN, pursuant to sections 45 to 46 of the *Utilities Commission Act* (UCA), for the construction and operation of the OCMP as described in this Application.
- Approval pursuant to sections 59 to 61 of the UCA for a depreciation rate of 3.33 percent and a net salvage rate of 0.5 percent applicable to the new small-scale LNG tank and vaporization (i.e., send-out) equipment as well as the LNG transport trailers related to the Project.
- Approval pursuant to sections 59 to 61 of the UCA to record the Application and Preliminary Stage Development costs related to the OCMP in the existing non-rate OCU Preliminary Stage Development Costs deferral account, attracting a WACC return. FEI proposes to rename this deferral account the "OCMP Application and Preliminary Stage Development Costs" deferral account. FEI seeks approval to transfer the balance in the deferral account to rate base on January 1 of the year following a decision on this Application and to amortize the balance over a four-year period.
- Approval pursuant to sections 59 to 61 of the UCA to recover the actual pre-construction development costs related to the original OCU CPCN project totalling $19.841 million pre-tax ($22.153 million net of tax and including AFUDC) through amortization of the newly titled OCMP Application and Preliminary Stage Development Costs deferral account over the requested four-year period.

A draft order is attached as Appendix K-2.

1.3 *PROPOSED REGULATORY REVIEW PROCESS*

FEI believes that a written hearing process with one round of information requests (IRs) from the BCUC and interveners will provide for an appropriate and efficient review of the Application. The need for the OCMP was acknowledged by the BCUC in Decision and Order G-361-23, and FEI's evaluation and selection of the proposed Project reflects the guidance provided by the BCUC in the Decision. Further, due to the anticipated imminent capacity shortfall, the Project must be in-service before the winter of 2026/2027; thus, it is critical that FEI commence Project construction as soon as possible.

FEI proposes the regulatory timetable set out in Table 1-1 below and believes that this regulatory timetable will allow FEI to complete construction prior to the winter of 2026/2027 as required to meet the forecast capacity shortfall. The proposed regulatory timetable contemplates that the BCUC issue a procedural order related to this Application by the week of Friday, August 30, 2024. A draft procedural order is attached as Appendix K-1 to the Application.

Table 1-1: Proposed Regulatory Timetable

ACTION	DATE (2024)
Public notice of Application	Friday, August 30
FEI confirmation of compliance with Public Notice requirements	Friday, September 6
Intervener registration deadline	Thursday, September 19
BCUC IR No. 1	Tuesday, September 24
Intervener IR No. 1	Tuesday, October 1
FEI Responses to IR No. 1	Tuesday, October 22
Letters of comment deadline	Thursday, October 31
FEI final argument	Tuesday, November 19
Intervener final argument	Tuesday, December 3
FEI reply argument	Tuesday, December 17

1.4 *ORGANIZATION OF THE APPLICATION*

The Application provides detailed information in support of the Project. The remainder of the Application is organized into the following sections:

- Section 2 provides an overview of FEI and provides information on FEI's financial and technical capabilities for the Project.
- Section 3 describes the Project objective and justification for the scope for the OCMP.
- Section 4 assesses six alternatives for the Project in consideration of the Project objective and evaluates the three feasible alternatives based on weighted scoring criteria. It describes FEI's approach to identifying and evaluating the alternatives in consideration of the timing constraints and complexity of the Project.
- Section 5 provides a detailed description of the Project, including the evaluation process for selecting the site for the Project, construction, design, schedule, and key permits and regulatory approvals. It includes a risk analysis and discussion of potential Project impacts.
- Section 6 provides the cost estimate, the assumptions upon which the financial analysis is based, and the rate impact. It also seeks approval of a new depreciation and net salvage rate for the small-scale LNG tank and vaporization equipment and the transport trailers, and seeks approval to recover the actual pre-construction development costs incurred for the original OCU CPCN project.
- Section 7 discusses and provides the environmental and archaeological impacts of the Project.

- Section 8 discusses FEI's public consultation, Indigenous engagement, and communication efforts regarding the Project.
- Section 9 provides an overview of the BC Provincial Government energy objectives and the Project's alignment with the most recently accepted long term gas resource plan.
- Section 10 provides a conclusion.

2. APPLICANT

2.1 NAME, ADDRESS AND NATURE OF BUSINESS

FEI is a company incorporated under the laws of the Province of British Columbia and is a wholly-owned subsidiary of FortisBC Holdings Inc., which in turn is a wholly-owned subsidiary of Fortis Inc. FEI maintains an office and place of business at 16705 Fraser Highway, Surrey, British Columbia, V4N 0E8.

FEI is the largest natural gas distribution utility in British Columbia, providing sales and transportation services to residential, commercial, and industrial customers in more than 100 communities throughout British Columbia, with more than 1 million customers served throughout British Columbia. FEI's distribution network provides more than 95 percent of the natural gas energy delivered to customers in British Columbia.

2.2 FINANCIAL CAPACITY

FEI is regulated by the BCUC and is capable of financing the Project. FEI has credit ratings for senior unsecured debentures from Dominion Bond Rating Service and Moody's Investors Service of A and A3, respectively.

FEI has a rate base of approximately $5.9 billion and over 2,000 full-time and part-time employees.

2.3 TECHNICAL CAPACITY

FEI has designed, constructed and maintains a system of integrated high, intermediate and low-pressure pipelines and operates more than 51,000 kilometres of natural gas pipelines in British Columbia. FEI has completed other large natural gas projects and has the technical capacity to complete the Project.

FEI will provide the necessary resources to manage and complete the Project. FEI has experience in managing the design, construction, operation and maintenance of its pipeline systems and related infrastructure in British Columbia. For example, in recent years FEI has completed, or is in the process of completing, several major projects, including the Lower Mainland Intermediate Pressure System Upgrades project, the Inland Gas Upgrades project, the Pattullo Gas Line Replacement project, and the Coastal Transmission System and Interior Transmission System Transmission Integrity Management Capabilities projects.

2.4 COMPANY CONTACT

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2.5 *LEGAL COUNSEL*

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3. PROJECT NEED AND JUSTIFICATION

3.1 *INTRODUCTION*

In the BCUC's Decision and Order G-361-23 (Decision), the BCUC found that a capacity shortfall on FEI's ITS is imminent and that there is a need to address this shortfall.[8] The BCUC noted that additional stress on the ITS' capacity levels and existing mitigation efforts would only provide short-term relief ending in the winter of 2026/2027.[9] The BCUC determined that "[r]egardless of the approach taken, it is clear there is a need for FEI to address the ITS' projected capacity shortfall in a timely manner."[10] Accordingly, the BCUC directed FEI to:

> …examine additional potential short term mitigation solutions and develop a plan which will allow the ITS to provide sufficient peak demand capacity in the event of a 1 in 20-year cold weather event occurring in the winter of 2026/2027 or the period following.[11]

In response, FEI has developed the OCMP to increase the delivery capacity of the ITS to ensure that FEI maintains safe and reliable gas service for customers.

The objective of the OCMP is to implement a solution that will be in service before the winter of 2026/2027 to ensure that the capacity requirements in the Okanagan region can be met. As FEI further explains in this section, the Project must also be able to serve customers' capacity needs through the winter of 2028/2029, as FEI requires the intervening time to assess how best to address the capacity requirements on the ITS in the longer term.

The section is organized as follows:

- Section 3.2 provides the 2023 Peak Demand Forecast which confirms that, as acknowledged by the BCUC in the Decision, a capacity shortfall on the ITS is expected by the winter of 2026/2027.
- Section 3.3 describes the short-term mitigation measures that were evaluated in the original OCU CPCN proceeding, including the measures currently being undertaken and how these measures impact the OCMP.
- Section 3.4 explains the basis for FEI's determination that the OCMP must be able to meet the capacity needs in the Okanagan region through the winter of 2028/2029.
- Section 3.5 concludes this section.

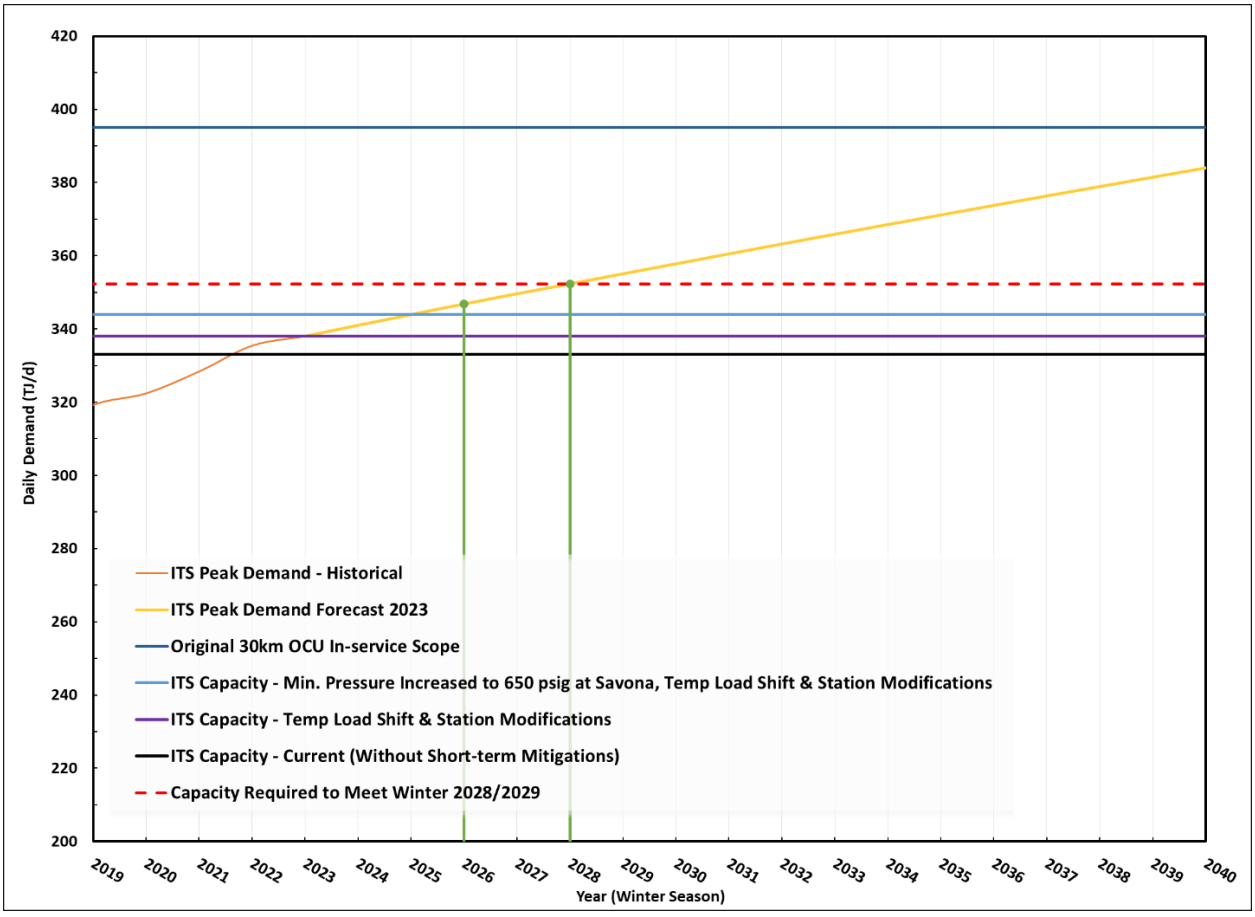
[8] Decision, p. 23.
[9] Decision, p. 25.
[10] Decision, p. 25.
[11] Decision, p. 25.

3.2 2023 PEAK DEMAND FORECAST CONFIRMS THE NEED FOR THE OCMP BY THE WINTER OF 2026/2027

FEI provides the 2023 Peak Demand Forecast in Figure 3-1 below, which confirms that there will be a capacity shortfall on the ITS by the winter of 2026/2027 that cannot be addressed with the short-term temporary mitigation measures that FEI has already implemented. The 2023 Peak Demand Forecast is the forecast filed in the response to BCUC Panel IR2 2.1[12] in the original OCU CPCN proceeding and is based on the Traditional Peak Method.

While the BCUC identified concerns with the Traditional Peak Method for long-term forecasting, the BCUC found that the Traditional Peak Method was appropriate in the circumstances of the original OCU CPCN proceeding, and found that, based on the Traditional Peak Method, there was an imminent capacity shortfall on the ITS.[13] As the OCMP focuses on near term need, FEI considers it reasonable to use the most recent 2023 Peak Demand Forecast to define the scope of the Project.

Figure 3-1: 2023 Peak Demand Forecast



[12] Exhibit B-46.
[13] Decision, p. 22.

The Historical ITS Peak Demand (solid orange curve in Figure 3-1) represents the calculated peak demand based on actual customer attachment data for each year.

The 2023 Peak Demand Forecast (solid yellow curve in Figure 3-1) is based on FEI's forecast of customer growth for 2023 and the 2022 year-end customer attachment and load data. This forecast represents FEI's most up to date peak demand forecast and was developed using the established methodology that was used in prior years. As explained in the original OCU CPCN proceeding,[14] FEI completes its annual peak demand forecast by the end of Q3 of any given year. Therefore, the 2022 year-end customer attachment and load data (and the forecast customer growth for 2023) represents the most up-to-date basis for the peak demand forecast. The 2023 Peak Demand Forecast is consistent with the forecast filed in the response to Panel IR2 2.1 in the original OCU CPCN proceeding.[15] As outlined above, the 2023 Peak Demand Forecast confirms that the ITS will experience a capacity shortfall by the winter of 2026/2027.

Figure 3-1 includes a solid purple and a solid light blue line. The solid purple line represents the short-term temporary mitigation measures that FEI has already been undertaking (or plans to undertake) which are in its control, namely temporary load shifting and station modifications.[16] The solid light blue line includes a further temporary short-term capacity mitigation that was also discussed in the original OCU CPCN proceeding involving increased delivery pressure from Enbridge (Westcoast Energy Inc. or WEI) at the Savona tap. This temporary mitigation measure is not within FEI's control, as further explained in Section 3.3 below.

The short-term temporary mitigation measures are further discussed in Section 3.3 below; however, FEI highlights the following from Figure 3-1:

- the 2023 Peak Demand Forecast (solid yellow line) has already exceeded both the Current ITS Capacity (solid black line) and the ITS Capacity with temporary load shifting and station modifications (solid purple line); and

- the 2023 Peak Demand Forecast is expected to exceed the ITS capacity with all of the short-term temporary capacity mitigations, namely 650 psig at Savona, Temporary Load Shifting and Station Modifications (solid light blue line), after winter 2025/2026.

Even with the short-term temporary mitigations, including the Savona tap pressure at 650 psig, the ITS peak demand will soon exceed the ITS capacity. Therefore, an alternate short-term mitigation project is imminently needed.

[14] Exhibit B-36, BCUC IR1 1.1 on the Supplementary Filing.
[15] Exhibit B-46.
[16] Exhibit B-1-2, Updated OCU CPCN Application, Section 4.2.

3.3 *FEI'S RELIANCE ON CURRENT SHORT-TERM TEMPORARY MITIGATION MEASURES CREATES RELIABILITY RISK AND UNCERTAINTY*

FEI described the short-term temporary mitigation measures that it has started to implement (or has considered implementing) in detail in the original OCU CPCN proceeding[17] and summarizes these measures below.

1. Minimum Pressure Increase:

On April 1, 2020, FEI established an understanding with Enbridge that Enbridge will attempt to maintain a minimum of 650 psig at the Savona custody transfer point.

FEI continues to work with Enbridge on this short-term capacity mitigation; however, no firm contractual obligation exists to provide this tap pressure, and as such, there is no guarantee of the availability of this temporary measure. The arrangement is not a firm contractual obligation on Enbridge; it is a temporary understanding extended by Enbridge to address rare, short-term occurrences.

2. Temporary Load Shifting:

The temporary load shifting measures include the following:

- **Undersetting the distribution pressure (DP) outlet pressure at Polson Gate Station.** By undersetting the DP outlet pressure relative to the surrounding gate stations, DP load is shifted from Polson Gate Station to the surrounding gate stations. This has the effect of decreasing the flow to Polson Gate Station via the transmission lateral, resulting in a higher transmission pressure (TP) inlet pressure at the gate station. FEI implemented this measure in both the winter of 2022/2023 and 2023/2024. FEI intends to continue to implement this measure until the OCMP is in service.

- **Undersetting the DP outlet pressure at Kelowna #1 Gate Station.** FEI had previously evaluated that, by undersetting the DP outlet pressure relative to the surrounding gate stations, DP load would be shifted from the Kelowna #1 Gate Station to the surrounding gate stations. This would have the effect of decreasing the flow to the Kelowna #1 Gate Station via the transmission lateral, resulting in a higher TP inlet pressure at the gate station. However, given the continuing load growth in the DP system fed by Kelowna #1, there is currently little and diminishing capacity benefit available from this measure without causing potential customer outages. As such, there are no near-term plans to implement this measure.

- **Change the supply to Coldham Road Gate Station.** Coldham Gate Station is currently supplied by Kelowna #1 Gate Station via the West Kelowna intermediate pressure (IP) system. Coldham Road station can instead be supplied by the transmission system via

[17] Exhibit B-1-2, Updated OCU CPCN Application, Section 4.2; Exhibit B-36, BCUC IR1 9.1 and 10 series on Supplementary Filing.

the Westbank lateral. This will have the effect of reducing the flow through the West Kelowna IP system and thus the Kelowna #1 Gate Station, resulting in a higher TP inlet pressure at the gate station. FEI is currently procuring the parts required to implement the changes and anticipates the additional capacity will be available for the winter of 2025/2026 (and until the OCMP is in service).

3. <u>Station Modifications:</u>

The station modification measures include the following:

- **Kelowna #1 Gate Station TPIP (Transmission Pressure to Intermediate Pressure) Bypass.** Construction of the bypass, allowing FEI to manually control flow from the TP system into the IP pipeline to minimize pressure drop across the station, is complete and therefore the measure is available for FEI to use if needed in Winter 2024/2025.

- **Polson Gate Station TPIP Bypass.** Construction of the TPIP bypass was completed in September 2022, thus the measure is available for FEI to use if needed in Winter 2024/2025.

As summarized above, FEI has been relying on short-term temporary mitigation measures to meet peak capacity demand for a 1-in-20 year cold weather event since 2022, and expects to continue relying on these measures until additional assets are installed to improve the delivery capabilities of the ITS. Some of these short-term mitigation measures are within the control of FEI, including temporary load shifting and station modifications, which provide approximately 5 TJ/d deliverability. The minimum pressure increase mitigation measure, in which Enbridge will attempt to temporarily maintain the Savona tap pressure at 650 psig, provides approximately 6 TJ/d of additional deliverability, but is outside of FEI's control. When compared to operating the system as designed, all of these short-term measures negatively affect FEI's ability to reliably serve customers, but they have been necessary to maintain service without a permanently installed project.

3.4 *THE OCMP MUST BRIDGE THE CAPACITY SHORTFALL UNTIL A FURTHER PROJECT IS DEVELOPED*

While the OCMP must address the capacity shortfall in the Okanagan region that is expected by the winter of 2026/2027, FEI must also consider how to meet capacity shortfalls in future years, as this consideration impacts the scope of the Project.

In determining the appropriate scope, FEI was guided by the following three key considerations, each of which are further explained in the following subsections:

- The expected timeline for FEI to develop and test a revised long-term peak demand forecast and to develop a future project beyond the OCMP.

- The extent that FEI should rely on the current short-term temporary measures to mitigate the risk of capacity shortfalls.

- With consideration to the BCUC's Decision, what would be a reasonable time period to rely on the 2023 Peak Demand Forecast for projecting peak demand on the ITS.

These considerations are discussed below.

3.4.1 A Future Project Will Be Needed but Requires Time to Develop

In the Decision, the BCUC stated:[18]

> Although we have rejected this CPCN Application, we acknowledge that steps must be taken to address an imminent capacity shortfall. The panel for the RRGCR application is currently deliberating, and a decision is likely to be forthcoming in the near future. Once received, this will allow FEI the opportunity to rescope the OCU Project, if necessary, or reapply with an application similar to the current one. If the RRGCR application is turned down, FEI is encouraged to consider this in preparing a new peak demand forecast which appropriately captures the impact this will have on the future of its natural gas business in BC. If a new forecast is prepared, the Panel recommends that FEI calculate a new DDD prior to preparing its new forecast. This will provide an up-to-date view of capacity requirements based on more recent weather patterns. Once that forecast is completed, we encourage FEI to review options like a shorter pipeline or perhaps combine a series of alternatives that are designed to address the capacity shortfall, while minimizing the risk of stranded assets and costs to ratepayers.

Subsequent to the Decision, the BCUC issued its decision on the Revised Renewable Gas Comprehensive Review (RRGCR Decision), approving the RNG Blend service but denying the RNG Connections service.[19]

Despite the denial of the Connections service in the RRGCR Decision, FEI continues to believe that a longer-term capacity solution is required in the Okanagan region. FEI acknowledges, however, the BCUC's comments in the Decision that a longer-term project should be supported by a revised peak demand forecast that addresses the BCUC's concerns. Thus, as part of the scope of the proposed OCMP, FEI has considered the length of time that will be required to both develop and test a revised forecasting methodology and a longer-term project, including the time required to undergo the BCUC review process and, if approved, execute the project.

Based on FEI's expectations at this time, it is highly unlikely that FEI could complete a longer-term project (assuming BCUC approval) and have the project in-service before the winter of 2028/2029. Further, and as explained in the following subsections, FEI expects that capacity

[18] Decision, p. 25.
[19] Decision and Order G-77-24 dated March 20, 2024.

shortfalls will continue over these upcoming years, and it is not reasonable to rely on temporary short-term mitigation measures.

Accordingly, FEI has scoped the OCMP to be able to meet the peak capacity requirements in the Okanagan region for each of the winters of 2026/2027, 2027/2028 and 2028/2029. FEI intends to develop a follow-up project consistent with the guidance given by the BCUC in the Decision that will address peak demand beyond the winter of 2028/2029. This follow-up project will include a revised approach to forecasting peak demand and will reflect any policy-driven changes that have been enacted since the filing of this OCMP Application.

3.4.2 FEI Must Reduce Reliance on Current Short-term Temporary Mitigation Measures

As explained in Section 3.3 (and discussed in detail in the original OCU CPCN proceeding), there are three short-term mitigation measures that FEI is currently utilizing, or could utilize, until a permanent solution is in place: (1) minimum pressure increase; (2) temporary load shifting; and (3) station modifications. FEI modelled the impacts of these measures, represented by the solid purple and light blue lines, in Figure 3-1.

As part of scoping the OCMP, FEI considered whether it could continue to rely on any or all of these short-term temporary mitigation measures until a longer-term project is built (i.e., a project beyond the proposed OCMP), as reliance on any/all of the measures impacts the scope required for the OCMP. While continuing to rely on the measures (where possible) would decrease the scope of the OCMP and therefore decrease the Project's costs and in-service timeline, such an approach increases the risk of reliably meeting customers' service needs. Table 3-1 below shows the available capacity provided by each of the short-term mitigation measures.

Table 3-1: Approximate Capacity Provided by Mitigation Measures

Description	Capacity
FEI Controlled Measures (temporary load shifting and station modifications)	5 TJ/d
Non-FEI Controlled Measure (minimum pressure increase at Savona tap)	6 TJ/d
All Currently Implemented Short-term Mitigation Measures	**11 TJ/d**

Table 3-2 below quantifies the amount of capacity that would be needed through the winter of 2028/2029 (i.e., the amount of capacity that the OCMP would need to provide to address capacity shortfalls through the winter of 2028/2029) based on the availability of all, some, or none of the short-term mitigation measures.

Table 3-2: Approximate 2028/2029 Capacity Shortfall With and Without Short-term Mitigation Measures

Description	Capacity
Capacity Shortfall Without Any Short-term Mitigation Measures	19 TJ/d
Capacity Shortfall With Only FEI Controlled Mitigation Measures (i.e., excluding Savona)	14 TJ/d
Capacity Shortfall With All Short-term Mitigation Measures	8 TJ/d

As shown in Table 3-1, the current mitigation measures provide approximately 11 TJ/d of additional capacity. Therefore, based on the forecast capacity shortfall by winter of 2028/2029, if all the short-term mitigation measures were still in place, the OCMP would need to be constructed to provide enough capacity to offset the remaining 8 TJ/d shortfall. If FEI excluded consideration of all of the short-term mitigation measures, the OCMP would need to be constructed to provide enough capacity to offset a shortfall of 19 TJ/d. FEI notes that the capacity figures listed in TJ/d throughout Section 3 are from the aggregate capacity planning model load, distributed across the ITS.

In considering the degree of reliance on the existing short-term temporary mitigation measures, FEI seeks to strike a balance between reducing the reliability risk of continuing to depend on the short-term temporary measures and the need to have a project in-service by the winter of 2026/2027, as projects with increased scopes may increase the execution timeline due to factors such as land constraints and permitting.

FEI considers the risk of relying on the availability of all the short-term temporary mitigation measures through the winter of 2028/2029 to be too great. Doing so would leave FEI with no room for error and FEI would be exposed to both the non-firm Savona tap pressure provision by Enbridge of the Savona tap pressure increase (which is out of FEI's control), and the human element required in operating the station modifications during a cold weather event. FEI therefore considers it necessary to scope the OCMP such that it alleviates the reliance on the short-term temporary mitigation measures to the extent possible.

FEI considered the impact of increasing the size of the OCMP to address the short-term temporary measures and the time available to implement the Project for Winter 2026/2027. Ultimately, FEI proposes to scope the OCMP to provide approximately 14 TJ/d of additional capacity (to alleviate its reliance on the existing short-term mitigation measures), which FEI considers to be an appropriate balance between reliability risk and project executability. FEI further describes the alternatives evaluated in Section 4 and the preferred alternative in Section 5.

3.4.3 It is Reasonable to Expect Increases in Peak Demand through the Winter of 2028/2029

The 2023 Peak Demand Forecast is based on FEI's Traditional Peak Method. While the BCUC in the Decision accepted the Traditional Peak Method as appropriate "in these circumstances", the BCUC outlined concerns when relying on this method for forecasting long-term peak demand.[20]

The BCUC highlighted the following anticipated changes in policies and requirements as potentially impacting FEI's peak demand expectations over the 20-year forecast period:[21]

> Of particular concern to the Panel is FEI's admission that none of its forecasts have considered the potential for a flattening or even a reversal of the curve due to

[20] Decision, pp. 23-24.
[21] Decision, p. 24.

> commitments in the CleanBC Roadmap and the impacts of changes to the BC Energy Step Code, other planning guidelines or zoning bylaws…
>
> The Panel accepts that to-date none of the municipalities in the Okanagan region have taken additional firm steps to implement the BC Energy Step Code beyond Step 3. However, there is no certainty that this will not change in the near future.

The CleanBC Roadmap to 2030 includes the BC Energy Step Code and the Zero Carbon Step Code (ZCSC) initiatives with the goal of meeting the Province's greenhouse gas emission reduction targets. In 2030, the British Columbia Building Code (BCBC) will require all new buildings to meet zero-carbon performance requirements (i.e., meet level EL-4 of the ZCSC).

FEI acknowledges that the changing emission requirements for new buildings will have an impact on the usage of natural gas; however, until such time as the impact of the building code changes begin to materialize, and particularly in the years prior to 2030, the ITS will be in a capacity shortfall during a 1 in 20-year cold weather event, and FEI must put infrastructure in place to meet this expected shortfall.

3.5 *CONCLUSION*

There is a clear need to develop a short-term mitigation solution to address the forecast peak demand capacity shortfall on the ITS in the event of a 1 in 20-year cold weather event by the winter of 2026/2027. In consideration of the findings and determinations in the BCUC's Decision, the 2023 Peak Demand Forecast, the availability of the existing short-term temporary mitigation measures, and the lead-time required to develop and execute a future project beyond the OCMP, FEI considers it reasonable to scope the OCMP so that there will be sufficient capacity to meet peak demand on the ITS through the winter of 2028/2029 with reduced reliance on the existing short-term temporary mitigation measures.

In Section 4, FEI describes the alternatives it investigated to meet the capacity shortfall on the ITS by winter of 2026/2027, and compares the feasible alternatives based on the assumption that the alternatives will be required to meet the forecast capacity shortfall through the winter of 2028/2029.

4. DESCRIPTION AND EVALUATION OF PROJECT ALTERNATIVES

4.1 *INTRODUCTION*

FEI developed the OCMP in consideration of the BCUC's findings and determinations in the Decision, including the BCUC's directive that FEI "examine additional potential short term mitigation solutions and develop a plan which will allow the ITS to provide sufficient peak demand capacity in the event of a 1 in 20-year cold weather event occurring in the winter of 2026/2027 or the period following."[22] In making this determination, the BCUC stated the following on page 25 of the Decision:

> Over the course of this proceeding there has been extensive investigation of trucking CNG to the area to create additional capacity. The Panel accepts that this is not appropriate for a long-term solution as it has numerous drawbacks but, as a short-term solution, it might be able to cost effectively fill the gap in the meantime. There are potentially other mitigation options, which could be acted on in a timely manner, and could be targeted to address those parts of the ITS, which FEI identifies would be the first to experience capacity shortfalls (namely, the communities of West Kelowna, Lumby and Lavington). Without being prescriptive, the Panel is aware that one such option may entail a solution similar to the Peak Shaving CNG Unit outlined in FEI's Gibsons Capacity Upgrade Project.

The BCUC also pointed out options such as a shorter pipeline or the combination of a series of alternatives that would be designed to address the capacity shortfall.[23]

As explained in Section 3, the objective of the OCMP is to implement a solution that will be in service before the winter of 2026/2027 to ensure that the capacity requirements in the Okanagan region can be met. Further, in consideration of the findings and determinations in the Decision, the 2023 Peak Demand Forecast, the need to alleviate FEI's reliance on the short-term mitigation measures currently in place, and the lead-time required to develop and execute a future project beyond the OCMP, FEI considers it reasonable to scope the OCMP so that there will be sufficient capacity to meet peak demand on the ITS through the winter of 2028/2029 with reduced reliance on the existing short-term temporary mitigation measures.

In Section 4.2, FEI describes the approach it took to investigating the potential alternatives to meet the imminent capacity shortfall on the ITS, including the consultants retained and reports undertaken. Due to the need to implement a solution before the winter of 2026/2027, including the directive by the BCUC to file the short-term mitigation plan by July 31, 2024, FEI adjusted its approach to investigating alternatives and scopes in the development of this Application to ensure that a variety of scenarios (and alternatives to meet those scenarios) were examined.

[22] Decision, p. 25.
[23] Decision, p. 25.

In Sections 4.3 and 4.4, FEI describes the alternatives that it considered to address the imminent capacity shortfall on the ITS, including the alternatives that were deemed to be infeasible and the alternatives that were determined to be feasible. Any alternative that was incapable of meeting the capacity needs by the winter of 2026/2027, whether technically or through an inability to enter service in time, was considered to be infeasible, as it did not meet the Project objective.

In Section 4.5, FEI evaluates the feasible alternatives and explains which alternative was selected as the proposed Project.

4.2 *FEI INVESTIGATED MULTIPLE OPTIONS TO ADDRESS THE IMMINENT CAPACITY SHORTFALL*

Since the issuance of the Decision in December 2023, FEI has performed an extensive investigation of alternatives to address the imminent capacity shortfall on the ITS. As part of these investigations, FEI consulted with Jenmar Concepts Inc. (Jenmar) on potential CNG and LNG options, and Innovative Pipeline Projects Ltd. (IPP) on smaller-scale pipeline options.

Meeting the capacity shortfall anticipated on the ITS by the winter of 2026/2027 with significant time constraints is complex. As explained in Section 3, FEI must not only consider alternatives, but also the extent to which it can rely on the existing short-term temporary mitigation measures in place, and the number of winters of capacity that the proposed OCMP solution should be able to meet. Given the timing constraints and complexity of this Project, FEI evaluated alternatives in the following sequence:

- First, FEI evaluated alternatives that could meet 2026/2027 winter demand (i.e., the most critical and time sensitive component of the Project objective).
- Second, FEI evaluated feasible alternatives in meeting demand through the winter of 2028/2029 (i.e., a reasonable period of time to develop and execute a future project as necessary).
- Third, FEI evaluated increasing the scope of the preferred alternative to remove FEI's reliance on some of the short-term temporary mitigation measures.

Typically, FEI would conclude on the scope and then undertake the requisite third-party reports; however, due to the constrained timeline to execute the OCMP, FEI instead requested that Jenmar and IPP investigate a range of scenarios in their reports and pursued a more iterative approach.

As a result, the reports appended to the Application reference multiple "phases" (in the case of the IPP report) and ranges of scope requirements based on meeting different winter capacity requirements (in the case of the Jenmar report). Ultimately, however, FEI has scoped the OCMP as described in Section 3 and has developed the proposed Project based on this scope. The work undertaken by IPP and Jenmar has been useful in assessing the options for the proposed Project as well as for assessing what may be required for a future project.

In consideration of the Decision and in consultation with Jenmar and IPP, FEI identified and investigated six alternatives. These alternatives are described in detail in Sections 4.3 and 4.4:

- Alternative 1 – Pipeline Extension
- Alternative 2 – CNG Storage Facility
- Alternative 3 – LNG Production & Storage Facility
- Alternative 4 – CNG Trucking
- Alternative 5 – LNG Trucking
- Alternative 6 – Small Scale LNG Storage Facility

FEI evaluated these six alternatives and concluded that Alternatives 1 through 3 do not meet the Project objective and are therefore not feasible. The remaining three feasible alternatives (Alternatives 4, 5 and 6) were further analyzed and evaluated, with Alternative 6 – Small Scale LNG Storage Facility being selected as the preferred alternative. The evaluation and selection of Alternative 6 as the preferred alternative is described in Section 4.5.

4.3 *PROJECT ALTERNATIVES DETERMINED TO BE INFEASIBLE*

In this section, FEI describes Alternatives 1 through 3 and explains why each of the alternatives was determined to be infeasible.

4.3.1 Alternative 1 – Pipeline Extension

4.3.1.1 Overview of Alternative 1

Leveraging the work performed on the original 30 km alignment for the OCU CPCN project, FEI investigated the possibility of constructing a segment of the OLI-PEN 406 pipeline along the same alignment for the OCMP, tying in to the VER-PEN 323 with a new Pressure Reduction Station (PRS). FEI determined that a 6.4 km installation of new NPS 16 pipeline would be required based on the hydraulic requirements of the system to provide adequate capacity through Winter 2028/2029 and locations where the OCU alignment and existing VER-PEN 323 pipeline physically converged.

FEI engaged IPP to develop a pre-FEED study and AACE Class 4 cost estimate of the shorter length pipeline (please refer to Appendix A).[24] The PRS would be located on the new pipeline

[24] FEI notes that the IPP pre-FEED study refers to a Phase 1 and Phase 2 of the project. FEI directed IPP to evaluate a second phase to the project to understand what would be required to meet the 2030 capacity needs of the area, including all existing short-term temporary mitigation measures in order to understand a range of scope requirements. Ultimately, FEI determined that the OCMP would need to meet capacity requirements through the winter of 2028/2029 (not 2030), and regardless, as further explained in Section 4.3.1.2, a pipeline extension was ultimately determined to be an infeasible option.

near the tie-in point to the existing VER-PEN 323 pipeline. The PRS would include pressure reduction from 7,826 kPa to 5,171 kPa (1,135 to 750 psig) designed with full redundant flow paths containing two independent forms of overpressure control and dedicated manual isolation valves for each path, as well as a flanged access for a temporary pig receiver. A new power gas panel would be required to actuate control valves containing two sets of power gas panels installed to provide redundancy. The power gas panel would include a filter, main and monitor regulators and an over pressure protection relief valve. Tying in the Phase 1 PRS facility to VER-PEN would require construction of a 200 m buried connector pipeline, from a reasonably level location on the OCU alignment over to the desired VER-PEN connection point.

4.3.1.2 Alternative 1 Cannot be Executed in Time to Meet the Project Objective

In order to install a new pipeline, even a shorter segment of the original 30 km alignment, FEI would require consent from local Indigenous groups. Accordingly, FEI continued its engagement with *snpink'tn* since the issuance of the Decision, including gaining an understanding of *snpink'tn*'s requirements for consent to construct a shorter segment of pipeline. FEI understands the requirements to include (in order):

1. The BCUC's approval of the Project;
2. The negotiation of a new agreement; and
3. A successful community vote.

Based on these discussions, as further explained in Section 8.3.1.1, FEI ultimately determined that the Pipeline Extension alternative could not be executed in time to meet winter demand in 2026/2027.

Thus, despite the Pipeline Extension alternative having many advantages, FEI eliminated this alternative as infeasible for the OCMP due to timing. Regardless, a pipeline extension alternative remains feasible to meet longer-term demand. FEI intends to pursue this alternative in the future, depending on longer-term demand, and is committed to remaining open to working with *snpink'tn* on a potential option for a future project where the execution timeline is less constrained.

4.3.2 CNG Storage Facility and LNG Production & Storage Facility Were Deemed Infeasible (Alternatives 2 and 3)

In consultation with Jenmar, FEI investigated CNG and LNG options, some of which were determined to be infeasible. For further details on the screening analysis, please refer to the Jenmar Report (Appendix B-1) and the Jenmar Concept Screening Slide Deck (Appendix B-2).[25]

[25] FEI notes that the Jenmar work references three scenarios: a 2028/2029 capacity scenario with all short-term temporary mitigation measures in place, a 2030/2031 scenario with all short-term temporary mitigation measures in place, and a 2030/2031 scenario with all FEI-controlled short-term temporary mitigation measures in place. FEI directed Jenmar to evaluate these scenarios to better understand how the alternatives could be expanded to meet larger capacity needs, and can be used as a rough proxy for their ability to be scaled to address the existing short-term temporary mitigation measures.

As previously outlined in Section 3, the 2023 Peak Demand Forecast was used to determine the required ITS capacity. To achieve this required increase in capacity in the most efficient manner, the injection must occur at a hydraulic low-pressure point. Due to the hydraulics of the system, injection at a low-pressure point enables the capacity shortfall to be addressed by injecting the least amount of energy. Jenmar and FEI evaluated several existing stations within the Kelowna and Polson systems as possible injection locations. These systems were selected because they feed the communities of West Kelowna, Lumby, and Lavington, which will be the first to experience capacity shortfalls. The Polson distribution system, feeding Vernon, Lumby and Lavington, was determined to be inadequate as it did not have the capacity available or the ability to expand (i.e., even if the entirety of the Polson distribution system was supported by injection, there would still be a shortfall in West Kelowna). Possible locations along the Kelowna and West Kelowna distribution system were considered and the Kelowna Gate Station was determined to be the optimal location as it has the available capacity and adequate space for siting of both mobile and fixed equipment.[26] Please refer to Section 5.4 for further discussion on the facility location assessment.

Based on the selection of the Kelowna Gate Station, Jenmar conducted an initial concept screening process for CNG storage and LNG production & storage facilities that involved high-level equipment sizing calculations which were used to estimate facility footprints and class 5 level cost estimates (capital and O&M).[27]

After this initial screening, FEI concluded that the CNG Storage Facility (Alternative 2) and the LNG Production & Storage Facility (Alternative 3) were infeasible, as further described in subsections 4.3.2.1 and 4.3.2.2 below.

4.3.2.1 Alternative 2 – CNG Storage Facility

Alternative 2 involves constructing a bulk CNG storage facility (referred to as “CNG Peak Shaving Facility” in the Jenmar Report) at Kelowna Gate, including 200 CNG storage vessels, compressors, and pressure reduction units (PRUs). During periods of low demand, FEI would use compressors to draw gas from the IP/DP system and fill bulk storage (at high pressure) in order to be able to re-inject the gas back into the system during peak demand.

The facility at Gibsons, which the BCUC referenced on page 25 of the Decision, is situated on the distribution system and was designed to meet a relatively small (<0.5 mmsfcd) peak-*hour* demand shortfall. The Gibsons facility is able to draw gas into storage during non-peak hour conditions and reinject into the system during peak-hour conditions on the coldest days, significantly reducing the amount of energy that needs to be stored.

The OCMP demand shortfall is located on the transmission system, which results in a peak-*day* shortfall. To meet the needs of the system, the station needs to hold sufficient capacity for the entire duration of the shortfall and can only be refilled outside peak-day conditions. The energy

[26] Appendix B-1, Jenmar Report, pp. 9-10.
[27] Appendix B-1, Jenmar Report, p. 12.

injection required at Kelowna Gate to meet the forecast capacity shortfall expected in the ITS by winter of 2026/2027 is 2.3 mmscfd, and it increases to 6.6 mmscfd by winter 2028/2029. This is more than an order of magnitude larger than the Gibsons shortfall. To meet this shortfall, assuming a Savona tap pressure of 650 psig and the same vessels as used in Gibsons, over 200 CNG storage vessels would be required to cover the peak day energy needs of the system. Beyond the operational complexity and cost of operating and maintaining 200 CNG storage vessels, additional land adjacent to the appropriate gas infrastructure would be required. The required land parcel would be more than 0.5 hectares for the storage footprint alone. FEI expects that the timeline to acquire the land, obtain the necessary permits, and construct the CNG storage facility would be at least 2-3 years.

Given the estimated number of CNG storage vessels required under this alternative, coupled with the expected timeline required to acquire the land, obtain the necessary permits, and construct the storage facility, FEI dismissed Alternative 2 as infeasible.

4.3.2.2 Alternative 3 – LNG Production & Storage Facility

Alternative 3 involves constructing an LNG production and storage facility (referred to as an "LNG Peak Shaving Facility" in the Jenmar Report) at Kelowna Gate, including LNG liquefaction units, a boost compressor, storage vessels, and vaporization units.

LNG storage differs from CNG in that the gas is liquefied and stored in cryogenic vessels outside of peak periods and then vaporized, odorized, and re-injected into the system during periods of high demand. Based on Jenmar's analysis of this alternative, FEI would need to build a small-scale 40 tonne per day (TPD) liquefaction plant with a nitrogen refrigeration cycle and gas cleanup system connected to the Kelowna TP pipeline. Three fixed LNG storage tanks, a boost compressor, and gas-fired vaporization units would be needed to liquefy, store, and re-inject gas into the Kelowna system.

In order to construct the LNG production and storage facility, FEI would require a footprint of approximately 250 ft x 200 ft. Therefore, a new parcel of land would need to be acquired to house this facility, as FEI's existing sites in the area cannot accommodate a facility of this size.

In contrast to the other LNG-based alternatives (i.e., Alternatives 5 and 6), LNG production and storage requires on-site liquefaction which drives the need to acquire new land near the Kelowna TP system. Due to system hydraulics, a liquefaction plant in this area would require boost compressors, which add significant cost, potential community impacts, and additional permitting requirements. These requirements result in an extended project timeline of 4 to 5 years to complete. As FEI cannot site and install a liquefaction train by the winter of 2026/2027, FEI dismissed this alternative as infeasible. In Section 4.4, FEI discusses the feasible LNG-based options that do not require on-site liquefaction, new land acquisition, or boost compressors, and therefore have shorter projected timelines.

4.4 *FEASIBLE PROJECT ALTERNATIVES*

As explained in Section 4.2 above, FEI first evaluated alternatives that could meet 2026/2027 winter demand (i.e., the most critical and time sensitive component of the Project objective). In Section 4.3, FEI determined that Alternatives 1 through 3 were infeasible because they could not be executed in time to be in service for the winter of 2026/2027. After concept screening and preliminary review of the options, the CNG Trucking (Alternative 4), LNG Trucking (Alternative 5), and Small Scale LNG Storage Facility (Alternative 6) options were determined to be feasible as they were able to be in service before the winter of 2026/2027.

The Jenmar Report and FEI's scoring of the three feasible alternatives evaluates the alternatives based on a Project scope that enables the OCMP to meet the forecast capacity shortfall on the ITS through the winter of 2028/2029. However, subsequent to the Jenmar Report and the scoring process being completed, FEI determined that in addition to meeting the forecast capacity shortfall through the winter of 2028/2029, the scope of the OCMP should be such that FEI can reduce its dependence on the existing short-term temporary mitigation measures. As explained in Section 3 and in Section 4.5.5 below, FEI cannot rely on all of the existing short-term temporary mitigation measures through the winter of 2028/2029, as the risk of relying on these measures is too great. Due to the need to file the OCMP Application by the end of July 2024 to have a project in place to meet the anticipated capacity shortfall by the winter of 2026/2027, FEI determined that the best approach to evaluating the feasible alternatives was to continue with the capacity assumptions underpinning the Jenmar Report (Appendix B-1). Accordingly, the descriptions of all three feasible alternatives in the following subsections, and the scoring of the alternatives in Section 4.5.3, are based on the original scope assumptions. As FEI explains in Section 4.5.5, the additional scope required to reduce FEI's reliance on the short-term mitigation measures would not change the selection of the preferred alternative, nor would it alter the overall scoring of each of the feasible alternatives. Jenmar has prepared a Technical Memo (Appendix B-3) which is an addendum to its report. The Technical Memo describes the additional design and equipment requirements and the additional cost required to scope the OCMP so that FEI is less reliant on the current short-term temporary mitigation measures. The expanded scope of the Project is described in detail in Section 5 of the Application.

4.4.1 Alternative 4 – CNG Trucking

4.4.1.1 Description of Scope and Siting

The CNG Trucking (referred to as "CNG Virtual Pipeline" in the Jenmar Report) alternative involves filling bulk transport trailers with high-pressure CNG from a site with sufficient capacity, and trucking it to a location requiring supplemental gas, where it is depressurized and injected into the pipeline. Based on Jenmar's concept design of this alternative, trailers would be filled via mobile compressor at FEI's Princeton station, transported via Highway 5A/97C or 97, and the gas would be injected into the DP system at the Kelowna Gate Station.

To meet peak day needs through the winter of 2028/2029, a minimum of 16 trailer loads would need to be filled, transported, and injected.

Alternative 4 requires the following equipment:

- 10 CNG bulk transport trailers;
- 2 fixed or mobile CNG compressors; and
- 2 fixed or mobile pressure reduction units.

Unlike Alternative 2 (CNG Storage Facility), Alternative 4 does not require acquisition of new land rights to accommodate 200+ CNG storage vessels. For Alternative 4, FEI would be able to utilize its existing land parcel at the Kelowna Gate Station. However, at the Kelowna Gate Station, some equipment would be required to park within the riparian setback at the south end of the property (Mill Creek), and FEI would need to further investigate whether this would be permissible as FEI would need to seek approval by the local authority. Further, the existing entrance to the facility off Alphonse Road would require widening and the addition of a motorized gate.

While FEI would be able to utilize its existing parcel of land at the Kelowna Gate Station, FEI would need to acquire land rights at the Princeton Station. The Princeton station was previously used for loading CNG transport trailers during the 2019 Enbridge T-South pipeline rupture incident. To support that temporary emergency response activity, a gravel pad was constructed on adjacent land to the existing Princeton station. To undertake Alternative 4, land rights for the gravel pad would need to be acquired, and the gravel pad will need to be re-established and permanently fenced.

Please refer to the site plans for the Princeton and Kelowna Gate Station on pages 24 and 25 of the Jenmar Report (Appendix B-1).

The estimated project timeline for Alternative 4 is 22 months, though FEI may encounter delays and timeline uncertainties due to the required land acquisition and permits. Overall, however, FEI considers this alternative to be feasible because the estimated project timeline would enable the Project to be in service prior to the winter of 2026/2027.

4.4.1.2 Financial Analysis

Table 4-1 below summarizes the total incremental capital and O&M costs for the CNG Trucking alternative, as well as the resulting present value (PV) of incremental revenue requirement and levelized delivery rate impact over a 34-year period (i.e., 30 years post-Project plus four years prior to the Project being in-service). The capital cost estimate at an AACE Class 4 level is comprised of engineering, procurement and construction (EPC) costs developed by Jenmar and owner's costs developed by FEI. Jenmar provided an estimate of annual O&M costs over the 30-year post-construction period based on a 10-year operation cycle. Jenmar also indicated the CNG trailers used as part of the CNG trucking would have an expected life of 15 years; as such, the financial analysis includes equipment replacements after 15 years. Please refer to Confidential

Appendix B-1 for additional details related to the capital and O&M cost estimates, and please refer to Section 4.5.1.5 for discussion related to the 34-year analysis period.

Table 4-1: CNG Trucking (Alternative 4)

	CNG Trucking Option
Total Capital Costs, incl. AFUDC, As-spent ($ millions)	40.870
Annual O&M Costs ($ millions)	0.438
Total PV of Incremental Revenue Requirement 34 years ($ millions)	57.402
Levelized Delivery Rate Impact over 34 years (%)	0.36%

4.4.2 Alternative 5 – LNG Trucking

4.4.2.1 Description of Scope and Siting

LNG Trucking (referred to as "LNG Virtual Pipeline" in the Jenmar Report) involves the bulk transport of LNG from FEI's existing LNG truck loading facility at the Tilbury LNG plant in Delta, BC. The LNG would be trucked via Highway 5 and 97C and then vaporized, odorized, and injected into the DP system at the Kelowna Gate Station.

The LNG Trucking alternative differs from the CNG Trucking alternative (i.e., Alternative 4) in that gas is transported in bulk liquid form (cryogenic) at low pressure, rather than in the gaseous state at high-pressure. The advantage of LNG is that in liquid form, the natural gas is denser than CNG and therefore more gas can be delivered per trailer load. To meet peak demand through the winter of 2028/2029, nine trailer loads per day would need to be injected into the system.

Alternative 5 requires the following equipment:

- 10 LNG bulk transport trailers – 11,150 USG capacity each;
- 2 LNG mobile day tanks (mobile storage and offloading system) – 16,000 US gal each; and
- 2 mobile gas fired vaporizers.

Unlike Alternative 3 (LNG Production & Storage Facility), Alternative 5 does not require acquisition of new land rights to accommodate liquefaction capabilities; therefore, FEI would be able to utilize its existing land parcel at the Kelowna Gate Station.

FEI and Jenmar reviewed the site access at the Kelowna Gate Station based on existing site plans and Google maps. A traffic turning study was performed for the LNG transport trailers to confirm there is adequate access to enter and maneuver the existing site.[28] The existing entrance to the facility would require widening and the addition of a motorized gate. FEI expects that regular maintenance would be required to prevent erosion of the driving surface resulting from the

[28] Please refer to Appendix B-1, p. 34 for the site plan.

excessive truck turning. Further, given that operations are only anticipated to be required for up to three days per year, it is recommended that personnel be on-site to direct truck traffic during all operations. LNG trailers would be loaded at the existing truck loading facility located at FEI's Tilbury LNG plant in Delta, BC.

The estimated timeline for Alternative 5 is approximately 22 months, though FEI may encounter delays and timeline uncertainties due to the scope of the trailer procurement and the requirement to obtain an amendment permit from the British Columbia Energy Regulator (BCER). Overall, however, FEI considers this alternative to be feasible because the estimated project timeline would enable the Project to be in service prior to the winter of 2026/2027.

4.4.2.2 Financial Analysis

Table 4-2 below summarizes the total incremental capital and O&M costs for the LNG Trucking alternative, as well as the resulting PV of incremental revenue requirement and levelized delivery rate impact over a 34-year period (i.e., 30 years post-Project plus four years prior to the Project being in-service). The capital cost estimate at an AACE Class 4 level is comprised of EPC costs developed by Jenmar and owner's costs developed by FEI. Jenmar also provided an estimate of annual O&M costs over the 30-year post-construction period based on a 10-year operation cycle. Please refer to Confidential Appendix B-1 for additional details related to the capital and O&M cost estimates, and please refer to Section 4.5.1.5 for discussion related to the 34-year analysis period.

Table 4-2: LNG Trucking (Alternative 5)

	LNG Trucking Option
Total Capital Costs, incl. AFUDC, As-spent ($ millions)	24.950
Annual O&M Costs ($ millions)	0.723
Total PV of Incremental Revenue Requirement 34 years ($ millions)	36.040
Levelized Delivery Rate Impact over 34 years (%)	0.23%

4.4.3 Alternative 6 – Small Scale LNG Storage Facility

4.4.3.1 Description of Scope and Siting

The Small Scale LNG Storage Facility (referred to as "LNG Peak Shaving / Virtual Pipeline Hybrid" in the Jenmar Report) alternative involves bulk transport of LNG from the Tilbury LNG plant to the Kelowna Gate Station, where there would be permanently fixed LNG offload, storage, and vaporization equipment. FEI would fill LNG storage vessels via tankers during the shoulder seasons and would vaporize and inject into the system during peak demand. Unlike the trucking options (i.e., Alternatives 4 and 5), the Small Scale LNG Storage Facility option has storage that can be filled over a longer time period during the off-season when driving conditions are favourable. Connection to the DP system ensures that if the tank holding time is exceeded, boil-

off gas (BOG) can be pushed into the DP pipeline for use by customers without requirement for flaring.

Alternative 6 requires the following equipment:

- 3 LNG bulk transport trailers – 11,150 US gal (each);
- 3 LNG storage tanks – 50,000 US gal (each);
- 1 LNG mobile day tank (mobile storage and offloading system) - 16,000 US gal; and
- 2 skidded gas fired vaporizers.

Due to the timelines associated with procuring the LNG storage tanks, a mobile day tank and transport trailers will be utilized at the beginning of the project while longer lead equipment (fixed storage tanks) are being procured.

Similar to Alternative 5, FEI is able to utilize its existing parcel of land at the Kelowna Gate Station. Site access at the Kelowna Gate Station was reviewed based on existing site plans and Google maps. A traffic turning study was performed for the LNG transport trailers to confirm there is adequate access to enter and maneuver the existing site[29]. The existing entrance to the Kelowna Gate Station would require widening and the addition of a motorized gate. LNG trailers would be loaded at the existing truck loading facility located at FEI's Tilbury LNG plant in Delta, BC.

The initial estimated project timeline for this alternative can be found in Section 6 of the Jenmar Report (Appendix B-1). The estimated execution duration is approximately 34 months, and Alternative 6 would be completed in two phases. Phase 1, which includes mechanical completion (and in-service date), is expected by October 2026; Phase 2 (the fixed storage tank procurement phase) continues through to final completion in July 2027. FEI may encounter delays and timeline uncertainties due to the scope of the fixed storage procurement and the requirement to obtain a BCER facility permit. Due to the long lead time of the fixed storage tanks, a mobile day tank would be utilized initially as the onsite storage until the fixed storage tanks are available. Please refer to Section 5.6 of the Application for additional Project schedule details and further information on the phased approach.

4.4.3.2 Financial Analysis

Table 4-3 below summarizes the total incremental capital and O&M costs for the Small Scale LNG Storage Facility option, as well as the resulting PV of incremental revenue requirement and levelized delivery rate impact over a 34-year period (i.e., 30 years post-Project plus four years prior to the Project being in-service). The capital cost estimate at an AACE Class 4 level is comprised of EPC costs developed by Jenmar and owner's costs developed by FEI. Jenmar also provided an estimate of annual O&M costs over the 30-year post-construction period based on a 10-year operation cycle. Please refer to Confidential Appendices B-1 and B-3 for additional details

[29] Please refer to Appendix B-1, p. 45 for the site plan.

related to the capital and O&M cost estimates, and please refer to Section 4.5.1.5 for discussion related to the 34-year analysis period.

Table 4-3: Small Scale LNG Storage Facility (Alternative 6)

	Small Scale LNG Storage Facility Option
Total Capital Costs, incl. AFUDC, As-spent ($ millions)	37.492
Annual O&M Costs ($ millions)	0.673
Total PV of Incremental Revenue Requirement 34 years ($ millions)	50.969
Levelized Delivery Rate Impact over 34 years (%)	0.32%

4.4.4 Summary of Feasible Options

The following table summarizes the scope of the feasible alternatives. In Section 4.5, FEI evaluates each feasible alternative based on non-financial and financial criteria.

Table 4-4: Summary Table of Feasible Alternatives

	Alternative 4: CNG Trucking	Alternative 5: LNG Trucking	Alternative 6: Small Scale LNG Storage Facility
Description	CNG bulk transport between Princeton Station and Kelowna Gate Station (i.e., with no storage at Kelowna Gate Station).	LNG bulk transport between Tilbury LNG Plant and Kelowna Gate Station with no storage at Kelowna Gate Station.	LNG bulk transport between Tilbury LNG Plant and Kelowna Gate Station with on-site storage at Kelowna Gate Station.
Equipment	• 10 CNG bulk transport trailers • 2 fixed or mobile CNG compressors • 2 fixed or mobile pressure reduction units	• 10 LNG bulk transport trailers • 2 LNG mobile day tanks (mobile storage and offloading system) • 2 mobile gas fired vaporizers	• 3 LNG bulk transport trailers • 3 LNG storage tanks • 1 LNG mobile day tank (mobile storage and offloading system) • 2 skidded gas fired vaporizers
Siting	Utilize existing FEI owned parcel at Kelowna Gate Station and acquire additional crown land at Princeton Station.	Utilize existing FEI owned parcel at Kelowna Gate Station.	Utilize existing FEI owned parcel at Kelowna Gate Station.
Schedule	22 months	22 months	Phase 1: 24 months[30]

[30] The complete Project schedule is estimated to take approximately 34 months. Phase 1 estimated mechanical completion (and in-service date) is expected by October 2026 while Phase 2 (the fixed storage tank procurement) continues through to final completion. Refer to Section 5.6 for the proposed schedule and phased approach details.

	Alternative 4: CNG Trucking	Alternative 5: LNG Trucking	Alternative 6: Small Scale LNG Storage Facility
Project Costs, As-spent ($ millions)	40.870	24.950	37.492
Annual O&M Costs ($ millions)	0.438	0.723	0.673
PV of Incremental Revenue Requirement ($ millions)	57.402	36.040	50.969
Levelized Delivery Rate Impact (%) over 34 years	0.36%	0.23%	0.32%

4.5 *FEI EVALUATED THE FEASIBLE OPTIONS AND PERFORMED AN ALTERNATIVES ANALYSIS TO DETERMINE THE PREFERRED SOLUTION*

FEI applied a weighted-scoring methodology to evaluate the performance of the three feasible alternatives in relation to established evaluation criteria. The score for each alternative was assigned and validated by internal FEI subject matter experts based on their knowledge, and information provided by Jenmar. The following section further explains the criteria, weighting, scoring, and results developed through this process.

4.5.1 Evaluation Criteria

The following broad categories of criteria were used to evaluate the feasible alternatives:

- Community, Stakeholders, and Rightsholders
- Environmental
- Asset Management
- Technical
- Financial

The components of the evaluation methodology are described in the subsections below.

4.5.1.1 Community, Stakeholders and Rightsholders

The criteria considered as a subset of the Community, Stakeholders, and Rightsholders category consists of the following:

- **Land Rights Acquisition and Adjacent Infrastructure:** considers the complexity and risk associated with various land-related factors such as acquisition of temporary and/or permanent land rights, and restrictions put on land use across any property. Considers the potential impacts on adjacent (existing and planned) facilities and buried/above ground

utility infrastructure, and risk to longevity and safe operation of the gas line and facilities from adjacent infrastructure.

- **Indigenous Relations:** considers the impact during construction to known culturally sensitive areas at the Project site, the complexity and timeline risk regarding Indigenous community engagement, and the impacts to Indigenous community relationships during construction and during the life of the Project.

- **Socio-Economic:** considers the impact of the Project to the human environment during construction and during the life of the Project. Includes noise, local emissions, aesthetics, nuisance factors, the short- and long-term effects that may be observed by visitors, businesses, and community infrastructure (e.g., schools, hospitals, recreation facilities, etc.). Also considers the direct and indirect effects of the Project on traffic and commercial/residential access during construction and during the life of the Project. Includes impacts to roadways, intersections, and commercial and residential accesses.

- **Health and Safety:** considers the risks to the community, stakeholders, employees, and contractors during construction and during the life of the Project. Includes assessment of the construction zone environment, nature of the Project activities, and proximity to vulnerable entities.

4.5.1.2 Environmental

The criteria considered as a subset of the Environmental category consists of the following:

- **Ecology:** considers the impact during construction and during the life of the Project to the environment, including environmentally sensitive areas in and around the Project site. Includes factors such as permitting, management of waste and/or contamination, and impacts to the surrounding environment (e.g., vegetation, soil, watercourses).

- **Cultural Heritage:** considers the impact during construction and during the life of the Project to known archaeologically and culturally sensitive areas at the Project site. Includes factors such as permitting and ongoing relationships with parties interested in the archaeological potential of the affected site.

4.5.1.3 Asset Management

The criteria considered as a subset of the Asset Management category consists of the following:

- **Operation:** considers long-term impacts including those to employees and contractors to maintain the Project integrity and complete maintenance and repairs. Considers impacts to adjacent development and third-party land ownership, and lifecycle impacts (e.g., management of encroachments, annual rent payments).

- **System Reliability and Capacity:** considers the ability to maintain gas supply during unplanned disruptions within acceptable parameters. Considers longevity of gas supply beyond the design lifetime of the Project.

- **Natural Hazards:** considers the vulnerability during operation of the Project and built facilities to natural hazards, including seismic impacts, ground contamination, tree root encroachment, washout etc.

4.5.1.4 Technical

The criteria considered as a subset of the Technical category consists of the following:

- **Engineering:** considers the engineering and design effort and complexity to meet all statutory codes and regulations to result in the optimum system.

- **Constructability:** considers the existing above and below ground constraints in terms of construction activities, pipe-laying, productivity, requirement for non-standard higher risk construction techniques, construction footprint, fabrication, and procurement. Considers the ability and complexity to construct within existing land perimeter and footprint. Includes challenges regarding permits, setbacks, and required additional infrastructure.

- **System Interface:** considers the challenges with interconnecting the new assets and facilities into the existing gas system infrastructure.

- **Execution Certainty:** considers the impact of compounding risks associated with each of the criteria listed in the other various categories and criteria, and how they can combine to delay the Project such that it is unable to meet customer needs. For example, an alternative may satisfy many of the criteria noted above, but the compounding risk associated with the negotiation and consultation timelines may deem the alternative to be unreasonable and would therefore have a low execution certainty that the Project would be complete by winter of 2026/2027.

4.5.1.5 Financial

The Financial criterion considers the levelized delivery rate impact resulting from each alternative over a 34-year analysis period. The alternative which minimizes the delivery rate impact to FEI's customers will score the highest.

The 34-year analysis period is based on a 30-year post-Project analysis period from 2028 (when the assets of each alternative are estimated to have all entered FEI's rate base) plus four years from 2024 to 2027 when the Project is being constructed. The 30-year post-Project analysis period is selected based on the expected average service life of the CNG and LNG assets.

4.5.2 Evaluation Criteria Weighting and Scoring

Consistent with previous CPCN applications, FEI followed a structured evaluation process in determining the weighting and scoring for each of the alternatives. These processes are further discussed below.

4.5.2.1 Evaluation Criteria Weighting Process and Results

Weightings were developed through collaborative discussions and reviews with FEI's subject matter experts. The personnel considered how each alternative compared from the perspective of each of the criteria to determine the relative weighting. The results (shown in Table 4-5) consider the scopes and impacts of each of the three feasible alternatives and how they will support the Project objective and FEI's ongoing operation in the community.

Table 4-5: Evaluation Criteria Weighting

Evaluation Criteria - Category -	Weight (Overall)	Evaluation Criteria - Specific -	Weight (Overall)
Community, Stakeholders & Rightsholders	25%	Land Rights Acquisition & Adjacent Infrastructure	0%(1)
		Indigenous Relations	10%
		Socio-Economic	10%
		Health and Safety	5%
Environmental	10%	Ecology	5%
		Cultural Heritage	5%
Asset Management	30%	Operation	10%
		System Reliability & Capacity	20%
		Natural Hazards	0%(1)**Error! Bookmark not defined.**
Technical	25%	Engineering	0%(1)
		Constructability	10%
		System Interface	0%(1)
		Execution Certainty	15%
Financial	10%	Levelized Delivery Rate Impact	10%

Note to Table:

(1) When comparing the three feasible alternatives, four categories were deemed to have minor differences and/or all faced the same challenges. While they are important considerations, the results were that the same score was given to each, and therefore did not add value to determining the preferred solution. As such, their weighting was set to 0 percent for the purposes of this alternatives evaluation; they are not shown on the results table or referenced going forward.

4.5.2.2 Evaluation Criteria Scoring Process and Results

The criteria defined above were used to compare and score each alternative by a team of internal FEI subject matter experts in a workshop using a scale from 1 to 4, shown in Table 4-6 below.

Table 4-6: Alternative Evaluation Scoring Definitions

Score	Impact Evaluation
4	Low impact and risk → best choice
3	Moderate impact and risk → good choice
2	High negative impact and risk → poor choice
1	Very high negative impact and risk → worst choice

The results of the workshop are shown below in Table 4-7. Alternative 6 – Small Scale LNG Storage Facility is shown to be the preferred alternative, with the highest total weighted score at 3.50 out of 4 points. FEI explains the rationale for the scoring of each alternative in Section 4.5.3.

Table 4-7: Alternatives Analysis Results

Criteria		Weighting	CNG Trucking	LNG Trucking	Small Scale LNG Storage Facility
Community, Stakeholder & Rightsholder (25%)	Indigenous Relations	10%	3	4	3
	Socio-Economic	10%	1	2	3
	Health and Safety	5%	2	1	3
Environmental (10%)	Ecology	5%	2	3	4
	Cultural Heritage	5%	3	4	3
Asset Management (30%)	Operation	10%	1	2	3
	System Reliability & Capacity	20%	1	2	4
Technical (25%)	Constructability	10%	2	3	4
	Execution Certainty	15%	3	3	4
Financial (10%)	Cost	10%	2	4	3
Final Score with Weighting		**100%**	**1.90**	**2.75**	**3.50**

4.5.3 Scoring Rationale and Ranking

The following subsections provide the rationale for the scoring given to each alternative for each criterion.

4.5.3.1 Community, Stakeholders and Rightsholders

Project Criteria	ALT 4 Score	ALT 4 CNG Trucking Scoring Rationale	ALT 5 Score	ALT 5 LNG Trucking Scoring Rationale	ALT 6 Score	ALT 6 Small Scale LNG Storage Facility Scoring Rationale
Indigenous Relations	**3**	• Kelowna Gate is FortisBC owned. • Temporary equipment only; no known impacts to areas of Indigenous cultural significance or use, and no lasting change to sites. • Additional land around the Princeton loading facility is required, requiring Indigenous engagement and consultation.	**4**	• Kelowna Gate is FortisBC owned. • Temporary equipment only; no known impacts to areas of Indigenous cultural significance or use, and no lasting change to sites.	**3**	• Kelowna Gate is FortisBC owned. • No known impacts to areas of Indigenous cultural significance, but permanent changes to the facility. • BCER Facility Permit requires Indigenous consultation.
Socio-Economic	**1**	• Located in the City of Kelowna near residents, busy roads, community pathways etc. • Major equipment and trucks will be visible during construction and during the life of the Project. • Largest number of trucks running for the life of the Project. • Stations will be subject to heavy truck traffic during operation.	**2**	• Located in the City of Kelowna near residents, busy roads, community pathways etc. • Major equipment and trucks will be visible during construction and during the life of the Project. • Fewer trucks to and from facility compared to Alternative 4. • Stations will be subject to heavy truck traffic during operation.	**3**	• Located in the City of Kelowna near residents, busy roads, community pathways etc. • Major equipment and trucks will be visible during construction and during the life of the Project. • Subject to light traffic and noise from offload pumps and air compressor when filling tanks. • Minimal traffic during operation and during peak seasons (on site permanent storage allows for LNG deliveries to occur during the shoulder seasons).

Project Criteria	ALT 4 Score	ALT 4 CNG Trucking Scoring Rationale	ALT 5 Score	ALT 5 LNG Trucking Scoring Rationale	ALT 6 Score	ALT 6 Small Scale LNG Storage Facility Scoring Rationale
Health and Safety	**2**	• Transportation of dangerous goods during winter road conditions when increased probability of vehicle accidents. • Operator interface with the equipment during winter conditions. • Fewer kms driven per year compared to Alternative 5.	**1**	• Transportation of dangerous goods during winter road conditions when increased probability of vehicle accidents. • Operator interface with the equipment during winter conditions. • Highest kms driven per year compared to other trucking options.	**3**	• Transportation of dangerous goods during off season when risk is greatly reduced. • Operator interface with the equipment during winter conditions; regular snow removal may be required. • Fewest kms driven per year during cold weather conditions compared to other trucking options.

1

2 ***4.5.3.2 Environmental***

Project Criteria	ALT 4 Score	ALT 4 CNG Trucking Scoring Rationale	ALT 5 Score	ALT 5 LNG Trucking Scoring Rationale	ALT 6 Score	ALT 6 Small Scale LNG Storage Facility Scoring Rationale
Ecology	**2**	• Nearby creek close to Kelowna Gate Station. • Additional land and possible clearing required at Princeton Station.	**3**	• Nearby creek close to Kelowna Gate Station.	**4**	• Nearby creek close to Kelowna Gate Station; however, Alternative 6 includes a containment basin to collect any accidental liquid releases.
Cultural Heritage	**3**	• Little potential as no ground excavation or digging would occur at Kelowna Gate. • Possible impacts as the Princeton site needs to be extended and the gravel lot re-established.	**4**	• Little potential as no ground excavation or digging would occur at Kelowna Gate.	**3**	• Kelowna Gate requires site modifications and has the potential to disturb unknown archaeologically sensitive areas.

4.5.3.3 Asset Management

Project Criteria	ALT 4 Score	ALT 4 CNG Trucking Scoring Rationale	ALT 5 Score	ALT 5 LNG Trucking Scoring Rationale	ALT 6 Score	ALT 6 Small Scale LNG Storage Facility Scoring Rationale
Operation	**1**	• Utilization of the equipment is anticipated to be very low. Rigorous preventative maintenance is recommended, including regular exercising of equipment. • Limited availability of Compression and Control Technicians (CCTs) to operate the equipment during the cold season. • Equipment will be subject to road transport during winter that can cause increased equipment wear and tear. • Maintenance and operations are critical as CNG trucking occurs during peak demand times.	**2**	• Utilization of the equipment is anticipated to be very low. Rigorous preventative maintenance is recommended, including regular exercising of equipment. • Equipment will be subject to road transport during winter that can cause equipment wear and tear. • Maintenance and operations are critical as LNG trucking occurs during peak demand times.	**3**	• Utilization of the equipment is anticipated to be very low. Rigorous preventative maintenance is recommended to ensure operation when needed.
System Reliability and Capacity	**1**	• Reliance on vehicles and roadways during extreme cold weather events causes risk of supply not being available when needed, leading to a capacity shortfall.	**2**	• Reliance on vehicles and roadways during extreme cold weather events causes risk of supply not being available when needed, leading to a capacity shortfall. • Higher energy density of LNG makes this nominally better than CNG equivalent.	**4**	• Due to on-site storage, there is a high likelihood that energy will be available when needed when compared to trucking alternative.

4.5.3.4 Technical

Project Criteria	ALT 4 Score	ALT 4 CNG Trucking Scoring Rationale	ALT 5 Score	ALT 5 LNG Trucking Scoring Rationale	ALT 6 Score	ALT 6 Small Scale LNG Storage Facility Scoring Rationale
Constructability	**2**	• Proposed setbacks require approval of the jurisdiction having authority. If approval is not granted, alternate site may be required. • Potential risk that electrical supply at Princeton is inadequate for mobile compressors. • Potential permitting and timeline risks associated with neighboring properties in the area.	**3**	• Proposed setbacks require approval of the jurisdiction having authority. If approval is not granted, alternate site may be required.	**4**	• Typical BCER Facility Permit is required.
Execution Certainty	**3**	• Moderate Project execution uncertainty based on compounding of other criteria.	**3**	• Projects of smaller scale have been proven. Project of this scale has not been executed and therefore holds risk and uncertainty. • Moderate Project execution uncertainty based on compounding of other criteria.	**4**	• Potential risks due to long lead time equipment but mitigated by staging construction. • Least concern with scalability and reliability due to onsite storage. • Minor Project execution uncertainty.

4.5.3.5 Financial

Project Criteria	ALT 4 Score	ALT 4 CNG Trucking Scoring Rationale	ALT 5 Score	ALT 5 LNG Trucking Scoring Rationale	ALT 6 Score	ALT 6 Small Scale LNG Storage Facility Scoring Rationale
Financial	2	• Highest levelized rate impact over 34 years at 0.36%.	4	• Lowest levelized rate impact over 34 years at 0.23%.	3	• Levelized rate impact over 34 years is 0.32%.

4.5.4 Alternative 6 is the Preferred Alternative

FEI has determined that Alternative 6, Small Scale LNG Storage Facility, is the preferred solution as it best aligns with the primary objective of ensuring capacity requirements in the Okanagan region can be met by the winter of 2026/2027. Based on the evaluation criteria, Alternative 6 achieves a score of 3.50, compared to a score of 2.75 for Alternative 5 and a score of 1.90 for Alternative 4.

4.5.5 Additional Storage Tanks Can be Utilized to Reduce FEI's Reliance on Existing Short Term Temporary Mitigation Measures

Subsequent to Jenmar developing the Class 4 scope and financial analysis for the feasible alternatives and subsequent to FEI undertaking the evaluation scoring process of each feasible alternative, FEI determined that it would not be reasonable to rely on all of the existing short-term temporary mitigation measures through the winter of 2028/2029 for the reasons described in Section 3.4.2. FEI considers the risk of relying on the availability of all the short-term temporary mitigation measures through the winter of 2028/2029 to be too great, as doing so would leave FEI with no room for error and would leave FEI reliant on factors that are outside of the Company's control.

The current capacity shortfall (with all of the short-term mitigations implemented) is approximately 8 TJ/d; however, if the short-term mitigations are not relied upon, the capacity shortfall increases to 19 TJ/d. Therefore, FEI considered possible ways to offset the current short-term mitigation strategies and to increase the available capacity within the given time and footprint constraints. Ultimately, FEI determined that it could expand the scope of Alternative 6 to address approximately 14 TJ/d of the capacity shortfall, thus reducing the reliance on the short-term mitigation measures but not eliminating the reliance.

Due to the requirement to file this Application by July 31, 2024 and the need to have a project in place for the winter of 2026/2027, FEI requested Jenmar to provide a technical memo, provided as Appendix B-3 to the Application, which describes the additional equipment and cost to implement the expanded scope for the proposed Project. While FEI has not updated the other feasible alternatives under this expanded scope, the overall evaluation and selection of the preferred alternative would not change. Ultimately, each feasible alternative would require increased equipment and the cost of each alternative would increase commensurately. Therefore, overall, the scoring of each alternative relative to each other would remain the same, with Alternative 4 scoring the lowest and Alternative 6 scoring the highest (and thus Alternative 6 would continue to be the preferred solution).

While FEI is unable to provide exact scorings for each alternative under the expanded scope, FEI provides the following table which provides an approximate comparison of how each feasible alternative's scope and cost would change based on the expanded capacity requirement. The equipment and costs for Alternative 6 (the preferred alternative) are based on Jenmar's Technical Memo and form the proposed Project as further described in Sections 5 and 6.

Table 4-8: Original vs Expanded Scope Comparison for Feasible Alternatives

	Alternative 4: CNG Trucking	Alternative 5: LNG Trucking	Alternative 6: Small Scale LNG Storage Facility
Equipment required to meet demand in winter 2028/2029 with short term mitigations in place (Original)	• 10 CNG bulk transport trailers • 2 fixed or mobile CNG compressors • 2 fixed or mobile pressure reduction units	• 10 LNG bulk transport trailers • 2 LNG mobile day tanks (mobile storage and offloading system) • 2 mobile gas fired vaporizers	• 3 LNG bulk transport trailers • 3 LNG storage tanks • 1 LNG mobile day tank (mobile storage and offloading system) • 2 skidded gas fired vaporizers
Additional equipment required to reduce reliance on short term mitigations (Expanded)	• 10 CNG bulk transport trailers • 2 fixed or mobile CNG compressors • 1 fixed or mobile pressure reduction unit	• 10 LNG bulk transport trailers • 2 LNG mobile day tanks (mobile storage and offloading system) • 2 mobile gas fired vaporizers	• 3 LNG storage tanks
Original Truck deliveries per year (up to)	22	13	14
Expanded Truck deliveries per year (up to)	47 (incremental = 25)	27 (incremental = 14)	28 (incremental = 14)
Original Project Cost, As-spent ($ millions)	40.870	24.950	37.492
Expanded Project Cost, As-spent ($ millions)	80.774 (incremental = 39.904)	44.936 (incremental = 19.986)	50.389 (incremental = 12.897)
Original Project Annual O&M, 2024 ($ millions)	0.437	0.723	0.673
Expanded Project Annual O&M, 2024 ($ millions)	0.861 (incremental = 0.424)	1.411 (incremental = 0.688)	0.812 (incremental = 0.139)

The primary change in requirements for Alternative 6 under the expanded scope is that the number of permanent onsite LNG storage tanks increases from three to six tanks. There is no change to the number of bulk transport trailers, vaporizers, or the mobile day tank. Due to the available footprint on site, the storage tanks would be stacked (3 on the bottom and 3 on the top) on a custom steel structure. The additional storage tanks were scoped to not affect the feasibility, and are not expected to affect the execution timeline of the Project. The impact on the Project capital cost is an increase of $12.897 million, and the impact on the annual O&M costs is an increase of approximately $0.139 million.

4.6 *CONCLUSION*

FEI analyzed six alternatives to address the imminent capacity shortfall in the Okanagan region. Of these six alternatives, three were deemed infeasible, primarily due to an ability to meet the

Project objective of being in-service in time to address the capacity shortfall by the winter of 2026/2027.

The remaining three alternatives were assessed on a technical and financial basis using the results of Class 4 pre-FEED studies and cost estimates performed by Jenmar. FEI applied a weighted-scoring methodology and sensitivity analysis to evaluate the performance of each feasible alternative.

The alternative and sensitivity analysis results confirmed that the Small Scale LNG Storage Facility (Alternative 6) is the preferred solution for the OCMP. The Small Scale LNG Storage Facility received the highest (best) score in FEI's alternatives analysis. It also ranks the highest (best) in the Constructability and Execution Certainty categories of the analysis, meaning that given the timeline constraints to having adequate capacity in place for the winter of 2026/2027, it provides the most reliable and safe means to deliver gas to FEI's customers.

The Project description and details are further discussed in Section 5 of the Application.

5. PROJECT DESCRIPTION

5.1 *INTRODUCTION*

In this section, FEI describes the OCMP based on the preferred alternative. As set out in Section 4, the Small Scale LNG Storage Facility best meets the Project objective as it is the alternative that ensures customers' peak demand needs are met by the winter of 2026/2027. FEI describes the Project components, consisting of facility modifications and necessary mobile equipment, the Project development activities, schedule, resource requirements, construction management, required permits and approvals, and cost estimate.

This section is organized as follows:

- Section 5.2 explains why it is reasonable for FEI to file the Application with a Class 4 cost estimate;
- Section 5.3 provides an overview of the components of the Project;
- Section 5.4 describes FEI's site selection process which includes the evaluation criteria used by FEI to assess the feasible location options for the facility;
- Section 5.5 provides the basis of design and engineering, conducted in accordance with BCER regulations and industry standards;
- Sections 5.6 and 5.7 describe the Project schedule and construction management;
- Section 5.8 explains how FEI has identified key Project impacts and is taking a reasonable and appropriate approach to mitigate those impacts;
- Section 5.9 explains that FEI has identified the key permits and regulatory approvals that are required to construct the Project;
- Section 5.10 provides the basis of the cost estimate, and the processes undertaken to validate the estimate including risk assessment and contingency determination; and
- Section 5.11 concludes this section.

5.2 *PROCEEDING WITH CLASS 4 COST ESTIMATE IS REASONABLE*

FEI's cost estimate for the Project is based on an AACE Class 4 level of definition. FEI recognizes that the BCUC's CPCN Guidelines contemplate the inclusion of a cost estimate at an AACE Class 3 level of definition. However, due to the short timeframe between the issuance of the BCUC's Decision in December 2023 and the deadline to file this short-term mitigation plan, FEI has not prepared a Class 3 estimate. A Class 3 estimate requires additional time that the Project schedule cannot accommodate, as the Project needs to be in-service to meet the potential capacity shortfall in the Okanagan region by as soon as winter 2026/2027. Accordingly, FEI determined that it should proceed with the filing of this Application based on a Class 4 estimate for two primary reasons:

- **Need to Address Imminent Capacity Shortfall in the Okanagan.** As set out in Section 3 of the Application, the Project is needed to address the winter 2026/2027 capacity shortfall in the Okanagan. As the risk of gas shortages increases as 2026 approaches, FEI is concerned about any further delays to the Project in-service date. In these circumstances, it is prudent for FEI to take reasonable steps to complete the Project as soon as reasonably possible. In FEI's view, filing this Application with a Class 4 estimate is a reasonable step that is warranted given the reliability risk to customers of any further delay.

- **Ample Evidence on Which to Determine the Public Interest of the Project.** In the circumstances of this Project, FEI considers that there is ample evidence on which the BCUC can determine that the Project is in the public interest without a Class 3 cost estimate. As the BCUC found in its Decision, the Project need is clear[31] and, in any case, is not impacted by the lack of a Class 3 cost estimate. Regarding the alternatives analysis, consistent with the CPCN Guidelines, FEI completed Class 4 estimates for the feasible alternatives, and compared the capital costs, constructability, and feasibility of the Project being in service in time. Additionally, FEI notes that while it is seeking CPCN approval of this Project due to the forecast Project cost exceeding FEI's materiality threshold, the BCUC's directive in the Decision to file a short-term mitigation plan was not prescriptive regarding the form and content of the application. FEI interprets this as reflective of the Project need already having been established in the Decision, and thus the key focus of this Application is on the most appropriate Project alternative. As FEI has undertaken Class 4 cost estimates for all feasible alternatives, the lack of a Class 3 cost estimate for the preferred alternative will not hamper the BCUC's ability to assess the Project alternatives.

In summary, considering the need to complete the Project, the delays in undertaking a project to address the imminent capacity shortfall in the Okanagan region to date, and the additional time that it would take to complete a Class 3 estimate for the preferred alternative (approximately six additional months), FEI concluded that it was reasonable to file the Application with a Class 4 level estimate for the Project.

5.3 *OVERVIEW OF PROJECT COMPONENTS*

The Project includes the construction of a new small scale LNG storage and regasification facility in Kelowna, including permanent LNG storage, vaporization, and send-out equipment. LNG will be produced at FEI's existing Tilbury LNG plant, utilizing existing liquefaction equipment. The LNG will then be loaded onto bulk LNG tankers at the existing truck-loading facilities, and these LNG tankers will travel to the new facility in Kelowna prior to the winter heating season where the LNG will be offloaded into the storage tanks. When required, the LNG will then be vaporized, odorized, and injected into the local distribution system to meet the energy needs of customers.

[31] Decision and Order G-361-23, p. 25.

The Project scope includes the design, construction and commissioning of the following:

- LNG storage, vaporization, odorization and injection to the distribution system operating at 420 kPa at the Kelowna Gate Station; and
- LNG transport capability between FEI's LNG facilities and the Kelowna Gate Station.

As discussed in Section 4.5.5, FEI proposes to implement six permanent LNG storage tanks to reduce the risk of relying on the existing short-term temporary mitigation measures. In Section 5.5, FEI further describes the basis of design and engineering for the Project components.

While FEI has ultimately proposed to construct the small scale LNG storage facility at its existing Kelowna Gate Station, FEI undertook an extensive search and assessment process to select this location. This evaluation and site selection process is described below.

5.4 *SITE EVALUATION AND RECOMMENDATION FOR THE FACILITY*

FEI's site evaluation process for the Project considered industry practice, and specific consideration has been given to the recommendations of the Canadian Standards Association (CSA) Z276-22 *Liquified Natural Gas (LNG) – Production, Storage and Handling*, which is the standard specification for the design, construction, operation, and maintenance of Canadian LNG facilities.

FEI's facility location selection process involved identifying locations of interest and then narrowing the locations of interest down to feasible sites based on key objectives. FEI determined that the final site location must meet the following objectives:

- Safe (to construct and to operate);
- Provide sufficient peak demand capacity to the system in the event of a 1 in 20-year cold weather event by the winter of 2026/2027;
- Minimize the impacts to the community, stakeholders and Indigenous groups; and
- Minimize rate impacts to customers.

The subsections below outline the criteria and evaluation process FEI applied to assess the feasible options to determine the recommended site. More details on FEI's site selection are contained in the Site Selection Report, included as Appendix C to the Application.

5.4.1 Step One: Locations of Interest

FEI identified 21 potential sites for the initial screening process. These locations of interest were selected primarily based on the availability of sufficient land area for LNG equipment and proximity to existing natural gas infrastructure.

Various sites were eliminated based on the complexity and potential costs to the tie in locations. Sites that were a significant distance from the NPS 8 IP pipeline or required a complex crossing

would incur additional cost and schedule for activities such as land acquisition, environmental and regulatory approvals. After Step One, FEI screened the initial 21 potential sites down to seven sites.

5.4.2 Step Two: Feasible Site Options Determination and Evaluation

Of the seven remaining sites, only three met the technical criteria and could be acquired in a reasonable time, ensuring the Project timeline would not be compromised. These three sites were evaluated in detail as explained in the following subsections.

5.4.2.1 Evaluation Categories and Scoring

The five broad categories considered during the site options evaluation are listed and defined in Table 5-1.

Table 5-1: Site Evaluation Category Definitions

Category	Weighting	Definitions
Technical	15%	Considers the technical challenges and additional infrastructure necessary to interconnect the new facility into the existing gas system infrastructure.
		Considers the long-term operational impacts to safely maintain the facility and conduct operational activities.
		Considers the existing constraints in terms of construction activities, productivity, requirement for non-standard higher risk construction techniques, and construction footprint.
Community and Stakeholder Impacts	25%	Considers the cultural values, economic well-being, and daily life for Indigenous groups, local stakeholders, and citizens during construction and during the life of the facility.
		Considers the impact to the human environment including noise, local emissions, aesthetics, nuisance factor and the short and long-term visual effects that may be observed by residents, businesses, and visitors in the Project area.
Land Ownership, Permitting and Zoning	20%	Considers the complexity of acquisition and transfer of land ownership for Project use and its impact to Project schedule.
		Considers the regulatory requirements to permit the construction and operation of the facility and its impact on Project execution.
		Considers the existing and future plans for land use and development in the Project area.
Schedule and Project Execution	30%	Considers the impact on risk to schedule and project execution that meets other criteria.
Financial	10%	Considers the project costs that meet other criteria while considering the impacts to the rate base.

FEI considered Schedule and Project Execution as most important at 30 percent due to their potential for delaying the execution and commissioning of the facility to meet the forecast shortfall by the winter of 2026/2027. Community and Stakeholder Impacts was assigned the second highest weighting at 25 percent to minimize the impact to stakeholders during construction and ongoing operation of the facility. Land Ownership, Permitting and Zoning was assigned the third highest weighting at 20 percent due to the likely impact of this category on the Project objective. Technical and Financial made up the remainder of the weighting.

A five-point ranking score was used for scoring the site options. The scoring is outlined in Table 5-2.

Table 5-2: Site Evaluation Scoring

Score	Impact Evaluation
5	Very low (negligible) impact, best choice
4	Low impact, better choice
3	Moderate impact, good choice
2	High negative impact, poor choice
1	Very high negative (unacceptable) impact, unviable choice

5.4.2.2 Description of Feasible Sites

FEI describes the three feasible sites below.

5.4.2.2.1 KELOWNA GATE STATION

The Kelowna Gate Station is located at 1569 Spall Road in Kelowna, BC. The site is an FEI-owned parcel of land and is adjacent to a FortisBC Inc. (FBC) electric substation. The site location is shown in Figure 5-1. FEI currently uses the site for activities such as storage of emergency transmission pipe and repair materials. The site is located on a major trucking route and is in proximity to residences and commercial and retail businesses. The available area at this site is approximately 22,000 sq ft.

The initial location for the proposed tie-in was selected based on the hydraulic requirement and the availability of NPS 8 IP and NPS 16 DP tie-ins.

Figure 5-1: Kelowna Gate Station

5.4.2.2.2 980 STEVENS RD

This site is located on private land within the City of West Kelowna. It is located near a major trucking route and is in proximity to commercial businesses and a few residences. The available area at this site is approximately 85,000 sq ft. The site location is shown in Figure 5-2.

The location for the proposed tie-in was selected based on the hydraulic requirement and availability of an NPS 8 IP tie-in. The pipeline is adjacent to this land parcel and an above grade appurtenance would be required to be installed at this location.

Figure 5-2: 980 Stevens Road

5.4.2.2.3 INTERSECTION OF HIGHWAY 97 AND WESTLAKE ROAD

This site is Crown-owned by the Ministry of Transportation and Infrastructure within the City of West Kelowna. It is currently vacant, located off a major trucking route and is in proximity to commercial businesses, a church, an elementary school and a few residences. The available area at this site is approximately 58,000 sq ft. The site location is shown in Figure 5-3.

This location for the proposed tie-in was selected based on the hydraulic requirement and availability of an NPS 8 IP tie-in. The pipeline is adjacent to this land parcel and an above grade appurtenance would be required to be installed at this location.

Figure 5-3: Intersection of Highway 97 and Westlake Road

5.4.2.3 Feasible Site Evaluation

The three feasible options were analysed and reviewed against the evaluation categories to identify the preferred site. Details and commentary regarding the determination of scores (1-5) are available in the Site Selection Report in Appendix C. A summary of the final weighted scores is shown in Table 5-3 below.

Table 5-3: Site Evaluation Weighted Scoring Summary

Category	Weighting	Kelowna Gate (1569 Spall Rd)	980 Stevens Road	Intersection of Highway 97 & Westlake Road
Technical	15%	5	4	3
Community and Stakeholder	25%	4	3	2
Land Ownership, Permitting and Zoning	20%	4	3	2
Schedule and Execution	30%	3	3	2
Financial	10%	5	4	3
Weighted Total (out of 5)	**100%**	**3.95**	**3.25**	**2.25**

After a comprehensive desktop analysis of the evaluation categories, FEI selected the Kelowna Gate Station location. This site obtained the best score in every category during evaluation. It provides the highest likelihood of meeting the required schedule execution timeline, ensuring optimal operation and efficiency. The Kelowna Gate Station is also the least cost alternative (as the land is already FEI-owned) and received the highest technical score.

5.5 BASIS OF DESIGN AND ENGINEERING

In this section, FEI demonstrates how industry practice and external standards have been considered and incorporated into the Project design to ensure that the assets will operate safely and reliably.

5.5.1 Design Parameters

This section specifies the Project design parameters and requirements. Please refer to the Jenmar Report (Appendix B-1) and the Technical Memo (Appendix B-3) for the design parameters outlined in Table 5-4 below.

Table 5-4: Small Scale LNG Storage Facility Design Parameters

Parameter	Sizing	Units
Available Daily Send-out	19.2	mmscfd
Storage Tank Capacity (each tank)	50,000	US gal
# of Storage Tanks Installed	6	each
Max Useable Trailer Capacity	22,200	Sm3
Trailer Loading/Unloading Rate (max)	200	GPM
# of Vaporizers Required	2	each
# of Bulk Transport Trailers Required	3	each
Travel Distance (one way)	385	km
Total Round Trip Time(1)	17	hr

Note to Table:

(1) Includes trailer connection/disconnection time, pump/hose cooldown, driving time, trailer loading time, and trailer offloading time.

5.5.2 Standards and Specifications

The design, construction, and operation of FEI's natural gas lines and LNG facilities are in accordance with BCER regulations, CSA Z662 standards and CSA Z276 standards.

The OCMP will be developed in accordance with all applicable statutory codes and standards including FEI's internal standards.

LNG equipment will comply with the following codes and standards, as applicable:

- CSA B620 TC338 Highway Tanks and TC Portable Tanks for the Transportation of Dangerous Goods
- CSA Z276 LNG – Production, Storage, and Handling
- CSA B51 Boiler, Pressure Vessel, and Pressure Piping Code
- ASME B31.3 Process Piping
- ASME Boiler and Pressure Vessel Code Section VIII
- CSA C22.1 Canadian Electrical Code

5.5.3 Facility Design

5.5.3.1 Storage Equipment

As identified in Table 5-4, six horizontal 50,000 US gallon (190 m^3) ASME LNG storage tanks are required. A maximum allowable working pressure (MAWP) of 175 psig (1,200 kPag) will allow for higher operating pressures so gas send-out can be accomplished without delivery pumps. If tank holding time is exceeded, each tank will be equipped with a boil-off gas back pressure regulator to control the maximum tank operating pressure and feed boil-off gas directly into the DP pipeline.

The LNG offload system will comprise an offload manifold with hose booms, dual pump offload skid, and pump operator panel. The offload hoses will be supported via a boom system and will remain connected to the manifold when not in use.

The LNG tanker offload system will include two skid mounted offload pumps. The pump skid will be designed to allow cool down vapour to be sent to the LNG transport trailer or to the stationary storage tanks. The stationary tank pressure will be used to increase and maintain pressure in the tanker during transfer. LNG and vapour remaining in the piping after offloading will be returned to the LNG tanks.

5.5.3.2 Vaporization Equipment

Two identical indirect fired water bath vaporizers will be provided for vaporization of LNG. Each vaporizer is a shell (50/50 propylene glycol/water) and tube (LNG) heat exchanger. Two low NOx burners, one operating and one standby, will provide the required heat fueled by natural gas.

5.5.3.3 Odorization and Pressure Control Equipment

A regulating and metering skid installed downstream of the vaporizers will be equipped with dual-train main/monitor pressure regulators, overpressure protection, high/low temperature protection, and gas measurement for accurate metering and pressure control for injection into the DP pipeline.

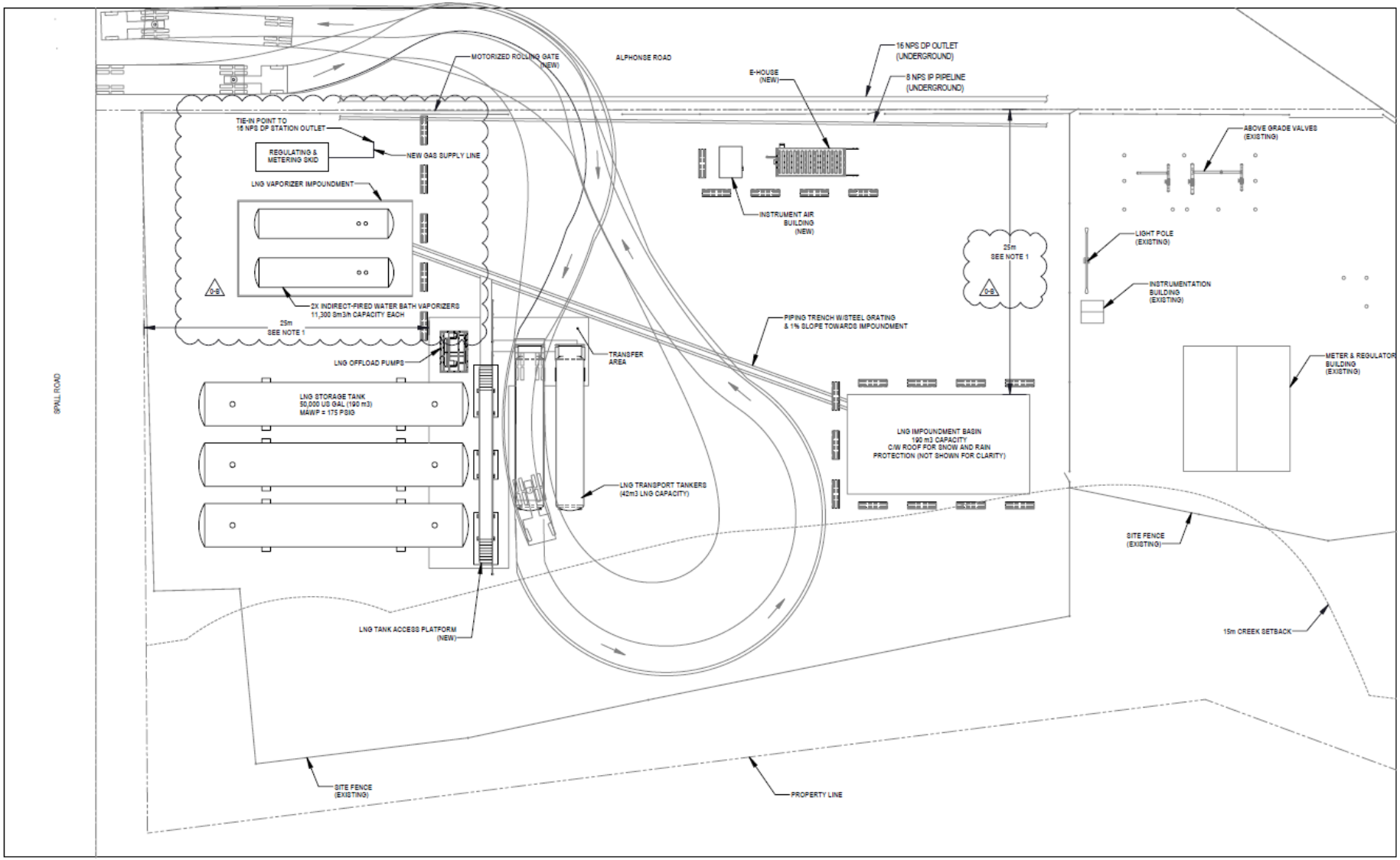
An odorizer system will be tied into the gas supply header downstream of the regulating and metering skid.

5.5.3.4 Facility Upgrades

5.5.3.4.1 SITING AND SETBACKS

All LNG tank connections and impounding areas will be set back at least 25 m to property lines and buildings in accordance with CSA Z276. In addition, there is a 15 m riparian setback to Mill Creek at the south end of the property and all equipment will be located outside this setback. Please refer to Figure 5-4 below for a preliminary site plan.

Figure 5-4: Preliminary Kelowna Gate Station Site Plan



5.5.3.4.2 CIVIL WORKS AND LNG IMPOUNDMENT

The west yard of the Kelowna Gate Station will be developed to accommodate the Project. The existing surface will be reconstructed with a gravel pad suitable for heavy truck traffic and the sub-grade excavated and prepared to support permanent foundations for the LNG tanks and vaporizers. Shallow concrete footings will be constructed to support all major equipment and piping. A tank support structure installed on a pile foundation is required to support the installation of six storage tanks within the available footprint at Kelowna Gate Station to maintain the required setbacks in CSA Z276. An access platform will be necessary to complete routine operational and maintenance activities.

An LNG impoundment basin sized for 100 percent of the largest LNG tank (190 m^3 capacity) will be located on the property. A structural steel shelter will be constructed to limit rainwater and snow accumulation in the basin. A concrete containment pad surrounding the vaporizers will be constructed, with separation for glycol and LNG, and a concrete drainage channel running between the vaporizer containment and LNG impoundment basin. The LNG offload area will also include a containment channel and concrete pad sloped to direct spilled LNG into the basin. This pad will extend around the piping connections at the east end of the storage tank modules to direct spilled LNG into the basin. Impoundment channels will be covered with steel grating suitable for heavy truck traffic.

5.5.3.4.3 MECHANICAL WORKS

Vacuum insulated stainless steel piping will be installed to deliver LNG between the offload pump skid, storage tank modules, and vaporizers.

Carbon steel gas piping between the vaporizers, regulating and metering skid will be installed above grade and tied into the existing buried NPS 16 DP line at the north edge of the property.

5.5.3.4.4 ELECTRICAL WORKS

A prefabricated, skid-mounted e-house will house the necessary electrical, communications and telemetry equipment to operate the facility. Back-up generation and energy storage will also be included.

5.5.3.4.5 FIRE PROTECTION, SAFETY AND SECURITY

A fire protection, safety, and security evaluation will be required in accordance with the requirements of CSA Z276. The site-specific evaluation will consider analysis of local conditions, public interfaces, sensitive environmental conditions, and response time of emergency personnel.

In addition to the fire protection, safety, and security systems, FEI anticipates that the following provisions will be required:

- Notification of operations to local fire department and FEI emergency response personnel; and

- 24/7 operations monitoring and security personnel.

5.5.3.4.6 UTILITIES

A new 600 VAC, 3-phase, 150 kVA electrical service will be required from FBC. A buried ground grid will be installed at the facility and all fixed equipment will be permanently bonded and grounded. LNG transport trailers will be bonded via static ground reels.

A skid mounted and enclosed instrument air system is required for actuation of valves on the storage tank modules, offload pump skid, vaporizer, and regulating and metering skid.

A water drain connection to the city storm sewer on Spall Road may be required for the impoundment depending on drainage ability of the soil on-site.

5.5.3.4.7 SITE ACCESS

Site access at the Kelowna Gate Station was reviewed based on existing site plans and Google maps. A traffic turning study was performed for the LNG transport trailers. The existing entrance to the facility will require widening and the addition of a motorized gate. LNG transport trailers will need to enter the graveled area of the riparian setback within the existing fence line to turn around. No changes are being proposed or considered for the site within the riparian setback; the area is currently fenced, graveled, and has occasional vehicle traffic.

5.5.3.5 Mobile Equipment

The requirements for mobile equipment were reviewed based on the transport of the two types of equipment trailers required for LNG trucking activities: bulk transport trailers and LNG mobile day tanks. A mobile storage and regasification tank is only transported during mobilization and de-mobilization at the start and end of the heating season, respectively. The bulk transport trailers are moved continuously during operations.

For the routes travelled by the Project equipment (Highways 1, 5, 97C, and 97), seasonal road load restrictions are not anticipated. Mobilization is planned to occur in advance of the anticipated cold-weather events to allow time for coordination. Only one mobilization and de-mobilization is required per year.

No restrictions related to the Transportation of Dangerous Goods (TDG) are anticipated along the OCMP trucking routes.

5.5.3.5.1 BULK LNG TRANSPORT TRAILERS

FEI has an existing fleet of bulk LNG transport trailers. It is preferred that the transport trailers match one of the existing manufacturers, specifically Applied Cryo Technologies (ACT), Alloy Custom Products, InoxCVA or Chart. FEI expects that a trailer size of 1,000 GJ will provide sufficient capacity for OCMP operations.

5.5.3.5.2 TEMPORARY LNG STORAGE

To support the Project's phased approach described in more detail in Section 5.6, a mobile storage and regasification tank will provide the necessary storage until the permanent storage equipment is procured and installed.

The capacity of the mobile storage and regasification tank must be at least that of the bulk LNG transport trailers to allow the transport trailers to fully offload to the mobile storage and regasification tank. A standard storage and regasification tank with a capacity of approximately 1,300 GJ, equipped with an on-board offload pump and a submerged delivery pump will be required to transfer LNG from the bulk LNG transport trailer to the mobile storage and regasification tank. As these trailers are designed as a supply trailer, they are too heavy to be transported fully filled with LNG and will be only partially filled when transported to site.

5.5.3.5.3 OFF-SEASON STORAGE

When not in use for OCMP or utilized for other operational purposes, the mobile LNG transport trailers will be parked at the Kelowna Gate Station. The trailers will be purged with nitrogen and an offseason preservation maintenance program will be performed prior to storage.

5.6 *PROJECT SCHEDULE*

The preliminary Project execution schedule is based on an in-service date for Phase 1 in Q3 2026. The schedule includes FEI undertaking a tendering process for engineering services while waiting for the BCUC's decision. The Project schedule is divided into two main phases (Phase 1 and Phase 2) as shown below.

Table 5-5: Project Schedule

Activity	Date
Engineering Consultant and Contract Negotiation	Jul 2024 – Sep 2024
Phase 1	
FEED – Front End Engineering Development	Oct 2024 – Mar 2025
Engineering Detailed Design	Feb 2025 – Nov 2025
Procure Long Lead Items - LNG Trailers/Mobile Day Tanks / Vaporizers (Phase 1)	Feb 2025 – Feb 2026
Procure Long Lead Items - LNG Storage Tanks (Phase 2)	Feb 2025 – Feb 2027
Contractor Tendering and Contract Negotiation	Aug 2025 – Jan 2026
Permitting	May 2025 – Oct 2025
Municipal, Indigenous & Stakeholder Engagement	June 2024 – Jun 2027
Site Preparation	Feb 2026 – Mar 2026
Construction	Mar 2026 – Jun 2026
Filling Tanks/Start-Up/Commissioning	Jun 2026 – Jul 2026

Activity	Date
Phase 2	
Contractor Tendering and Contract Negotiation	July 2026 – Dec 2026
Construction	Feb 2027 – Apr 2027
Filling Tanks/Start-Up/Commissioning	May 2027 – Jun 2027

5.6.1 Phased Approach

The estimated lead time for LNG storage tanks is approximately two years, making it infeasible to have the LNG tanks in service prior to the winter of 2026/2027. However, the full six-tank storage quantity is not required to meet the 2026/2027 capacity demands. As such, FEI divided the project into two phases.

Phase 1 entails system modifications and equipment procurement to transport LNG from the Tilbury LNG facility to inject it into the Kelowna Gate Station. This includes the entirety of the scope except installation of the six permanent LNG storage tanks. One mobile day tank and three bulk LNG transport trailers will be filled and connected to the system to meet storage requirements at the Kelowna Gate Station for the 2026/2027 heating season.

Phase 2 consists of installation of the six permanent LNG storage tanks when they arrive, ready for operation before the 2027/2028 heating season. The bulk LNG transport trailers will continue to be used to fill the permanent tanks annually, while the mobile day tank will enter the LNG fleet and be utilized as needed.

5.7 *CONSTRUCTION MANAGEMENT*

As discussed in the subsections below, FEI will maintain appropriate control and oversight throughout construction to ensure the work is completed in accordance with FEI's environmental, archaeological and safety requirements and to ensure that appropriate measures are taken for noise and traffic control during construction.

Reporting to the Project Manager, FEI will retain a qualified consultant to provide construction management and inspection services for the Project. The consultant will be responsible for overseeing the daily construction activities and providing/coordinating the inspection activities required for the Project.

5.7.1.1 Safety and Security

FEI will retain the services of a qualified safety inspection and monitoring firm to be present during the construction of the Project. Construction site safety and security will be maintained during the course of the Project, including working and non-working hours inclusive of weekends to ensure the contractor is adhering to the contractual requirements, WorkSafeBC legislation, and FEI

requirements. The contractor will be required to develop a comprehensive safety plan after it is awarded the construction contract.

5.7.1.2 Environmental Management

FEI will employ the services of a qualified environmental consulting firm to be the Owner's representative and auditor, and to be present during the construction of the Project, as needed. The environmental representative will be familiar with facility construction techniques and applicable guidelines and standards. The construction contractor will be required to retain a Qualified Environmental Professional (QEP) to provide planning and monitoring/inspection support. The environmental monitor will provide inspection of contractor environmental mitigation measures and respond to any environmental issues that may develop during construction.

The primary objective of environmental inspection is to determine compliance with pertinent environmental legislation, regulations, industry standards, and Project permit conditions, including any notification requirements or conditions set by the regulator.

5.7.1.3 Archaeological Management

FEI will retain a qualified archaeological consulting firm to conduct archaeological monitoring during all archaeologically sensitive aspects of the work program during construction. The archaeologist will monitor activities to identify any previously unrecorded archaeological features or artifacts. The primary objectives of archaeological monitoring are to determine compliance with pertinent archaeological legislation, regulations, industry standards, and Project permit conditions, including any notification requirements or conditions set by the regulator, and to mitigate potential impacts to archaeological resources.

5.7.1.4 Noise Control

The construction site is located close to populated areas. Noise monitoring and control will comply with local guidelines. Construction activities will be carried out in compliance with municipal bylaws with respect to noise and construction equipment usage. General noise control measures will be implemented during construction, including but not limited to:

- Scheduling certain construction activities during non-sensitive times, to limit disruption to sensitive receptors;
- Maintaining equipment prior to use and ensuring equipment is in good working order;
- Using noise abatement equipment including mufflers that are in good working order;
- Turning off equipment when not in use;
- Enclosing noisy equipment and using noise barriers, where warranted, to limit the transmission of noise beyond the construction site; and
- Advising municipalities and the community of construction periods.

5.7.1.5 Traffic Control

The only foreseeable traffic concern is accessing the Kelowna Gate Station with a tractor and trailer carrying the LNG tanks. In order to reduce the impact on the public, traffic management plans will be prepared in consultation with the local municipalities to assist in maintaining traffic flow. These plans will conform to municipal requirements for traffic management during construction.

5.8 *IDENTIFIED PROJECT IMPACTS*

5.8.1 Environmental Impacts Assessment

As the proposed Project location is within an urban area of Kelowna, on a previously disturbed property that is currently in use for utility/industrial activities, environmental impacts are anticipated to be minimal. Use of mitigation measures, both generic best management practices and site-specific measures, will support the reduction of potential environmental impacts to the Project site and surrounding area. Potential environmental and archaeological impacts are further discussed in Section 7 and in the Environmental Desktop Review (Appendix D) and Archaeological Review (Appendix E).

5.8.2 Socio-Economic Impacts Assessment

FEI reviewed the proposed Project location and identified adjacent communities, Indigenous land, small businesses, and other potentially interested groups. Short-term disruptions from the Project are expected to be temporary and generally minor. The current location has existed as an FEI storage site for a number of years with little to no concern from the surrounding businesses or residents. FEI does not anticipate long-term negative impacts as a result of the Project.

FEI plans to mitigate, manage and minimize potential short-term adverse effects and monitor Project impacts as construction proceeds. The mitigation measures will be based on industry best practices and applicable requirements of local regulations. To mitigate short-term adverse socio-economic impacts of Project construction, FEI will require the contractor to develop a Public Impact Mitigation Plan. Mitigation measures will include, for example, complying with municipal noise bylaws and limiting traffic access restrictions to businesses and residents during construction.

FEI will also work with Indigenous and local leaders and organizations to identify and mitigate issues, and to connect local workforce and businesses to Project opportunities. Throughout the Project, FEI will endeavor to track Project investment in local Indigenous communities, Project investment in municipalities/regional districts, local employment opportunities, and other community investment activities.

The Project is expected to result in an overall positive impact to residents and businesses through the creation of additional employment, the procurement of local materials, and the use of local services, such as lodging and dining.

5.9 *REQUIRED PERMITS AND APPROVALS*

5.9.1 Federal

The scope of work requires engagement with federal agencies to determine whether the proposed works will require permitting and/or authorizations based on the possible impact to surrounding watercourses, fish, and wildlife:

- The Department of Fisheries and Oceans (DFO) is responsible for permitting any Federally regulated waterbody where there is serious harm to fish and fish habitat.
- Environment and Climate Change Canada (ECCC) administers the *Species at Risk Act* (SARA*)* and is also responsible for any impacts to migratory birds through the *Migratory Birds Convention Act.*

FEI will engage the DFO (where applicable) and provide it with an overview of the Project, where impacts to fish habitat are anticipated. The construction contractor environmental monitor and their QEP will be responsible for obtaining applicable Fish and Wildlife permits. Where necessary, the QEP will obtain DFO Request for Review letters of advice through the DFO. The contractor, with support from the QEP, will be responsible for any emergency DFO Authorizations. Federal permitting requirements will be defined as part of a project Habitat Assessment completed during the detailed engineering phase of the Project.

5.9.2 Provincial

Provincial agencies play an important role in regulating works in British Columbia that may impact the environment:

- The BCER is a provincial agency whose mandate is to regulate energy resource activities in BC, including IP and TP natural gas pipelines operating above 700 kPa (101 psig).
- The Ministry of Forests (MOF) is responsible for the stewardship of provincial Crown land and natural resources, and for the protection of BC's archaeological and heritage resources. It maintains authority to administer general wildlife permits and some aspects of the *Heritage Conservation Act* (HCA), but others are administered by the BCER.
- The Ministry of Environment and Climate Change Strategy (MECCS) regulates work in brownfield environments through the *Environmental Management Act* (EMA) under which the *Contaminated Sites Regulation* (CSR) is administered.
- The Ministry of Transportation and Infrastructure (MoTI) governs transport infrastructure throughout BC and administers permits for works on highway ROWs.

5.9.2.1 British Columbia Energy Regulator

The Project will trigger a Facility Permit Application and a Technical Pipeline Permit Amendment Application.

The LNG storage tanks required for peak shaving trigger a new BCER Facility Permit application. The application will take up to three months to compile. The BCER may decide to refer the permit application to the Indigenous Nation consultation process at their discretion. Various safety studies and a geotechnical assessment for the site may also be required. Once the permit application is compiled and submitted, it may take the BCER between 3-6 months to review the application and arrive at an approval decision.

5.9.2.2 Ministry of Forests

5.9.2.2.1 ARCHAEOLOGY

Construction of the Project is expected to require an HCA Section 12.2 Inspection Permit to complete the archaeological assessment work. Section 12.4 Site Alteration Permits may be required in some cases if a previously unrecorded archaeological site is identified within the Project area.

5.9.2.2.2 WILDFIRE EXEMPTION

Under the *Wildfire Act* (Section 6), "a person who carries out a high-risk activity on or within 300 m of forest land or grass land on or after March 1 and before November 1, unless the area is snow covered, must determine the Fire Danger Class for the location of the activity". After three consecutive days of a High rating, high-risk activity by any business, contractor, facility, or their operations within the interface (within 10 metres of the interface) shall cease at 13:00 hours each day. FEI plans to complete Project construction before the start of the 2026 and 2027 wildfire seasons; however, as a contingency, the Company will include the OCMP in its yearly blanket Wildfire Exemption permit applications.

5.9.2.3 Ministry of Environment and Climate Change Strategy

FEI will continue its review of MECCS permit and authorization requirements under the CSR of the EMA for the Project.

5.9.2.4 Ministry of Transportation and Infrastructure Permits

MoTI governs transport infrastructure throughout BC and administers permits for works on highway ROW. Project work using or crossing roads in the Regional District of Central Okanagan (RDCO) is subject to approval through the BC *Transportation Act*, regulated by MoTI. FEI currently holds a blanket permit in the region for standard work activities. Review of MoTI permit and authorization requirements will continue during Project design.

5.9.3 Municipal

The municipal government identified for the Project scope is the City of Kelowna. FEI anticipates that municipal development and building permits will be required from the City of Kelowna for the installation of permanent equipment foundations and site grading and drainage. The Project area falls within two Development Permit Areas (DPAs) for the City of Kelowna – a Natural Hazard

DPA for the Mill Creek floodplain and a Natural Environment DPA for the riparian area surrounding Mill Creek.

The regional district identified for the Project scope is the RDCO.

5.9.4 Safety and Construction Permits

The Project will result in construction activities in proximity to existing adjacent utilities. Prior to ground disturbance and construction, the contractor or consultant conducting the work must obtain all applicable safety permits. These may include WorkSafeBC and BC One Call for confirmation of other utilities and requirements within the area of work.

5.9.5 Technical Safety BC

Construction installation permits will be required for Technical Safety BC (TSBC) for the Project facility. Review of TSBC permit and authorization requirements will continue during Project design.

5.10 *PROJECT COST ESTIMATE AND RISK ANALYSIS*

5.10.1 Base Cost Estimate

FEI, in conjunction with Jenmar, developed the Project base cost estimate using AACE International Recommended Practice No. 18R-97 as a guide. The AACE Class 4 cost estimate is based on quantities developed from designs and material take-offs completed by Jenmar. Jenmar then used these quantities as the basis to develop the direct and indirect costs.

The Jenmar estimate includes:

- Equipment, facility, and tie-in construction costs;
- Construction sub-contracts; and
- Engineering services.

FEI completed the following portion of the Project's base cost estimate:

- Owner's costs:
    - Project management and engineering;
    - Land acquisition;
    - Permits and approvals;
    - Legal fees;
    - Procurement;

- Consultation; and
- Environmental and archaeological supports.

- Inspection services and additional construction costs associated with alternating current (AC) mitigation and cathodic protection.

FEI's portion of the base cost estimate is provided in Confidential Appendix F-2.

The total base Project cost estimate includes the sum of Jenmar's estimate and FEI's portion of the base estimate and is estimated to be $33.328 million in 2024 dollars. The base cost estimate excludes GST and PST on materials. FEI, as a GST registrant, is entitled to recover the GST it pays on its taxable purchases. As such, the tax does not represent a net cost to FEI. FEI provides the summary of the total Project cost estimate in Table 6-1 in Section 6 of the Application

5.10.2 Basis of Estimate

Jenmar's Basis of Estimate is provided in Confidential Appendix B-1. This document details the following:

- Engineering, procurement & execution strategy;
- Estimating methodology;
- Capital cost basis;
- Maintenance cost basis;
- Operating cost basis;
- Long lead items identified; and
- Assumptions and exclusions.

The OCMP base cost estimates are outlined in Confidential Appendices B-3. These documents present the following details with respect to the estimated scope, procurement, construction and engineering assumptions:

- Direct and indirect costs;
- Estimate pricing;
- Unit price items, engineering, fabrication, and materials costs;
- Construction:
  - Detailed construction assumptions;
  - Mobilization and demobilization (equipment);
  - Maintenance and services;
  - Key sub-contracts;

- Construction civil/structural – Kelowna Gate;
- Construction mechanical/stations; and
- Construction electrical/instrumentations.

- Design assumptions:
  - Third party engineering costs for a FEED study;
  - Third party engineering costs for detailed civil, electrical, and mechanical design are based on 8 percent of materials and construction costs (single quantity for major equipment); and
  - Third party geotechnical engineering costs are based on typical costs for shallow foundations and gravel driving surfaces.

5.10.3 Cost Estimate Validation

Cost estimate quality assurance and validation were completed as follows:

- Reviews that included Jenmar's internal peer reviews, document quality checks, and independent reviews; and
- Validation reviews involving FEI team members throughout the estimate development process to confirm that the estimate assumptions were valid.

Any material discrepancies or risks identified during the cost validation process were considered during the risk analysis.

5.10.4 Risk Analysis and Contingency Determination

FEI first developed and estimated the costs associated with installing three tanks, including the Risk Analysis and Contingency described below. The results were then reviewed, and the applicable contingency as a percentage of the base estimate was applied to the expanded six tank base estimate to get the total Project cost. Consistent with the discussion in Section 5.2 and given the current level of development for the Project, FEI considers the ranges developed as percentages of the base estimate through this process on the three tanks to be a reasonable representation of the expected outcomes for the six-tank solution.

FEI conducted a qualitative risk analysis to identify all risks associated with the Project. Multiple workshops informed the development of a risk register for the Project to identify risks that could likely occur. FEI retained Validation Estimating LLC, USA (Validation Estimating), a company that provides services in estimate validation, risk analysis and contingency estimation. Validation Estimating completed an escalation estimate and a quantitative analysis for the three-tank solution using an integrated parametric and expected value methodology based on AACE 42R.

FEI will hold contingency[32] and escalation funds in addition to the Project base cost estimate as outlined in Section 5.10.1 to address foreseeable risks. The following subsections outline the methodology used to understand the risks inherent with the Project and the funding required to address the risks.

5.10.4.1 Risk Identification Planning

The risk identification and qualitative analysis conducted by FEI was completed using the AACE International Recommended Practice 62R-11: Risk Assessment: Identification and Qualitative Analysis (AACE 62R-11, Revision May 11, 2012) as a guide. First, FEI identified risks through a series of collaborative risk workshop discussions. Next, FEI developed the risk response actions and the risk likelihood and consequence scales. The risk likelihood and consequence scales used for the Project are based on the 5 by 5 risk assessment matrix recommended in AACE 62R-11 which is illustrated in Figure 5-5.

Figure 5-5: 5 by 5 Risk Assessment Matrix

	Risk Impact Category (Cost, Schedule, Performance/Quality/Scope)				
	IMPACT				
Likelihood (Probability)	Very Low	Low	Medium	High	Very High
Very High (>50%)	Moderate	Moderate	Major	Major	Major
High (5 - 50%)	Minor	Moderate	Major	Major	Major
Medium (1-5%)	Minor	Moderate	Moderate	Major	Major
Low (0.1-1.0%)	Minor	Minor	Moderate	Moderate	Moderate
Very Low <0.1%	Minor	Minor	Minor	Minor	Moderate

5.10.4.2 Risk Register, Qualitative Assessment and Action Plan

The risk identification process identified a number of risks which were tabulated in the risk register included in Confidential Appendix G. The risk response actions to deal with the identified risks were also recorded in the risk register. Once the risks were identified, a qualitative analysis was completed to prioritize or rank the risks so that the Project team could focus on risk response actions and recommendations. Through this qualitative process, a likelihood and consequence rating was assigned to each identified risk using the risk assessment matrix shown above in Figure 5-5.

[32] Contingency is defined in AACE International Recommended Practices 10S-90: Cost Engineering Terminology as: An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, and/or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience." Contingency by AACE definition is expected to be spent.

5.10.4.3 Quantitative Risk Analysis – Contingency and Management Reserve

Following the completion of the Risk Report, Validation Estimating completed a quantitative analysis to evaluate the impact of Project-specific risks and systemic risks. A Monte Carlo simulation was completed by Validation Estimating to determine a distribution of possible cost outcomes associated with the existing scope of the Project at different levels of confidence. The analysis was conducted using the three-tank Project cost estimate and derived a risk-adjusted contingency required for a P50 confidence level of 18 percent of the base estimate. For a P70 confidence level, the contingency required was 32 percent of the base estimate. Please refer to Confidential Appendix H for further details on Validation Estimating's contingency methodology and results.

Contingency is typically expected to be spent and is used as an allocation for risks that are known and likely to be encountered during Project execution. Contingency is normally funded at the P50 confidence level, however given the current level of definition of the Project, FEI will fund Project contingency at the P70 confidence level. This equates to 32 percent of the base estimate, or $10.665 million.

For this Project, Validation Estimating reported that no specific management reserve is required to cover high impact/low probability (HILP) risks because there are no risks with impacts that overwhelm the cost and schedule contingency allotments. As such, no specific management reserve is proposed.

5.10.4.4 Escalation Risk

Validation Estimating conducted a cost escalation estimate for the Project. Escalation per AACE is "a provision in costs or prices for uncertain changes in technical, economic, and market conditions over time. Inflation (or deflation) is a component of escalation." The base estimate was developed using 2024 pricing data and conditions and does not inherently account for escalation. Price increases/decreases beyond 2024, including contingency, must be covered by the escalation estimate.

The AACE "by-period" method was applied to develop the cost escalation estimate. This method uses price indices by cost account applied to the annual cash flow by cost account. The base indices are forecasts provided by the economic consulting firm S&P Global. These indices are used to develop weighted indices that match the cost types (pipeline material, construction labour, etc.). The indices are further adjusted for forecast global and regional capital spending market conditions (i.e., adjusts for bid mark-up behaviour as well as productivity trends in hot or cold markets).

The S&P Global Q1 2024 forecast reflects relatively low overall cost escalation following significant increases in 2021/22. Alloy piping steel prices are forecast to decrease in 2024/25. There is likely more upside escalation risk than down given this relatively soft economy forecast basis.

The probabilistic analysis, which takes into account the historical standard deviation in price changes from the mean, results in a range from the P10 of -3.2 percent to the P90 of 13.7 percent. Please refer to Confidential Appendix I for further details on Validation Estimating's escalation methodology and results.

FEI will fund escalation at the P50 level of confidence, or 4.2 percent of the base cost estimate. This equates to $1.848 million.

5.11 *CONCLUSION*

In this section, FEI described the Project in detail, including information on the Project components, route selection process, basis of design and engineering, schedule and resource requirements, impacts, and permitting and approval requirements. FEI has provided the basis of Project cost estimate and has appropriately completed a cost validation and risk assessment. FEI's planned risk mitigation activities are in place to mitigate the overall cost and schedule risk of the Project.

6. PROJECT COST ESTIMATE

6.1 *INTRODUCTION*

The total cost estimate for the Project is $50.389 million in as-spent dollars. This section provides a breakdown of the total Project cost and summarizes the financial analysis, the accounting treatment of the Project capital costs, and the delivery rate impact of the Project.

Additionally, as part of the Decision, the BCUC stated that the pre-construction development costs for the original OCU CPCN project could not be capitalized as part of the original OCU CPCN project, and accordingly should be deferred in a non-rate base deferral account. The BCUC directed FEI to file, within six months of the Decision, a compliance filing setting out FEI's proposed accounting treatment for the pre-construction development costs.[33] FEI provides this information in Section 6.4.3.2.

6.2 *SUMMARY OF PROJECT COSTS*

Table 6-1 below summarizes the total estimated Project costs, including the LNG trailers and storage tanks, construction costs, project development, project management and owner's costs, regulatory application costs, contingency, and financing costs, in both 2024 and as-spent dollars. FEI notes that the recovery of the prior OCU CPCN development costs is discussed separately in Section 6.4.3.2 below and is therefore not included as part of the Project costs shown in Table 6-1.

[33] By letter dated May 22, 2024, the BCUC granted FEI's request to extend the filing deadline to July 31, 2024 so that FEI could include the proposed accounting treatment and request for recovery of the pre-construction development costs as part of the short-term mitigation plan (i.e., as part of this Application).

Table 6-1: Breakdown of the Project Cost Estimate ($ millions)

Line	Particular	2024 $	As-Spent $	Reference
1	LNG Trailers Construction Costs	3.428	3.601	Sections 5.5.3.5 and 5.10.1
2	LNG Storage Tanks Construction Costs	10.073	10.432	Sections 5.5.3.1 and 5.10.1
3	Send-out Equipment - 1st phase Construction Costs	1.673	1.758	Sections 5.5.3.2, 5.5.3.3, and 5.10.1
4	Send-out Equipment - 2nd phase Construction Costs	8.800	9.107	Sections 5.5.3.2, 5.5.3.3, and 5.10.1
5	DP Measuring and Regulating Stations Construction Costs	0.063	0.066	Sections 5.5.3.4 and 5.10.1
6	Land Costs	2.167	2.240	Section 5.4.2.3 and 5.10.1
7	Project Management and Owner's Costs	7.125	7.525	Section 5.10.1
8	**Subtotal Project Capital Cost**	**33.328**	**34.728**	**Sum of Line 1 to 7; also see Section 5.9**
9	Contingency	10.665	11.113	Section 5.10.4.3
10	**Subtotal w/ Contingency**	**43.993**	**45.841**	**Sum of Line 8 to 9**
11	Pre-Construction Development Costs	0.154	0.154	Section 6.4.3
12	Preliminary Stage Development Costs (Deferral)	0.815	0.815	Section 6.4.3
13	CPCN Application Costs (Deferral)	0.250	0.250	Section 6.4.3
14	**Subtotal w/ Development and Deferral Cost**	**45.212**	**47.060**	**Sum of Line 10 to 13**
15	AFUDC		3.658	
16	Income Tax Recovery (Deferral Cost)		(0.329)	
17	**Total Project Cost**	**45.212**	**50.389**	**Sum of Line 14 to 16**

The Project cost estimate, reflected in the table above, is based on the following:

- A base capital cost estimate of $33.328 million in 2024 dollars, which was developed by FEI in conjunction with Jenmar. As discussed in Section 5.10.1, the base capital cost estimate was developed to the AACE Class 4 level in accordance with the International Recommended Practices. Please also refer to Confidential Appendix B-3 for details.

- A total contingency estimate of $10.665 million in 2024 dollars (approximately 32 percent of the base capital cost estimate of $33.328 million in 2024 dollars), resulting in a total capital budget at a P70 confidence level.

- A P50 escalation value of $1.848 million during the Project from 2024 to 2027[34], as discussed in Section 5.10.4.4 of the Application, applies to both the base capital cost estimate and contingency ($1.400 million of escalation corresponds to the base capital cost estimate and $0.448 million of escalation corresponds to contingency). The escalation is used to convert the Project capital cost from 2024 dollars to as-spent dollars.

- An estimate of $0.250 million for the preparation and regulatory review of the Application, as further discussed in Section 6.4.3.1.

- A total of $0.154 million of forecast capitalized pre-construction development costs in 2024 and a total of $0.815 million projected deferred preliminary stage development costs in 2024, as further discussed in Section 6.4.3.1.

[34] No escalation applied on actual costs incurred by FEI prior to Q4 2024.

- AFUDC, calculated using FEI's 2024 approved AFUDC rate of 6.24 percent[35], which is equal to FEI's after-tax weighted average cost of capital, and added to the total Project cost.

6.3 *FINANCIAL ANALYSIS*

Table 6-2 below summarizes the financial analysis which FEI completed for the Project. FEI evaluated the Project based on the PV of the incremental revenue requirement and the levelized delivery rate impact to FEI's non-bypass customers over a 34-year analysis period. The 34-year analysis period is based on an estimated four-year construction period (from 2024 to 2027) plus a 30-year post-Project period commencing in 2028 (with all assets forecast to enter rate base in 2028). The 30-year post-Project analysis period is based on the expected service life of the LNG equipment recommended by Jenmar, as discussed further in Section 6.4.1.

The financial analysis includes the incremental impact to FEI's revenue requirement (as reflected on Line 8 of Table 6-2) due to the total Project cost estimate of $50.389 million (as discussed in Section 6.2 above and reflected on Line 3 of Table 6-2 below) as well as future incremental O&M costs, property tax, and sustainment capital costs due to the Project over a 34-year analysis period, all of which are discussed further below. The financial analysis also includes the recovery of the prior OCU CPCN development costs from 2018 to 2023 (as reflected on Line 4 of Table 6-2) with further discussion and justification provided in Section 6.4.3.2. For further details on the financial evaluation of the Project, please refer to the financial schedules included in Confidential Appendix J.

The PV of the incremental revenue requirement of the Project as well as the recovery of the prior OCU CPCN development costs is approximately $98.050 million, and the levelized rate impact is 0.61 percent over the 34-year analysis period. Excluding the prior OCU CPCN development costs, the PV of incremental revenue requirement of the Project is approximately $70.005 million and the levelized rate impact is 0.44 percent over the 34-year analysis period.

[35] As approved by Decision and Order G-334-23 (FEI Annual Review for 2024 Delivery Rates Decision). Actual AFUDC will be calculated based on the approved AFUDC rate at the time of construction.

Table 6-2: Financial Analysis of the Project

Line	Particular	TOTAL	Reference (Confidential Appendix J, Financial Schedule)
1	Total Charged to Gas Plant in Service ($ millions)	49.627	Schedule 6, Sum of Line 21 (2024-2027)
2	Total Deferral Costs, Net of Tax	0.761	Schedule 9, Line 8 (2024) - Line 4
3	***Total Project Costs ($ millions)***	***50.389***	***Line 1 + Line 2***
4	Prior CPCN Development Costs (2018-2023)	22.153	Schedule 9, Line 8 (2024) + AFUDC
5	***Total Project Cost - incl. Prior Development Costs ($ millions)***	***72.541***	***Line 3 + Line 4***
6			
7	Incremental Rate Base in 2028 ($ millions)	51.786	Schedule 5, Line 19 (2028)
8	Incremental Revenue Requirement in 2028 ($ millions)	15.392	Schedule 1, Line 11 (2028)
9	***PV of Incremental Revenue Requirement 34 years ($ millions)***	***98.050***	***Schedule 10, Line 25***
10	Net Cash Flow NPV 34 years ($ millions)	(1.610)	Schedule 11, Line 17
11			
12	Delivery Rate Impact in 2028 (%)	1.35%	Schedule 10, Line 28 (2028)
13	***Levelized Delivery Rate Impact 34 years (%)***	***0.61%***	***Schedule 10, Line 32***
14	Levelized Delivery Rate Impact 34 years ($/GJ)	0.035	Schedule 10, Line 38

The financial evaluation of the Project includes the following assumptions:

- **Project Capital:** Total capital cost estimate of $49.627 million in as-spent dollars, which includes the base capital cost estimate, capitalized pre-construction development costs, contingency, and escalation as discussed in Section 6.2 above.

- **Project Deferral Costs:** Total Project deferral costs of $0.761 million, net of tax and AFUDC, in as-spent dollars, which includes $0.185 million of Application costs ($0.250 million excluding tax offset and AFUDC) and $0.576 million of preliminary stage development costs ($0.815 million excluding tax offset, AFUDC, and capitalized pre-construction costs) related to the Project. Refer to Section 6.4.3 below for further details.

- **Prior OCU CPCN Development Costs**: The financial analysis and levelized rate impact over the 34-year period includes the recovery of $22.153 million related to the pre-construction development costs pertaining to the original OCU CPCN project. Refer to Section 6.4.3.2 for further details.

- **Incremental O&M:** FEI estimates annual operating costs of approximately $0.319 million (in 2024 dollars), which includes transporting the LNG trailers from FEI's Tilbury LNG facility to the Kelowna Gate Station, the property lease for off-season trailer storage, and incremental electricity and fuel consumption for the new LNG facility. FEI also estimates fixed annual maintenance costs of approximately $0.494 million (in 2024 dollars) for the new LNG trailers as well as the new LNG facility over the 30-year post-Project analysis period. The incremental O&M is provided in Confidential Appendix J, Schedule 2.

- **Incremental Property Tax:** FEI estimates the new LNG facility at the Kelowna Gate Station will result in incremental property taxes of approximately $0.500 million in 2024 dollars. The incremental property tax is shown in Confidential Appendix J, Schedule 2.

- **Future Replacement Capital:** The financial analysis over the 34-year period includes proxies for future replacement costs of the LNG trailers and the vaporization (i.e., send-

out) equipment in year 2056 (i.e., 30 years from year 2026 when the LNG trailers and Phase 1 of the vaporization equipment are expected to be in-service). The proxies of future replacement capital costs are provided in Confidential Appendix J, Schedule 6 (year 2056).

- **Inflation:** From 2028 onward, annual inflation of 2 percent is applied to the incremental O&M, property tax and future sustainment capital costs during the post-Project analysis period, which is in line with the Bank of Canada inflation target of 2 percent.

6.4 *ACCOUNTING TREATMENT*

In the subsections below, FEI describes the proposed depreciation and net salvage rate for the new LNG equipment, including the new LNG trailers and storage tanks related to the Project, the treatment of the Project capital costs, the Application and preliminary stage development costs related to the Project, as well as the proposed recovery of the prior pre-construction development costs related to the original OCU CPCN project recorded in the existing OCU Preliminary Stage Development Costs deferral account since 2018.

6.4.1 LNG Asset Depreciation and Net Salvage Rate

Pursuant to sections 59 to 61 of the UCA, FEI is seeking approval for a depreciation rate of 3.33 percent and a net salvage rate of 0.5 percent applicable to the new small-scale LNG tank and vaporization (i.e., send-out) equipment as well as LNG transport trailers related to the Project. This is because, under pool asset accounting, FEI does not have existing asset classes that are of a similar enough nature or category as the new small-scale LNG assets proposed as part of this Project.

The proposed depreciation rate is based on FEI's consultation with Jenmar, who recommended an average service life for the fixed LNG equipment of 30 years before a full overhaul or replacement is required. This is consistent with the manufacturers' specifications and Jenmar's experience with LNG facilities of similar sizes to this Project. Additionally, Jenmar considers 30 years to be appropriate for the LNG transport trailers because the trailers are not expected to require re-certification within the first 30 years of purchase if routine inspections are performed. For the net salvage rate, FEI assumed 15 percent of the capitalized value of the LNG equipment over 30 years (i.e., 0.15 / 30 years x 100 = 0.5 percent) which is determined based on the estimated cost to remove the LNG assets installed at the end of the expected service life of 30 years.

The closest asset classes FEI currently has are related to the Tilbury and Mt. Hayes LNG facilities; however, the storage and vaporizer capacity of these existing LNG facilities are much larger (i.e., LNG storage tank: 0.6 Bcf for the Tilbury Base Plant, 1 Bcf for the Tilbury 1A Plant, and 1.5 Bcf for the Mt. Hayes Plant; and LNG vaporization: 150 mmscfd for the Tilbury Base Plant and Mt. Hayes Plant). For comparison, the proposed LNG storage capacity at the Kelowna Gate Station is a total of six, 50,000 US gallon tanks, which is equivalent to approximately 0.000006 Bcf per

tank and the proposed LNG vaporization capacity is approximately 9.6 mmscfd per unit, and 19.2 mmscfd for two.

The approved depreciation rates for the LNG storage at Tilbury and Mt. Hayes are 1.23 percent and 1.65 percent (or equivalent to 81 years and 60 years), respectively, and the approved depreciation rate for the LNG vaporization (i.e., send-out) equipment is 2.41 percent (or equivalent to 41 years) for both Tilbury and Mt. Hayes. Given the significant difference in terms of scale as well as the expected service life between FEI's existing LNG facilities at Tilbury or Mt. Hayes and the proposed LNG facility at the Kelowna Gate Station, FEI does not consider it appropriate to group the LNG assets related to the Project with the existing asset classes for Tilbury or Mt. Hayes. FEI also determined that it would not be appropriate to use the existing asset classes for its natural gas for transportation (NGT) business as these asset classes are intended for CNG or LNG vehicle fuelling stations. The scale and the use of the LNG assets (e.g., frequency of fuelling vehicles versus vaporizing LNG into FEI's transmission and distribution system) are significantly different, thus the assets should not be grouped together in the same classes.

FEI therefore proposes to depreciate the new LNG equipment at a rate of 3.33 percent with a net salvage rate of 0.5 percent, as these rates are aligned with the expected average service life of the assets based on information provided by Jenmar. FEI notes the proposed depreciation and net salvage rates are only for the new LNG trailers, LNG storage tanks, and send-out equipment. The depreciation and net salvage rates for the DP Measuring and Regulating Stations will continue to be based on the approved rates at the time they are included in rate base. The currently approved depreciation and net salvage rates for the DP Measuring and Regulating Stations in asset class 47710 are 2.51 percent (40 years) and 0.45 percent, respectively.

6.4.2 Treatment of Capital Costs

Consistent with FEI's treatment of major project capital costs, including CPCNs:

- As the capital costs of the Project (i.e., $49.627 million as set out in Line 1 of Table 6-2 above) are incurred, they will be recorded in construction work-in-progress, attracting AFUDC;

- Once the assets are placed into service (estimated in multiple phases in 2025, 2026, and 2027), the associated capital costs will enter rate base as part of the opening balance in the appropriate plant asset accounts, for inclusion in FEI's rate base on January 1 of the following year (i.e., January 1 of 2026, 2027, and 2028). The amounts and timing of the transfers to rate base on January 1 of 2026, 2027, and 2028 are shown in the opening balance of FEI's Gross Plant in Service in Schedule 7 of Confidential Appendix J; and

- Depreciation of the assets will begin on January 1 of the year that they enter FEI's rate base (i.e., January 1 of 2026, 2027, and 2028).

6.4.3 OCU/OCMP Deferral Costs

FEI is seeking BCUC approval under sections 59 to 61 of the UCA for deferral treatment of the Application and preliminary stage development costs related to the Project. FEI proposes to record these costs in the existing non-rate base OCU Preliminary Stage Development Costs deferral account, attracting a WACC return. As directed by the BCUC in the Decision[36], the existing non-rate base OCU Preliminary Stage Development Costs deferral account currently contains the actual pre-construction development costs from 2018 to 2023 related to the original OCU CPCN project. FEI is also seeking BCUC approval to recover these prior OCU CPCN development costs as part of this Application, as explained further in Section 6.4.3.2.

Table 6-3 below provides the breakdown of the deferral costs, including the Application costs and the preliminary stage development costs related to the proposed OCMP, as well as the prior CPCN pre-construction development costs related to the original OCU project. Each component is discussed further in the following sections. FEI proposes to transfer the balance of the non-rate base OCU Preliminary Stage Development Costs deferral account (estimated to be approximately $22.914 million on December 31, 2024) to rate base on January 1 of the year following the decision on this Application and begin amortization over a four-year period thereafter (i.e., if the BCUC decision is issued for this Application before the end of 2024, then the balance of the non-rate base deferral account will be transferred to rate base on January 1, 2025). Please refer to Section 6.4.3.3 below for a discussion of the proposed amortization period. FEI also proposes to rename the existing OCU Preliminary Stage Development Costs deferral account to be titled the "OCMP Application and Preliminary Stage Development Costs" deferral account.

Table 6-3: Summary of Deferred Costs ($000s)

Line	Particular	OCMP Application	OCMP Preliminary Stage Development	2018-2023 OCU CPCN Development Costs	Total
1	Pre-tax Costs (Forecast to Dec 31, 2024)	250	969	19,841	21,059
2	Income Tax Recovery	(68)	(262)	(1,681)	(2,010)
3	Financing, WACC Return	3	22	3,993	4,018
4	**Subtotal ($000s)**	**185**	**730**	**22,153**	**23,068**
5	Less: Capitalized Pre-Construction Costs	-	(154)	-	(154)
6	**Total Deferral Costs ($000s)**	**185**	**576**	**22,153**	**22,914**

6.4.3.1 OCMP Application and Preliminary Stage Development Costs

In order to develop the short-term mitigation plan to address the imminent capacity shortfall on the ITS (i.e., the OCMP), FEI is incurring Application and preliminary stage development costs, as follows:

- Application costs are related to the expenses incurred for the regulatory process to review this Application. The cost estimate is based on a written process with one round of IRs, with expenses for external legal counsel, consultant costs, BCUC costs, and BCUC-

[36] Page 26.

approved intervener costs. FEI forecasts a total of $0.250 million ($0.185 million net of tax and including financing costs) of Application costs related to the Project up to December 31, 2024.

- Preliminary stage development costs are related to the expenses incurred for engaging third-party consultants (i.e., Jenmar and IPP) for feasibility evaluation, preliminary development, and assessment of the potential design for the OCMP. FEI forecasts a total of $0.969 million of preliminary stage development costs, with $0.644 million of actuals from January to April 2024 and an additional $0.325 million forecast from May to September 2024 (with Phase 1 construction costs beginning in October 2024 as shown in Section 5.6). Of the total $0.969 million of pre-tax preliminary stage development costs, FEI will transfer a forecast of $0.154 million of development costs to construction work-in-progress (CWIP) following approval of the Project. These costs are capitalized as they are related to the engineering consultant tendering and contract negotiation for the Project. The remaining preliminary stage development costs in the deferral account are $0.815 million ($0.576 million net of tax and including financing costs up to December 31, 2024).

Consistent with the approved treatment for past projects, FEI proposes to transfer the balance of the deferral account to rate base on January 1 of the year following a decision on this Application. For the purposes of the financial analysis shown in Section 6.3, FEI assumed a decision on this Application will occur in 2024, resulting in a transfer to rate base on January 1, 2025. Please refer to Section 6.4.3.3 for a discussion on the proposed amortization period for the deferral account.

6.4.3.2 Prior OCU CPCN Pre-Construction Development Costs

As part of the Decision, the BCUC directed FEI to file a compliance filing proposing the accounting treatment for the pre-construction development costs related to the original OCU project and to include the following information:

- The extent to which the pre-construction development costs are of future use to FEI;
    - If not of future use, the reasonableness of FEI recovering these costs;
- The proposed recovery mechanism for these costs, with rationale; and
- The proposed amortization period, if any, for these costs.[37]

FEI provides the requested information below.

6.4.3.2.1 THE OCU CPCN PRE-CONSTRUCTION COSTS WERE PRUDENTLY INCURRED AND SHOULD BE RECOVERED FROM CUSTOMERS

As shown in Table 6-3 above, FEI incurred a total of $19.841 million of pre-tax costs ($22.153 million net of tax and including AFUDC) related to the pre-construction development of

[37] Decision, p. 26.

the original OCU CPCN project between 2018 and 2023. FEI considers all the pre-construction development costs to have been necessary and prudently incurred. FEI developed the original OCU CPCN project to address the capacity shortfall in the ITS which continues to exist, as discussed in Section 3 of this Application. While the BCUC ultimately did not approve the original OCU CPCN project as proposed by FEI, the BCUC found that "there is an immediate need to address this imminent capacity shortfall"[38] and also acknowledged that denying the original OCU CPCN project will "put additional stress on the ITS' capacity levels and existing mitigation efforts will provide only sort-term relief ending in the winter of 2026/2027"[39].

FEI not only developed the original OCU CPCN project in accordance with the CPCN Guidelines, but it also undertook the necessary activities, including extensive engagement with impacted Indigenous groups, to progress the project to a point that, if approved, construction could be completed in time to address the imminent capacity shortfall in the Okanagan region in order to continue providing safe and reliable service to customers. Further, the pre-construction development work completed for the original OCU CPCN project has been used to develop this Application, including the demand forecasts. This previous work has informed FEI's assessment of the alternatives to address the imminent capacity shortfall described in Section 4. Accordingly, and as further explained below, FEI considers it reasonable to recover the costs of the pre-construction development work.

6.4.3.2.2 DETAILS AND JUSTIFICATION FOR PRE-CONSTRUCTION DEVELOPMENT COSTS

Table 6-4 below provides a summary of the pre-construction development costs which FEI incurred since 2018, with reasons at each milestone of the original OCU CPCN project regulatory process leading up to the Decision.

Table 6-4: Summary of Prior OCU CPCN Pre-Construction Development Costs

Timeline	OCU CPCN Regulatory Process Milestone	Purpose	Activities	Amount ($000s)
June 2018 to November 2020	CPCN Application Filed	Required to develop CPCN Application and meet CPCN Guidelines.	Preliminary stage development required to engage third-party consultants for feasibility evaluation and assessment of the potential design and alternatives as required to complete the original CPCN application.	902
			Development of the AACE Class 3 Cost Estimate for the preferred alternative as required to complete the original CPCN application. Costs included front-end engineering and design with	4,920

[38] Decision, p. 23.
[39] Decision, p. 25.

Timeline	OCU CPCN Regulatory Process Milestone	Purpose	Activities	Amount ($000s)
			approximately 30% engineering complete.	
			Early project development including environmental assessments and Indigenous and stakeholder consultation, as required to complete the original CPCN application.	1,801
December 2020 to February 2022	Updated CPCN Application, Regulatory Process Commenced, Proceeding Adjourned (Order G-48-22)	For the original OCU CPCN project pipeline to be in-service prior to the winter of 2023/2024, which was the forecast of when the ITS capacity shortfall was expected to occur based on FEI's evidence in the original CPCN application at the time, advanced engineering and design as well as early project development work was required with the aim to have construction begin in early 2022.	Advanced engineering and design to 60% (from 30% at the time of the Class 3 Estimate).	3,108
			Indigenous community negotiations and early project development (Project Management, Permitting, Archaeological and Environmental Assessment, Community Relations and Communication, and Legal).	3,668
			Land/Land Rights Acquisition	1,246
March 2022 to May 2023	CPCN Application Supplementary Filing Submission	Updated cost estimate for Supplementary Filing.	Updated Class 3 Estimate based on advanced engineering and design work already completed (up to 60% at the time when the regulatory proceeding was adjourned).	142
		Continuation of previous early project development work with aim to have construction begin in early 2025 (i.e., in order for the pipeline to be in-service prior to winter of 2026/2027 as discussed in the Supplementary Filing).	Negotiation with Indigenous communities, Project Management, Permitting, Archaeological and Environmental Assessment, Community Relations and Communication, and Legal.	1,552
			Land/Land Rights Acquisition	641

Timeline	OCU CPCN Regulatory Process Milestone	Purpose	Activities	Amount ($000s)
June to December 2023	BCUC Order and Decision (G-361-23)	Negotiation with Indigenous community.	Received support from the *snpink'tn* community and continued to negotiate with a fully executed Mutual Benefit Agreement anticipated in early December 2023.	413
		Updated Engineering and Design.	Required for pipeline route re-alignment based on negotiation and understanding at the time with the Indigenous community.	199
		Continuation of early project development work with aim to have construction begin in early 2025.	Project Management, Permitting, Archaeological and Environmental Assessment, Community Relations and Communication, and Legal.	1,022
			Land/Land Rights Acquisition	2,872
January to March 2024	Post-BCUC Order and Decision	Land / Land Rights Acquisition Reversal.	Reversed options on acquiring SRW that was intended for the pipeline following the Decision.	(2,645)
Total				**19,841**

As shown in the table above, up to November 2020, when the original OCU CPCN application was filed, all costs incurred were required to prepare the CPCN application in accordance with the BCUC's CPCN Guidelines. As such, FEI considers these necessary costs to prepare a fulsome CPCN application in compliance with the CPCN Guidelines, including providing adequate evidence to support the project need, exploring a range of alternatives for meeting the project need, and developing a detailed design, schedule, cost estimate and risk assessment for the preferred alternative. These costs are consistent in nature with the costs of preparing and developing past CPCN applications, and FEI should be allowed to recover these costs regardless of the Decision.

For the subsequent 16-month period of regulatory process between November 2020 when the original OCU CPCN application was filed and February 2022 when the regulatory process was adjourned, FEI had to advance the project's engineering and design (to approximately 60 percent of engineering) since the evidence at that time indicated that the ITS capacity shortfall would occur in the winter of 2023/2024. As such, FEI was targeting to have construction commence in early 2022 in order to achieve an in-service date prior to winter 2023/2024 in order to ensure safe and reliable service to customers in the Okanagan region. In addition to advancing the engineering and design, FEI incurred associated costs related to project management, permitting, archaeological and environmental assessment, community relations and communication work,

and necessary land/land rights acquisition. FEI was also continuing its negotiations with Indigenous communities during this period, which is the typical approach for major projects due to the significant lead time required to engage with Indigenous communities.

The adjournment of the regulatory process in February 2022 allowed FEI the opportunity to continue engagement with Indigenous communities. As shown in Table 6-4 above, during the 14-month period from March 2022 when the regulatory process was adjourned to May 2023 when FEI submitted the Supplementary Filing, FEI continued to incur costs to negotiate with Indigenous communities. Further, based on the understanding with Indigenous communities and the advanced engineering and design work completed since the original Class 3 estimate was prepared, FEI updated and filed a revised Class 3 estimate with the Supplementary Filing. The negotiations with the Indigenous community, advancement of project engineering and design work, revisions to the Class 3 cost estimate and other activities were all undertaken to further support the successful execution of the original OCU CPCN project to meet the updated timing of the expected ITS capacity shortfall in the winter of 2026/2027. As stated previously and demonstrated in this OCMP Application, the forecast capacity shortfall expected in the winter of 2026/2027 has been accepted by the BCUC in the Decision and is supported by the 2023 Peak Demand Forecast. Similar to the pre-construction development costs incurred up until the adjournment of the regulatory process, if FEI waited until after the Decision, it would not have been possible to have the original OCU project in-service in time to address the capacity shortfall, which would put customers at risk of service interruptions. FEI prudently chose to mitigate this risk, and at that time, FEI believed that the original OCU project would be approved as being in the public interest.

Finally, for the period from the BCUC re-commencing the regulatory process in June 2023 to the issuance of the Decision on December 23, 2023, FEI continued to incur costs to negotiate with the *snpink'tn* community (Penticton Indian Band) and to update the engineering and design for re-aligning the pipeline route based on the negotiation and understanding at the time with the *snpink'tn* community. As noted in the letter filed by FEI to the BCUC on November 21, 2023, FEI ultimately received support from the *snpink'tn* community for the original OCU project. FEI also notes that, while it had incurred costs for land/land rights acquisition during this time period, subsequent to the Decision, FEI worked to avoid the costs associated with acquiring land rights to the extent possible, and was thus able to reduce the total OCU pre-construction development costs incurred by $2.645 million (see the credit amount in Table 6-4 above).

As highlighted above, all pre-construction development costs for the original OCU CPCN project were incurred reasonably and prudently. These costs were required to prepare the original CPCN application as well as to support the execution of the project in time to address the imminent capacity shortfall on the ITS and prevent service interruption to customers in the Okanagan region. Further, much of the development work undertaken in support of the original OCU project was used to develop the OCMP Application, including the development of project alternatives presented in Section 4 of this Application. Accordingly, FEI is requesting approval to recover these costs through amortization of the newly titled OCMP Application and Preliminary Stage Development Costs deferral account, as further explained in Section 6.4.3.3.

6.4.3.3 Proposed Amortization Period of OCU/OCMP Deferred Costs

FEI proposes to transfer the balance of the non-rate base deferral account to rate base on January 1 of the year following the BCUC's decision on this Application, and begin amortization over a four-year period.

FEI considered amortization periods ranging from one year to five years, but ultimately determined that four years was the most reasonable.

FEI rejected a one-year amortization period because, as shown in Table 6-5 below, the delivery rate impact in 2025 (assuming a decision on this Application is issued in 2024 and the amortization accordingly begins on January 1, 2025) would be close to 3 percent, which is significantly more impactful than the other amortization period options which range from 1.50 percent to 0.70 percent. FEI further narrowed its options to three, four or five years because these amortization periods resulted in fairly similar delivery rate impacts (either slightly above 1 percent or below 1 percent).

FEI ultimately selected a four-year amortization period for the following reasons:

- The estimated delivery rate impact in 2025 with a three-year amortization period is still over one percent when compared to the 2024 approved delivery rates. In contrast, the delivery rate impact in 2025 for a four- or five-year amortization period is less than one percent;
- A five-year amortization period is unnecessarily long considering the size of the deferral account balance and the difference in the delivery rate impact between a four- and five-year amortization period, thus a four-year amortization period better addresses considerations of intergenerational equity; and
- A four-year amortization period aligns well with the timing of all assets related to the OCMP expected to enter FEI's rate base in 2028.

FEI considers a four-year amortization period provides the best balance between minimizing the immediate delivery rate impact in 2025 when amortization begins with some degree of rate smoothing, while aligning with the timing of when the OCMP would enter FEI's rate base.

Table 6-5: Delivery Rate Impact for One- to Five-Year Amortization Periods for Deferral Costs

	Amortization Period				
	1 Year	2 Years	3 Years	4 Years	5 Years
Incremental Delivery Margin in 2025 ($ millions)	$ 32.368	$ 17.163	$ 12.094	$ 9.560	$ 8.040
Delivery Rate Impact in 2025, compared to 2024 Approved (%)	2.84%	1.50%	1.06%	0.84%	0.70%

6.5 *RATE IMPACT*

The OCMP is estimated to have an incremental revenue requirement of $15.392 million and a delivery rate impact of approximately 1.35 percent in 2028 when all new assets are expected to

be in-service and included in FEI's rate base on January 1, 2028. The delivery rate impact is compared to the currently approved 2024 delivery rates and is based on all new assets related to the Project being in-service by 2027 (in multiple phases in 2025, 2026, and 2027) and added to FEI's rate base on January 1, 2028. The delivery rate impact also includes the amortization of the OCMP Application and Preliminary Stage Development Costs deferral account as discussed in Section 6.4.3 above with a proposed amortization period of four years.

Table 6-6 below provides an estimate of the annual delivery rate impact to FEI's non-bypass ratepayers due to the OCMP from 2025 to 2028 when compared to the 2024 approved non-bypass revenue requirement as well as the year-to-year increase of incremental annual delivery rate impact in percentage terms.

Table 6-6: Summary of Project Delivery Rate Impact

	2025	2026	2027	2028
Annual Delivery Margin, Incremental to Approved, Non-Bypass ($ millions)	9.560	10.514	11.342	15.392
% Increase to Approved Delivery Margin, Non-bypass	***0.84%***	***0.92%***	***0.99%***	***1.35%***
Incremental % Delivery Rate Impact (Year-over-Year)	***0.84%***	***0.08%***	***0.07%***	***0.35%***

This delivery rate impact is equivalent to approximately $0.077 per GJ when compared to FEI's 2024 approved delivery rates, and for an average FEI residential customer consuming 90 GJ per year, this would equate to a total annual bill impact of approximately $6.93 in 2028.

6.6 *CONCLUSION*

The total Project cost is $50.389 million in as-spent dollars and will result in an estimated rate impact of 1.35 percent in 2028 when all construction is complete and after all assets are placed in service. For an average FEI residential customer consuming 90 GJ per year, this equates to a bill impact of approximately $6.93 in 2028.

7. ENVIRONMENT AND ARCHAEOLOGY

7.1 INTRODUCTION

The Project is located on an active FEI facility site with a disturbed, gravelled surface and limited vegetation. As a result, FEI expects minimal environmental and archaeological Project impacts based on its preliminary assessment.

Potential environmental impacts of the Project can be mitigated through the implementation of standard best management practices and mitigation measures. Impacts to construction timelines and costs as a result of encountering species at risk, fish habitat, or contaminated soil or groundwater can be minimized through additional investigations during the detailed engineering phase prior to construction.

FEI retained WSP Canada Inc.[40] (WSP) to complete an archaeological review of the Project area (Appendix E). The review recommends FEI undertake an Archaeological Impact Assessment (AIA) based on the desktop information available.

7.2 ENVIRONMENT

FEI completed a preliminary, desktop review of potential environmental sensitivities in the area of the Project facility site. The review was completed to identify and describe the biophysical environment and potential impacts to the biophysical environment from the Project, and to determine the potential permitting requirements and recommended impact mitigations. Please refer to Appendix D (Environmental Desktop Review) for descriptions of the site and potential Project-related biophysical impacts and recommended mitigations.

A review of the Project footprint identified the site as an active, fenced, FEI facility site with a disturbed, gravelled surface and limited vegetation. Potential impacts include disturbance to adjacent environmental features such as terrestrial and aquatic resources, species at risk, and soils. In this section, FEI describes its approach and plan with respect to the identification, management, and mitigation of environmental impacts.

Based on this preliminary assessment, the overall environmental risk of the Project is low and any potential environmental impacts from the Project can be mitigated through the application of standard environmental best management practices and mitigation measures.

7.2.1 Environmental Review

The results of the review completed by FEI are outlined in the Environmental Desktop Review document included as Appendix D. The following topics were reviewed as part of the desktop assessment:

[40] WSP Canada Inc. is a multi-disciplinary engineering and consulting firm.

- Land use;
- Aquatic and groundwater resources (including fish and fish habitat);
- Terrestrial resources (including wildlife, Species at Risk (SAR), and vegetation); and
- Contaminated sites (water and soil).

The Environmental Desktop Review identifies significant natural features, such as fish, wildlife, and terrestrial habitat that could potentially be impacted by Project construction, as well as areas that could impact construction, costs, and timelines of the Project. The Environmental Desktop Review also identifies land use and locations with potential for encountering soil, or groundwater contamination which may impact Project construction, costs, and timelines.

The Environmental Desktop Review references two study areas:

- Project study area – a 500 m buffer area around the subject property; and
- A general study area where potential sensitivities beyond 500 m from the site may impact, or be impacted by, the proposed Project activities.

These features will need consideration and further review during the detailed engineering phase.

The significant land use, natural features, and potential contamination areas identified in the Environmental Desktop Review as having the potential to overlap with the Project are described in the following subsections.

7.2.1.1 Current Land Use

Land use varies across the Project study area within the urban area of the City of Kelowna. Land use is primarily associated with urban communities, including other utility infrastructure, mixed use developments, recreation areas, and residential developments. Portions of the Project footprint fall within Development Permit Areas (DPAs) in Kelowna. The following potentially sensitive land use areas were identified in the Environmental Desktop Review:

- A Natural Hazard DPA for the Mill Creek floodplain extends across the Project footprint; and
- A Natural Environment DPA for a watercourse (Mill Creek) overlaps the southern portion of the Project footprint.

7.2.1.2 Contaminated Sites

Locations where there is a medium to high potential for encountering soil or groundwater contamination within the Project footprint may impact construction cost and timelines. These areas are defined as Areas of Potential Environmental Concern (APECs) and have been considered in the development of costs for the Project.

APECs were identified on the subject site, and the subject site is listed in the BC Contaminated Sites Registry for historical contamination (Site ID 2475). The APECs are summarized in the Environmental Review (Appendix D) and in Table 7-1 below.

FEI will undertake further assessment of the APECs during the detailed engineering phase of the Project to minimize the risk of the APECs on the Project costs and timelines.

Table 7-1: Registered Contaminated Sites and APECs Overlapping with Project Footprint

APEC ID	Name	Location Relative to Project Footprint
APEC 1	Fill material of unknown origin and quality, areas with former buildings on site	Onsite
APEC 2	Former mercury contaminated area, fill of unknown origin and quality	Onsite (NW corner)
APEC 3	Herbicide (Dicamba) application area – western portion of the site, 2 m perimeter and driveway	Onsite

7.2.1.3 Fish and Fish Habitat

The Environmental Desktop Review assessed the potential for watercourses, wetlands, and fish species at risk within the Project study area and the following items were identified:

- One watercourse, Mill Creek, which is fish-bearing, is located adjacent to the Project footprint; and
- No fish species at risk in waterways crossed by, or in close proximity to, the Project footprint.

There is no planned instream work for this Project, and proposed Project activities are not anticipated to have an impact on Mill Creek.

7.2.1.4 Vegetation

The proposed Project is located in the Ponderosa Pine Very Dry Hot Okanagan (PPxh1) biogeoclimatic zone.

Plant species at risk, ecological communities at risk, and invasive plant species were reviewed as part of the Environmental Desktop Review, which identified the following:

- One ecological community at risk with a mapped occurrence overlapping the Project footprint; and
- One recorded invasive plant species occurrence within the Project study area.

7.2.1.5 Wildlife

The Project study area was reviewed to determine use by known wildlife and SAR, and to assess the species' potential presence during desktop review.

Ungulate Winter Range (UWR) for mule deer overlaps the entire Project study area. UWR U-8-001 for mule deer is not anticipated to be impacted by the proposed Project activities as the property is already cleared and disturbed and is fully fenced, restricting access by ungulate species.

The Environmental Desktop Review identified the following wildlife sensitivities that overlap with the Project study area:

- One Critical Habitat (CH) polygon overlapping the proposed Project footprint;
- Three CH polygons for one species at risk within 500 m of the proposed Project site, within the Project study area;
- Two CH polygons for one species at risk beyond the 500 m study area, but in the general area; and
- Recorded occurrences of two SAR overlapping the proposed Project site, one additional SAR occurrence within the 500 m study area, and one SAR beyond the 500 m study area but in the general area.

The Environmental Desktop Review describes the presence of other terrestrial resources on or near the Project footprint.

7.2.2 Implementation of Best Management Practices and Mitigation Measures

Best management practices and mitigation measures to minimize and avoid potential negative effects of the Project on environmental sensitivities include, but are not limited to:

- Design considerations to avoid impacts where practicable;
- Apply best practices for managing invasive plants;
- Adhere to general wildlife and wildlife habitat protection measures;
- Complete fish and wildlife salvages if required;
- Minimize vegetation removal;
- Develop and implement site specific Erosion and Sediment Control measures;
- Develop and implement site specific soil management plan; and

- Adhere to least-risk timing windows to protect fish species, breeding birds, and sensitive periods for other wildlife species.

FEI will follow the best management practices and will develop site specific mitigation measures as applicable to the Project during construction. A Project-specific Environmental Management Plan (EMP) will be developed during the detailed design phase as Project methodologies are refined, and the most appropriate mitigation measures and procedures can be selected.

7.2.3 Permitting

Based on the preliminary environmental review work completed, the Project may require permitting/authorization under the following legislation:

- Federal
    - *Species at Risk Act*
- Provincial
    - *Environmental Management Act*
    - *Water Sustainability Act*
    - *Energy Resource Activities Act*
    - *Wildlife Act*
- Other
    - City of Kelowna municipal permits (i.e., Site Disclosure Statement related to Contaminated Sites Regulation (CSR))

During the detailed engineering phase of the Project, FEI will undertake further environmental assessments to confirm permitting requirements and will apply for permits as required. The permits identified at this time are based on the current level of Project engineering and may change during the detailed engineering phase.

7.2.4 Further Plans

Environmental constraints and potential environmental impacts related to the Project will be further assessed and documented during the detailed engineering phase of the Project. The detailed engineering phase will include assessment of vegetation, fish and wildlife and their habitat, contaminated soils, and surface/ground water resources.

Site specific mitigation strategies will be developed to offset any potential negative impacts associated with the Project or from the environment on the Project. All required environmental

permits and approvals for the Project will be identified and applied for during the detailed engineering phase.

A project EMP will be prepared and included in the contractor procurement documents. The EMP may also be required as part of the application to the BCER. Environmental Protection Plan(s) specific to the Project will be developed by the successful contractor(s) prior to commencement of the Project. Environmental monitoring will be undertaken during all sensitive aspects of the work program and the designated environmental monitor will have "stop work authority" in the event that works underway have the potential to impact the natural environment.

7.3 *ARCHAEOLOGY*

WSP was retained to complete a desktop review of the Project area (Appendix E) to assess the modelled potential for archaeological and/or cultural heritage resources within the Project area and to determine the necessity of additional archaeological assessments (e.g., Preliminary Field Reconnaissance (PFR) / AIA) prior to the commencement of ground disturbing activities.

The archaeological review consisted of a desktop review that included examination of an existing archaeological potential model overlapping the study area. PFR and AIA will occur during the detailed engineering phase of the Project. Information obtained during these activities will determine if further archaeological investigations are required (i.e., archaeological monitoring concurrent with construction).

7.3.1 Archaeological Review

As part of the archaeological review, WSP reviewed available information to assess archaeological potential and overlap with known archaeological and historic heritage sites.

The archaeological review concluded that the Project footprint includes areas of archaeological potential with recorded archaeological sites approximately 780 m northeast of the Project footprint, at the closest. WSP recommended an AIA for areas where ground disturbance activities are anticipated. The AIA is expected to begin during the detailed engineering phase of the Project and may continue throughout construction, if recommended.

A *Heritage Conservation Act* Section 12.2 investigation permit will be obtained to undertake AIA activities. In addition, any Indigenous heritage investigation permits that are applicable at the time of the AIA will be obtained. Currently the Indigenous communities that have permitting processes in place are the Okanagan Indian Band, Upper Nicola Indian Band and Westbank First Nation. AIA work will be completed where Project activities have the potential for ground disturbance and are in areas identified as moderate or high archaeological potential. The extent of AIA works will be dependent on final engineering design and engagement activities with Indigenous communities.

7.3.2 Indigenous Community Participation

Due to the timelines required to investigate feasible short-term mitigation options and to select the preferred Project alternative, Indigenous communities were not engaged with during the development of the desktop archaeological review. However, prior to any field programs such as PFR and/or AIA, Indigenous communities will be notified of the work and provided the opportunity to review the scope as well as participate in all field work.

7.3.3 Further Plans

Potential impacts to archaeological resources will be further assessed during the AIA, which will be initiated during the detailed engineering phase of the Project. The objective of the AIA will be to identify archaeological resources within the Project footprint and, if present, to evaluate impacts to those resources as a result of the Project and to provide recommendations to effectively manage the impacts to those resources stemming from the Project. The AIA will provide a detailed assessment to allow for development of site-specific mitigation strategies to offset any potential impacts to archaeological resources associated with the Project. Provincial and Indigenous archaeological permits will be obtained during the detailed engineering phase and, if necessary, during the construction phase.

A Project EMP, which will include archaeological specifications, will be prepared and included in the contractor RFP documents. The EMP is also required as part of the application to the BCER. Environmental Protection Plan(s) specific to the Project, including protection of archaeological, historic heritage, and cultural resources will be developed by the successful contractor(s) prior to commencement of the Project.

If required, archaeological monitoring will be undertaken during all archaeologically sensitive aspects of the work program and the designated archaeological monitor will have “stop work authority” in the event that works underway have the potential to result in unauthorized impacts to archaeological, historic heritage or cultural resources.

7.4 *CONCLUSION*

As described in the sections above, FEI has completed desktop reviews to assess the potential environmental and archaeological impacts of the Project. Based on its preliminary assessment, FEI expects minimal environmental and archaeological Project impacts. The Project site is an active, fenced, FEI facility site with a disturbed, gravelled surface and limited vegetation.

Potential environmental impacts of the Project can be mitigated through the implementation of standard best management practices and mitigation measures. Impacts to construction timelines and costs as a result of encountering species at risk, fish habitat, or contaminated soil or groundwater can be minimized through additional investigations during the detailed engineering phase prior to construction.

FEI retained WSP to complete an Archaeological review of the Project area. The review recommends FEI undertake an AIA. The extent of AIA works will be dependent on final engineering design and engagement activities with Indigenous communities, which will be initiated during the detailed engineering phase of the Project.

8. CONSULTATION AND ENGAGEMENT

8.1 *INTRODUCTION*

Public consultation and Indigenous engagement are integral components of FEI's project development process. To guide Project consultation and engagement, FEI created a Consultation and Engagement Plan (Engagement Plan). The focus of the Engagement Plan for the OCMP is to ensure that FEI has established a process for informing local rightsholders and stakeholders about the Project. Due to the short timeline to complete public consultation and Indigenous engagement, FEI has divided its Engagement Plan into three phases which are outlined in further detail below.

The Engagement Plan takes into consideration the specific nature of the Project, which includes work entirely within an existing FEI facility. As a result, FEI's consultation and engagement activities are primarily targeted towards Indigenous groups, local governments, and those stakeholders who live and work in close proximity to the Project.

Feedback from local rightsholders and stakeholders will be valuable for FEI to address potential concerns. Additionally, FEI recognizes the importance of transparency and communication with all customers as it pertains to potential rate impacts and intends to take steps to notify customers.

FEI initiated public consultation for the Project by meeting with City of Kelowna senior staff to outline the proposed Project location, scope and need to gather input and feedback on opportunities, concerns, or other issues in relation to the OCMP.

FEI initiated Indigenous engagement at an introductory meeting with Westbank First Nation Intergovernmental Affairs and Title & Rights staff to outline the need for the Project, the Project scope, and timelines, and to gather feedback on any concerns or issues related to the OMCP.

FEI launched a dedicated Project webpage and Project dedicated email address, allowing anyone interested in the Project to find more information and to discuss any questions and/or concerns with an FEI representative.

FEI will continue to work with stakeholders and Indigenous groups to address outstanding items related to the Project, and will track the Project specific interests, issues and concerns of those groups potentially impacted by the Project. FEI describes its consultation and engagement activities in Sections 8.2 and 8.3 below.

8.2 *FEI IS UNDERTAKING APPROPRIATE PUBLIC CONSULTATION*

FEI recognizes the importance of meaningful public consultation and of developing, maintaining, and enhancing strong stakeholder relationships. To support the successful completion of the Project, FEI's interactions with stakeholders will continue to be open, transparent, and consistent. The approach is further described in the subsections below.

8.2.1 FEI Has Identified Appropriate Public Consultation Objectives

Consistent with industry best practices, FEI plans to guide public consultation and solicit community and stakeholder feedback throughout the Project, as follows:

- Ensure balanced and objective information is provided to affected and interested stakeholders;
- Communicate the benefits of the Project (e.g., reliability and integrity of FEI's system), and potential positive socio-economic impacts to communities during construction;
- Provide opportunities for stakeholders to give feedback and FEI to understand their concerns through an ongoing dialogue; and
- Consider and, where possible, incorporate stakeholder feedback.

8.2.2 FEI Has Identified Key Stakeholders for Public Consultation

As part of its Engagement Plan, FEI has identified the following stakeholders for public consultation and engagement:

- Municipal and regional governments including:
    - City of Kelowna;
    - Regional District Central Okanagan;
    - District of Lake Country;
    - City of West Kelowna;
    - District of Peachland;
    - District of Coldstream;
    - Regional District North Okanagan;
    - City of Vernon; and
    - Village of Lumby;
- FEI's customers;
- Residents and businesses within a 1.5 km proximity to FEI's proposed site;
- Permitting authorities; and
- Provincial and Federal Government bodies, including respective Members of the Legislative Assembly, Members of Parliament, and the Ministry of Energy and Mines.

8.2.3 FEI Has Developed a Phased Engagement Plan

FEI's Engagement Plan will guide its communication and engagement strategies. Due to the short timeline to develop the Project and file the Application, FEI has divided its Engagement Plan into three phases:

1. Pre-Filing;
2. Post-Filing; and
3. Post-Decision.

8.2.3.1 Pre-Filing Public Consultation

The first phase of consultation began in June 2024, prior to filing the Application. FEI met with City of Kelowna senior staff on June 19, 2024 to outline the need for the Project, Project scope, and timelines. Overall, the discussion was positive with no major concerns raised by City staff. Staff requested that FEI work with them to ensure alignment with the City's future projects adjacent to FEI's facilities, including the City's plans for restoration of an adjacent creek and the City's concept plan for the extension of a main transportation corridor and multi-use pathway.

FEI sent a follow-up letter to City staff on July 22, 2024. The letter summarized the meeting discussion and feedback received, provided contact and Project information, proposed to set up regular update meetings with staff, and offered to appear as a delegation to Mayor and Council, if requested.

Community, social and environmental considerations, along with the nature of the work proposed, have helped guide FEI's Engagement Plan. To help mitigate potential adverse impacts of Project construction, FEI will continue to proactively communicate with Project stakeholders, and undertake consultation and mitigation measures. Further, FEI will:

- Require construction contractor(s) to develop and execute a Public Impact Mitigation Plan, which will outline strategies to minimize community impacts. The Public Impact Mitigation Plan will help ensure that impacts, such as noise, traffic, access, dust, and visual impacts, are managed during construction related activities.
- Ensure construction activities are carried out in compliance with municipal bylaws and operating agreements.

FEI has been open and transparent in its consultation and communication with stakeholders in the first phase of the Engagement Plan, including proactively discussing Project details and addressing questions that arise in a timely manner. FEI will continue to communicate with stakeholders in phases two and three, as outlined in Sections 8.2.3.2 and 8.2.3.3 below.

FEI values and is committed to responding to the feedback received from customers, residents, businesses, and stakeholder groups during Project consultation.

8.2.3.2 Post-Application Public Consultation

The second phase of public consultation will take place between the Application filing and the BCUC's decision, and includes the following activities:

- Consultation will continue with the City of Kelowna. FEI will plan ongoing meetings with the City of Kelowna senior staff to continue to discuss the proposed Project location, as well as to provide updates on any revisions to scope to gather input and feedback on opportunities, concerns or issues that will need to be addressed.
- FEI will initiate public consultation with local stakeholder groups, including residents and businesses in close proximity to the Project location. This consultation will outline the Project need, location and scope and will seek to address issues or concerns and gather feedback. This will include sending notification letters, Project website updates and an open house, if requested.
- FEI will initiate public consultation with local government staff from communities that could be impacted by a reduction in energy capacity to outline the Project scope and timelines. Such communities include the City of West Kelowna, District of Peachland, City of Vernon, District of Coldstream, Village of Lumby, Regional District North Okanagan and Regional District Central Okanagan.
- Notification letters will be sent to local provincial and federal government offices.

FEI values, and is committed to responding to, the feedback received from stakeholders during public consultation. FEI will respond to concerns raised by stakeholders regarding the Project and will seek to resolve them.

8.2.3.3 Post-CPCN Public Consultation

After the BCUC issues its decision on the Application, FEI will continue to consult with local stakeholder groups regarding the status of the OCMP. FEI will provide updates on construction timelines, scope of work, safety, and mitigation plans.

To minimize impacts, further consultation will continue prior to and throughout construction to substantively inform local stakeholder groups about construction activities. FEI is committed to providing updates regarding the Project and proactively communicating with stakeholders to respond to issues or concerns throughout the Project lifecycle and will:

- Communicate with local governments through meetings, presentations, information letters, phone calls and emails throughout the Project lifecycle.
- Communicate Project information to FEI's customers through FEI's various platforms, including the Project's Talking Energy webpage, e-newsletters, social media channels, advertising, and news media outreach.

- Communicate with nearby residents and businesses through information letters, phone calls and/or emails throughout the Project lifecycle and will plan for information sessions, if requested.

FEI is committed to responding to any feedback received from stakeholders as the Project continues to develop.

8.2.4 FEI's Public Consultation Approach Reflects Community, Social and Environmental Considerations

Community, social, economic, and environmental considerations have helped guide the Engagement Plan. The Project takes place in an urban setting with moderate population density. As noted in Section 5.8.2, FEI's consultation efforts seek to gather feedback from stakeholders to minimize impacts and to connect local workforce and businesses to Project opportunities.

8.2.5 Public Consultation Efforts to Date are Sufficient and Will Continue

Given the scope and location of the Project on an existing, developed, FEI-owned site, FEI's consultation and communication activities at the time of filing the Application have been sufficient, appropriate, and reasonable. As discussed above in Section 8.2.3, FEI will continue to consult with stakeholders and the public throughout the lifecycle of the Project, and to mitigate any impacts associated with the Project.

8.3 *FEI IS ENGAGING WITH INDIGENOUS GROUPS*

FEI seeks to build and maintain strong working relationships with Indigenous groups guided by FEI's Statement of Indigenous Principles[41]. FEI's approach to engagement ensures that potential impacts of the Project on the title, rights, and interests of affected Indigenous groups are documented and considered. In keeping with these principles, FEI has and will continue to:

- Uphold a high standard of engagement through the Project lifecycle; and
- Endeavor to create Project benefits for local Indigenous groups, through capacity building and economic opportunities.

8.3.1 FEI Has Developed a Phased Indigenous Engagement Plan

FEI is committed to thorough, timely and meaningful engagement with Indigenous groups and has taken this approach in developing its Engagement Plan for the Project. While the constitutional duty to consult with Indigenous groups rests with the Crown, FEI's Indigenous engagement activities will aid the appropriate Crown agencies in meeting that duty. FEI's goal is to incorporate feedback from Indigenous groups throughout the Project lifecycle, including Project planning (particularly the BCER permitting processes), construction and restoration. FEI is

[41] Statement of Indigenous Principles.

committed to working with Crown agencies, including the BCER, to identify, avoid and mitigate potential impacts on Indigenous title, rights, and interests and, when appropriate, to discuss and develop options for mitigation and/or accommodation.

FEI's Engagement Plan will guide its Indigenous engagement strategies. Similar to the engagement approach discussed in Section 8.2.3, FEI's engagement with Indigenous communities consists of three phases:

1. Pre-Filing;
2. Post-Filing; and
3. Post-Decision.

8.3.1.1 Pre-Filing Indigenous Engagement

The first phase of Indigenous engagement took place leading up to the filing of the Application. FEI sent an email to *snpink'tn* on January 23, 2024, regarding the Decision, to communicate FEI's interest in continuing to collaborate with *snpink'tn* on the development of the OCMP. Once preliminary OCMP alternatives were developed, FEI met with *snpink'tn* on April 12, 2024 to discuss the alternatives and gather input and feedback in an effort to develop a solution together. FEI followed up by email on April 23, 2024, summarizing the discussion at the meeting. FEI acknowledged the work done by *snpink'tn* to date and *snpink'tn's* requirements regarding a proposed staged pipeline option, including a new agreement covering the scope of the proposed option, the need for a community vote of a modified agreement and approval for the project to proceed a modified agreement. FEI evaluated these requirements in light of the filing and project execution requirements to meet winter demand in 2026/2027 and ultimately determined that this would not accommodate the pipeline option for this mitigation plan. FEI notified *snpink'tn* on May 21, 2024 that *snpink'tn's* requirements could not accommodate a pipeline solution in time to file the OCMP to address the winter capacity shortfall expected in 2026/2027. FEI committed to remaining open to working with *snpink'tn* on a potential pipeline solution in the future and explained that in the short term, the proposed Project, located in or around Kelowna, is being pursued to meet the required in-service timeline.

In June 2024, FEI initiated early engagement with the Intergovernmental Affairs staff of the local Indigenous group, Westbank First Nation (WFN), as the Project location falls within WFN's Area of Responsibility within the syilx Okanagan Nation. Engagement began with WFN on June 25, 2024, by email to schedule an introductory meeting with senior staff. A meeting was held on July 8, 2024, to discuss the Project, outline the Project need, provide information on infrastructure that would be installed, and to gather input and feedback. The overall discussion was positive. WFN asked FEI to update the referral information previously submitted for review and feedback due to the proximity of the Project location to Mill Creek. WFN advised that they will likely want to participate in any archaeological and environmental studies, but WFN will confirm once the referral information is received and reviewed. FEI submitted the referral information to WFN on July 12, 2024, for review and guidance on further engagement on the Project.

8.3.1.2 Post-Filing Indigenous Engagement

The second phase of engagement with Indigenous Groups will take place between the filing of the Application and the BCUC's decision. Engagement will be consistent with FEI's Statement of Indigenous Principles.[42] FEI remains committed to engaging with Indigenous groups in an ongoing, transparent, and meaningful manner. These discussions will continue, with engagement throughout the regulatory process, and throughout the pre-construction and close-out phases.

FEI will email a notification letter to Indigenous communities who have potential interests in the Project area, as identified in Section 8.3.2, to provide information about the Project, contact information and provide the opportunity to request a follow up meeting.

FEI will continue to engage through follow-up meetings, information sharing, and letters/ emails, including advising of the filing of the Application. FEI's engagement will continue with rightsholders identified in Section 8.3.2 by providing Project updates, sharing information, and continuing to gather input and feedback.

8.3.1.3 Post-Decision Indigenous Engagement

After the issuance of the BCUC's decision on the Application, FEI will continue to provide more detailed information to Indigenous groups for review and comment. This process will include, but will not be limited to, the BCER's permitting processes which include ongoing engagement as well as construction and environmental management plan reviews. Where possible, FEI will incorporate feedback from Indigenous groups into the Project's procurement plans to identify socio-economic opportunities of mutual interest. FEI will garner detailed reporting on Indigenous employment and socio-economic impacts during this Project lifecycle. Follow-up meetings will be scheduled with Indigenous groups as additional information around employment opportunities, contracting and procurement becomes available.

8.3.2 FEI Has Identified Potentially Affected Indigenous Groups

A list of potentially affected Indigenous communities was developed using the Province of BC's Consultative Areas Database (CAD) to create a comprehensive list of those Indigenous communities who have potential interests in the area where the OCMP is located. The list is outlined below:

- Westbank First Nation
- Penticton Indian Band (*snpink'tn*)
- Okanagan Indian Band
- Upper Nicola Band
- Esh-kn-am Cultural Resource Management

[42] https://www.fortisbc.com/in-your-community/indigenous-relationships-and-reconciliation/our-statement-of-indigenous-principles.

- Okanagan Nation Alliance (ONA)
- Lower Similkameen Indian Band
- Nooaitch Indian Band

8.3.3 FEI Will Respond to Issues and Interests Raised by Indigenous Groups

Following notification, FEI will respond to questions, comments, and requests for in person meetings to engage on the Project. Engagement activities, including comments, questions and concerns raised, will be tracked in an engagement database.

8.3.4 Indigenous Engagement Efforts to Date are Sufficient and Will Continue

FEI's Indigenous engagement activities at the time of filing the Application have been sufficient, appropriate, and reasonable. FEI will continue to engage with rightsholders and Indigenous communities throughout the lifecycle of the Project.

8.4 *FEI HAS USED APPROPRIATE COMMUNICATIONS MATERIALS TO SUPPORT CONSULTATION AND ENGAGEMENT*

As described further below, FEI relies on a number of communication methods to carry out its public consultation and engagement activities. The scope of work for the Project is within an existing FEI facility and adjacent to existing FEI rights of way. Potential impacts of Project construction will be limited to those living and working near the planned work site. As such, the primary focus of FEI's communication materials is to provide transparent and accurate information to stakeholders, directly impacted landowners, and rightsholders. Communication materials will be updated as required throughout the Project's development.

8.4.1 Project Webpage

FEI created a dedicated Project webpage on FEI's Talking Energy website, which provides an overview of the Project, including a high-level rendering of the Project site. The webpage also provides information to support consultation and engagement efforts and solicit feedback in a clear and easily accessible format. FEI will continue to update the Project webpage with the latest Project information and monitor web traffic to the webpage as the Project progresses.

8.4.2 Email

Following the filing of the Application, FEI will activate a project-specific email address (okanagancapacity@fortisbc.com), encouraging stakeholders and rightsholders with questions or feedback to contact FEI directly. This email address will be included in all Project communication materials. FEI will continue to closely monitor the Project email address throughout the duration of the Project, answering questions and responding to queries as needed.

8.4.3 Other Communication Channels

FEI has and will continue to use other channels to communicate with affected stakeholders, directly impacted landowners, and rightsholders, including FEI's various social media channels.

8.4.4 Customer and Public Notifications

FEI will notify all natural gas customers of the Project, including potential rate impacts. A number of communication methods will be used including, but not limited to, the Accounts Online payment portal, e-bill message, FEI's website, and/ or the Project webpage. Notifications about associated rate impacts and the filing of this Application will be distributed to all FEI customers.

8.5 *CONCLUSION*

FEI began Project consultation and engagement with stakeholders and rightsholder during the pre-Application phase of the Project and will continue through the post-filing and post-decision phases to work with stakeholders and Indigenous groups to address outstanding concerns throughout the lifecycle of the Project.

At the time of filing, no concerns have been raised by stakeholders or rightsholders. Public consultation and Indigenous engagement efforts to date are sufficient and will continue. FEI will continue to consult with stakeholders and the public throughout the lifecycle of the Project, will continue engagement with Indigenous groups and will continue to record questions, issues and concerns from Project stakeholders and Indigenous groups. FEI will keep lines of communication open as the Project advances and will continue working with stakeholders and Indigenous groups to address any outstanding interests and issues throughout the lifecycle of the Project, including during planning, construction, and restoration.

9. PROVINCIAL GOVERNMENT ENERGY OBJECTIVES AND LONG TERM RESOURCE PLAN

9.1 *INTRODUCTION*

This section discusses the factors that section 46(3.1) of the *Utilities Commission Act* states the BCUC must consider when determining whether to issue a CPCN:

a) the applicable of British Columbia's energy objectives,

b) the most recent long-term gas resource plan filed by the public utility under section 44.1, if any, and

c) the extent to which the application for the certificate is consistent with the applicable requirements under sections 6 and 19 of the Clean Energy Act.

Sections 6 and 19 of the *Clean Energy Act* (CEA), as referred to in subsection (c) above, do not apply to FEI. FEI addresses the other two requirements below.

9.2 *BRITISH COLUMBIA'S ENERGY OBJECTIVES*

A consideration of British Columbia's energy objectives set out in section 2 of the CEA supports the Project, as the Project is an innovative way to meet short-term peak demand in the Okanagan that avoids long-term capacity additions and is expected to generate positive economic benefits in the region. A consideration of most of British Columbia's energy objectives, however, is neutral vis-à-vis the Project as they either do not apply to FEI or the Project generally, or are not in conflict with the Project, as the Project is designed to meet short-term peak-demand requirements in the Okanagan region, and there is currently no feasible alternative peak resource available to serve this load.

Table 9-1 below sets out each of British Columbia's energy objectives and their applicability to the Project.

Table 9-1: British Columbia's Energy Objectives[43]

Item	Objective	Comments
(a)	to achieve electricity self-sufficiency;	The Project does not affect the generation or acquisition of electricity or otherwise impact the Province's achievement of electricity self-sufficiency.
(b)	to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;	FEI is implementing its accepted 2024-2027 DSM Expenditures Plan, which includes the Okanagan region, to take demand-side measures and conserve energy. The peak load served by the Project is net of demand side measure savings (and the 66% reduction in demand applies to BC Hydro and is not applicable to FEI).
(c)	by 2030, to ensure that 100% of the electricity generated in British Columbia and supplied to the integrated grid is generated from clean or renewable resources, and to ensure that the infrastructure necessary to transmit that electricity is built;	The Project does not affect the generation or supply of electricity.
(d)	to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources;	The Project involves the installation of innovative, small scale liquefied natural gas storage and regasification equipment to address near-term peak demand requirements in the Okanagan region through the winter of 2028/2029, thereby avoiding or deferring longer-term capacity solutions. The Project does not affect customer use of renewable natural gas, which is blended on FEI's system and allocated to FEI's sales customers.
(e)	to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract Act* continue to accrue to the authority's ratepayers;	This objective applies to BC Hydro and is not applicable to FEI.
(f)	to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;	This objective applies to BC Hydro and is not applicable to FEI.
(f.1)	to ensure that changes to the authority's rates (i) are reasonably predictable, and (ii) are reasonably consistent from year to year;	This objective applies to BC Hydro and is not applicable to FEI.
(f.2)	to ensure that increases to the authority's rates do not exceed cumulative inflation;	This objective applies to BC Hydro and is not applicable to FEI.

[43] As set out in section 2 of the CEA, as amended on February 15, 2024.

Item	Objective	Comments
(g)	to reduce BC greenhouse gas emissions: (i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007, (ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007, (iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007, (iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and (v) by such other amounts as determined under the *Climate Change Accountability Act*;	The Project does not conflict with the reduction of greenhouse gas emissions in BC as the Project is designed to support near-term peak demand requirements in the Okanagan region during cold winter conditions, and there is currently no feasible alternative peak resource available to serve this load. Further, the Project will facilitate customers' continued use of renewable natural gas even during peak demand conditions, as the renewable natural gas is blended on FEI's system and allocated to FEI's sales customers, to reduce emissions in BC.
(g.1)	to ensure that the authority holds rights to a sufficient amount of clean or renewable electricity to enable British Columbia to meet the objective set out in paragraph (g);	This objective applies to BC Hydro and is not applicable to FEI.
(h)	to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;	The Project is designed to meet near-term peak demand and will not prevent the switch to other energy sources that can decrease greenhouse gas emissions, such as electricity or renewable natural gas. The Project does not affect customer use of renewable natural gas, which is blended on FEI's system and allocated to FEI's sales customers, to reduce emissions in BC.
(i)	to encourage communities to reduce greenhouse gas emissions and use energy efficiently;	The Project is designed to meet near-term peak demand and will not prevent communities from reducing greenhouse gas emissions or using energy efficiently.
(j)	to reduce waste by encouraging the use of waste heat, biogas, and biomass;	The Project does not affect customer use of renewable natural gas, which is blended on FEI's system and allocated to FEI's sales customers, to reduce emissions in BC.
(k)	to encourage economic development and the creation and retention of jobs;	The 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 (i.e., the use of local hotels and restaurants for employees working on the construction sites). FEI is committed to working with Indigenous groups, community leaders and local organizations, developing the local workforce, supporting local businesses, and connecting them to Project opportunities. The Project will also ensure adequate capacity is available to support economic activity and growth in the region through the winter of 2028/2029.

Item	Objective	Comments
(l)	to foster the development of first nation and rural communities through the use and development of clean or renewable resources;	The Project does not affect the development of clean or renewable resources.
(m)	to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;	The Project does not affect BC's generation and transmission assets.
(n)	to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;	The Project does not affect the generation or export of electricity.
(o)	to achieve British Columbia's energy objectives without the use of nuclear power;	The Project does not affect the generation of electricity.

Section 4 of the CEA indicates that the objectives in section 2(f.2) and (g) of the CEA have priority, as follows:

> 4 The energy objectives set out in section 2 (f.2) and (g) of the Act have priority over the other energy objectives set out in that section.

The objective in section 2(f.2) applies only to BC Hydro and is therefore not applicable to the Project. As noted in Table 9-1 above, the Project does not conflict with the objective in section 2(g) to reduce GHG emissions, as it is designed to serve near-term peak demand through the winter of 2028/2029 for which there is no available alternative, and will facilitate FEI's customers' use of renewable natural gas even during these peak periods. Since the Project is not in conflict with this objective, the priority to be given to it has no bearing on the Project.

In summary, a consideration of British Columbia's energy objectives – particularly (d) and (k) – supports the Project as it is an innovative solution to meet near-term peak demand and FEI anticipates positive socio-economic benefits to the regional area as a result of the Project. A consideration of the remaining objectives is neutral vis-à-vis the Project, as many of the objectives are not applicable and the Project is designed to meet short-term peak energy needs in the region, for which there is currently no feasible alternative peak resource available.

9.3 *LONG TERM GAS RESOURCE PLAN*

The original OCU CPCN project was identified in FEI's most recently filed long-term gas resource plan (2022 LTGRP).[44] In the decision accepting the 2022 LTGRP (2022 LTGRP Decision), the BCUC noted that FEI projects a need for capacity upgrades on the ITS in the planning period. The BCUC also noted that the original OCU CPCN project was rejected, and that FEI was directed to examine other short-term solutions to meet requirements and file a mitigation plan with the BCUC by the end of July 2024.[45] Accordingly, the OCMP is consistent with FEI's most recently accepted LTGRP.

9.4 *CONCLUSION*

In consideration of British Columbia's energy objectives set out in section 2 of the *Clean Energy Act* and the most recently accepted 2022 LTGRP, the Project should be approved.

[44] 2022 LTGRP, Exhibit B-1, p. 7-29.
[45] 2022 LTGRP Decision and Order G-78-24, p. 37.

10. CONCLUSION

The OCMP is necessary for FEI to continue to maintain safe and reliable gas service to its existing and future customers in the central and north Okanagan regions, for the short term. As discussed in Section 3 and accepted by the BCUC in its Decision and Order G-361-23, there is an imminent capacity shortfall forecast by the winter of 2026/2027 on the ITS which must be addressed.

FEI proposes to scope the OCMP such that the Company can meet the forecast peak demand in the Okanagan region through the winter of 2028/2029, as FEI requires the intervening time to assess how best to address the capacity requirements on the ITS in the longer term. Further, FEI considers it necessary to scope the OCMP such that it alleviates the reliance on the current short-term temporary mitigation measures to the extent possible, as the risk of relying on all of these short-term temporary measures is too great.

FEI undertook a thorough evaluation of alternatives which included a smaller pipeline extension and various CNG and LNG options. Due to the complexity of needing to have the OCMP approved and in-service before the winter of 2026/2027, FEI undertook a more iterative approach to developing and evaluating the alternatives, as explained in Section 4. Ultimately, the Company determined that the Small Scale LNG Facility (Alternative 6) was the best solution to meet the Project objective. The Small Scale LNG Facility is proposed to be constructed on FEI's existing owned land parcel at the Kelowna Gate Station, and, unlike the other feasible alternatives (i.e., CNG and LNG Trucking), it includes storage that can be filled over a longer time period during the off-season when driving conditions are favourable. Since the Project is located on an active FEI facility site with a disturbed, gravelled surface and limited vegetation, FEI expects minimal environmental and archaeological Project impacts, which is supported by its preliminary assessment.

FEI respectfully submits that consultation and engagement activities to date have been sufficient, appropriate and reasonable, and meet the requirements of the CPCN Guidelines. FEI will continue to maintain open lines of communication with stakeholders and Indigenous communities, addressing interests or concerns brought forward throughout the duration of the Project, including planning, construction, and site restoration.

Accordingly, the Company requests that the BCUC approve the Project as set out in the Application, including recovery of the actual pre-construction development costs incurred for the original OCU CPCN project from 2018 to 2023. As explained in Section 6.4.3.2, FEI considers all the pre-construction costs to have been necessary and prudently incurred.

FEI plans to initiate the detailed design and procurement of long lead items in Q1 2025. The construction for the first phase of the Project is planned to start in Q1 2026, with final commissioning scheduled to be completed in Q2/Q3 2026.

Appendix A
IPP BASIS OF ESTIMATE REPORT

FILED CONFIDENTIALLY

Appendix B
JENMAR SCREENING REPORTS

Appendix B-1

JENMAR CLASS 4 SCOPE AND ESTIMATE REPORT

FILED CONFIDENTIALLY

Appendix B-2
JENMAR OCU CONCEPT SCREENING PRESENTATION

JENMAR CONCEPTS

OCU Concept Screening

February 14, 2024

Duncan Currie, P.Eng.

Energy Requirements

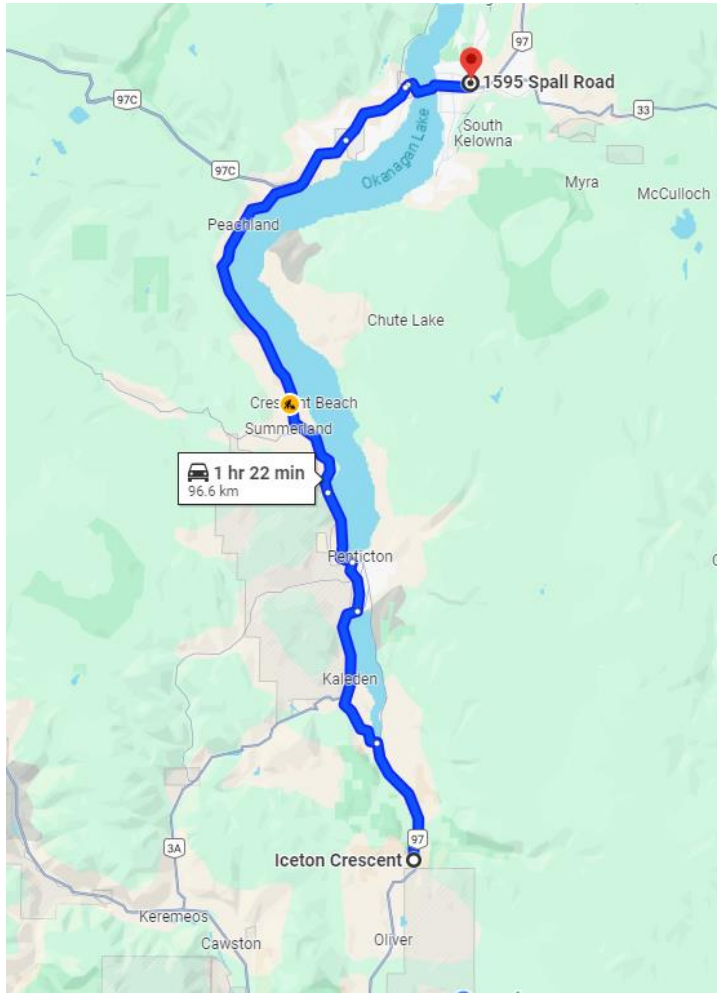
Year	Options	Injection Capacity @ Kelowna	Injection Capacity @ Polson	Storage Capacity	
		mmscfd	mmscfd	mmscf	Location
2028	Option 2a – Kelowna	6.6	0	9	Kelowna
	Option 2b – Polson	0	3.8	5.1	Polson
2030	Option 2a – Kelowna	11	0	19.5	Kelowna
	Option 2b – Kelowna & Polson	1.3	6.4	1.3 @ Kelowna & 11.1 @ Polson	Kelowna & Polson

OCU Alternatives

- CNG Virtual Pipeline
- CNG Peak Shaving
- LNG Virtual Pipeline
- LNG Peak Shaving
- LNG Peak Shaving / Virtual Pipeline Hybrid

CNG Virtual Pipeline – Overview

- Bulk transport of CNG from Oliver Compressor station to Kelowna Gate
- CNG Bulk Transport Trailers
- Fixed or Mobile CNG compressor at Oliver Compressor station
- Fixed or Mobile Pressure Reduction Units at Kelowna Gate



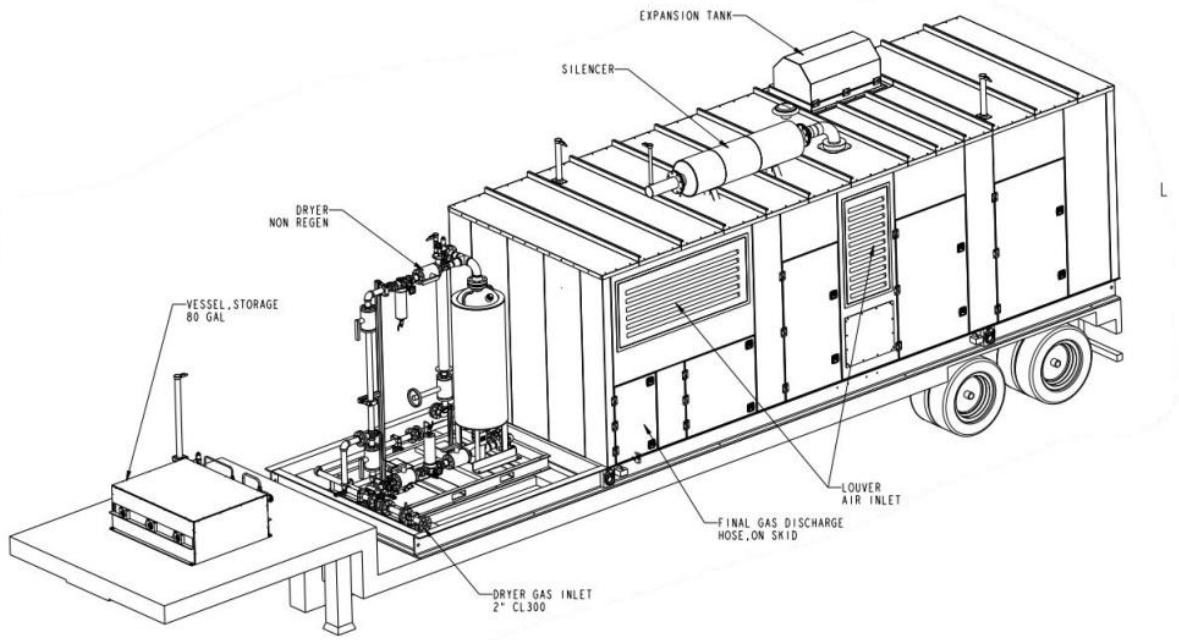
CNG Virtual Pipeline – Equipment

CNG Bulk Transport Trailers

- 8 required (2028), 12 required (2030)

Mobile CNG Compressors

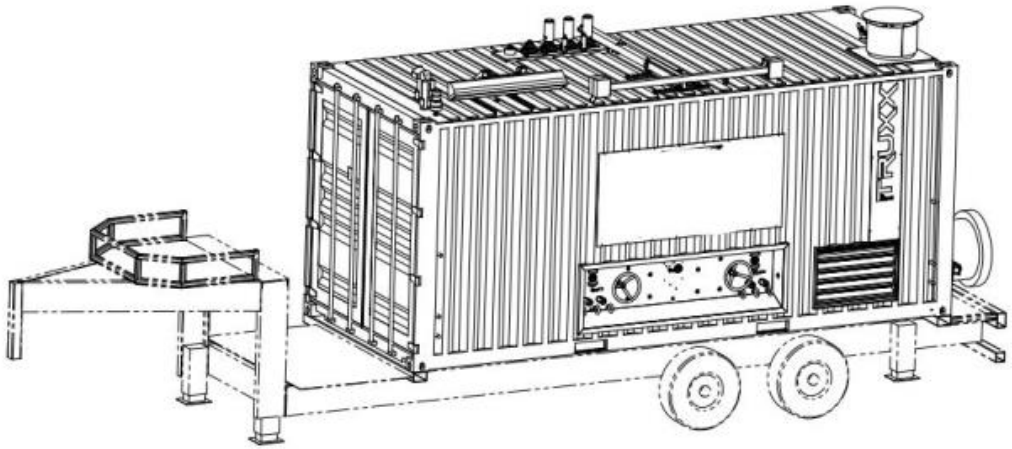
- 2 required (2028), 3 required (2030)



CNG Virtual Pipeline – Equipment

Mobile Pressure Reduction Units

- 2 required (2028), 3 required (2030)



CNG Virtual Pipeline – Siting

Loading at Oliver Compressor Station

Footprint required = 70 ft x 70 ft

Setback = 15 ft to property lines

IP/DP Injection at Kelowna Gate

Footprint required = 70 ft x 70 ft

Setback = 15 ft to property lines

CNG Virtual Pipeline – Financial

- Capex
  - $12-18M in equipment
  - $600K-1M in site upgrades at Oliver Compressor Station & Kelowna Gate
- O&M
  - Primarily mobile equipment and trucking
  - CNG supply study est. $400K per year for 12 trailers

CNG Virtual Pipeline – Schedule

- Execution Timeline
  - 12-18 months to procure equipment and complete site upgrades
  - May be challenging to obtain 10 trailers in 12 months
- Permitting
  - Updates to existing permits
    - BCER facility permit @ Oliver compressor station
    - BCER pipeline permit? @ Kelowna Gate

CNG Virtual Pipeline – Other

- Utilities
  - Electrical service upgrades may be required at each site
  - Compressor can be gas or electric driven
- Safety
  - Trucking of HP gas on highways with winter road conditions
  - Emergency response procedures
- Environment
  - Emissions from trucking
- Community
  - Truck traffic, noise at Kelowna Gate

CNG Virtual Pipeline Summary

ADVANTAGES

- Shortest execution timeline
- Minimal site upgrades required
- Smallest footprint
- Mobile equipment can be utilized during ‘off-season’ as compared to peak shaving system

DISADVANTAGES

- Higher equipment cost vs. LNG
- Less time to respond to a weather event than LNG with on-site storage
- Limited FEI operations experience with CNG virtual pipeline equipment

CNG Peak Shaving – Overview

- Bulk CNG storage facility located on existing Kelowna or Polson IP system
- Same concept as deployed for the Gibsons Capacity Upgrade (GCU)
- Fixed compression, storage, pressure reduction systems on a single site
- During periods of low demand, use compressors to draw gas from IP or DP system and fill bulk storage at high-pressure
- Re-inject back into system during periods of high-demand

GCU Facility

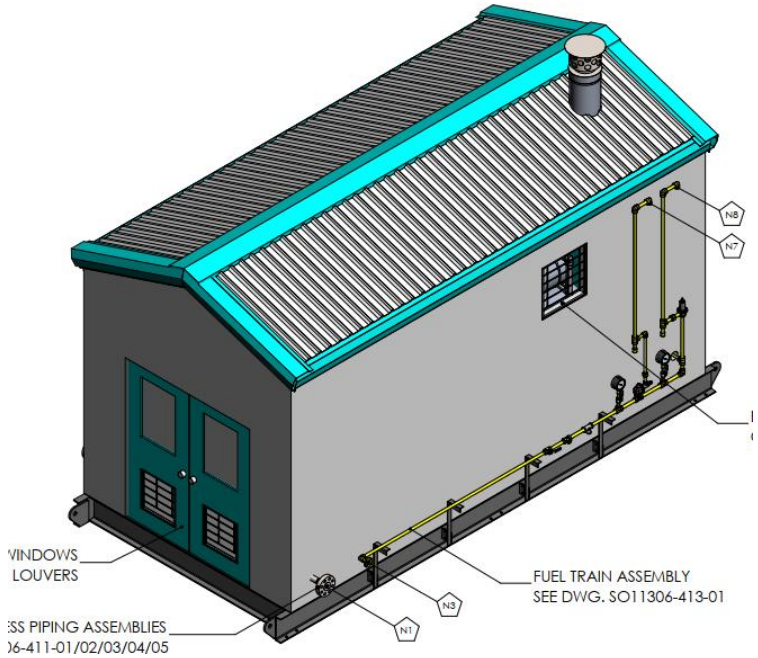
CNG Peak Shaving – Equipment

CNG Storage Vessels (15,000 scf)

- Over 200 vessels required (2028), not viable

CNG Compressors & Pressure Reduction Units

- 2 required (2028)



CNG Peak Shaving – Siting

- Footprint @ 2028
  - 550 ft x 100 ft for storage vessels only!

CNG Peak Shaving – Other

- Capex
  - $30M+ for CNG storage alone
  - $40M+ total
- Land
  - Need to acquire substantial property on Kelowna or Polson IP systems
- Utilities
  - Likely require IP and/or DP line extensions
- Schedule
  - 2-3 years – assuming it is possible to acquire the required storage assemblies in that timeframe (unlikely)

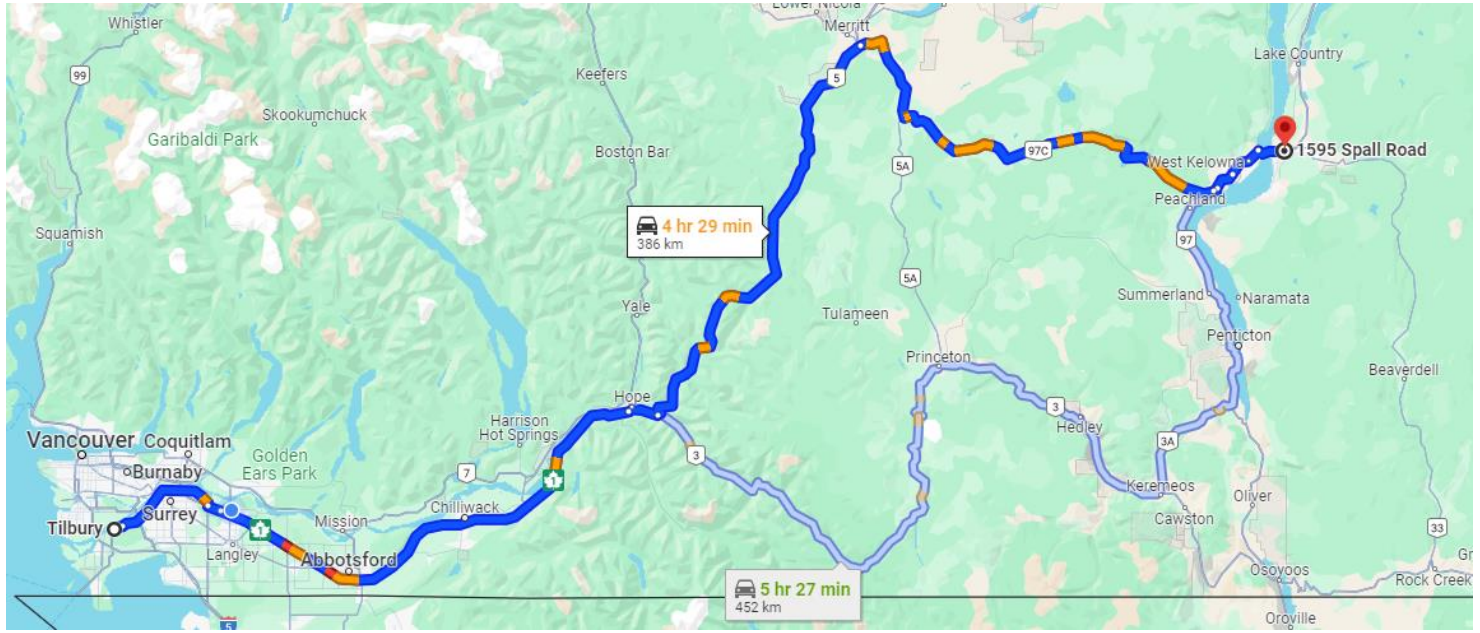
CNG Peak Shaving Summary

NOT VIABLE

- Cost, footprint, and schedule are prohibitive
- Due to the limited storage density of CNG, peak shaving is only suitable for systems like Gibsons where the shortfall is relatively small (< 0.5 mmscfd) and for a short period of time
- OCU load is too large for a fixed CNG system

LNG Virtual Pipeline – Overview

- Bulk transport of LNG from Tilbury LNG plant to Kelowna Gate Station
- LNG Bulk Transport Trailers
- LNG ‘Pumper Queen’ mobile storage and offload system at Kelowna Gate Station
- Mobile vaporizer at Kelowna Gate Station



LNG Virtual Pipeline – Equipment

LNG Bulk Transport Trailers (12,000 US gal)

- 10 required (2028), 15 required (2030)

LNG Pumper Queen (16,000 US gal)

- 2 required (2028), 3 required (2030)

LNG Virtual Pipeline – Equipment

Mobile Gas Fired Vaporizer

- 2 required (2028), 3 required (2030)

LNG Virtual Pipeline – Siting

Loading at existing Tilbury Truck Loading Facility

9 trailer loads per day (2028)

15 trailer loads per day (2030)

IP/DP Injection at Kelowna Gate

Footprint required = 100 ft x 100 ft

Setback = 50 ft to property lines from impoundment

LNG Virtual Pipeline – Financial

- Capex
  - $8-12M in equipment
  - $1-2M in site upgrades at Kelowna Gate
- O&M
  - Primarily mobile equipment and trucking
  - LNG supply study est. $900K per year for 15 trailers

LNG Virtual Pipeline – Schedule

- Execution Timeline
  - 12-18 months to procure equipment and complete site upgrades
  - May be challenging to obtain 10 trailers in 12 months, could potentially utilize some of FEI's existing trailer fleet?
- Permitting
  - BCER LNG Facility Permit required for Kelowna Gate Station upgrade

LNG Virtual Pipeline – Other

- Utilities
  - Mobile vaporizer trailer can be equipped with natural gas genset and instrument air compressor so no utility upgrades are required
- Safety
  - Trucking of LNG on highways with winter road conditions
  - Emergency response procedures
  - Spill impoundment required at Kelowna Gate
- Environment
  - Emissions from trucking
  - Potential boil-off gas venting
- Community
  - Truck traffic, noise at Kelowna Gate

LNG Virtual Pipeline Summary

ADVANTAGES

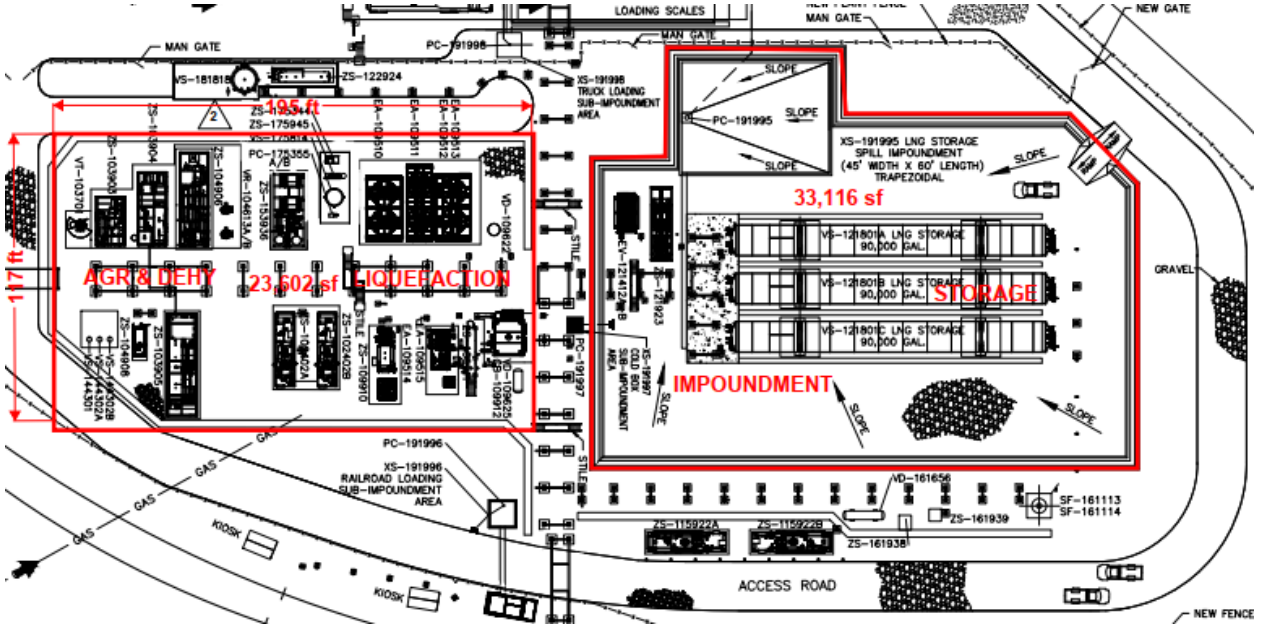
- Lower equipment capital cost than CNG
  - Further cost savings if existing LNG tankers can be utilized
- Existing FEI operations experience with LNG tanker loading and transport
- Pumper queen allows for on-site storage providing more time to respond to a cold-weather event
- Mobile equipment can be utilized during ‘off-season’ as compared to peak shaving system

DISADVANTAGES

- More extensive site upgrades required vs. CNG
  - e.g. spill impoundment, brownfield development
  - Facility permit
- Higher O&M cost vs. CNG
  - e.g. longer trucking distance

LNG Peak Shaving – Overview

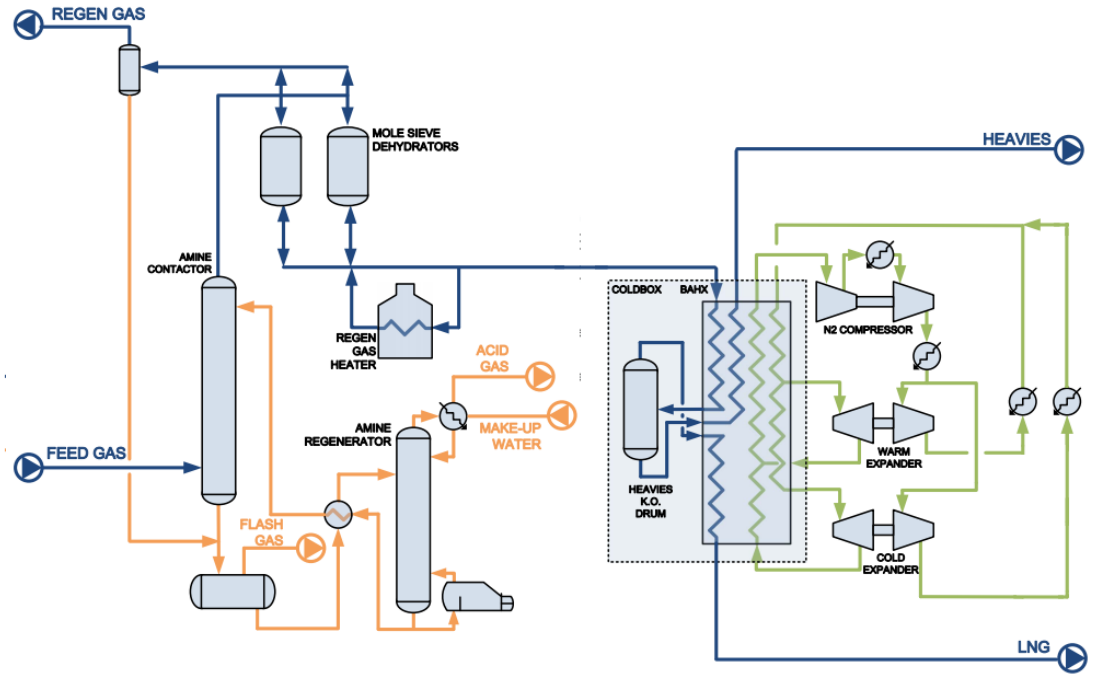
- Bulk LNG liquefaction, storage, and injection facility located on existing Kelowna or Polson TP or IP system (micro-Tilbury)
- Gas cleanup, nitrogen refrigeration cycle for liquefaction (40-90 TPD)
- Fixed LNG storage, vaporization, BOG control
- Fill LNG storage from the system during shoulder season
- Vaporize and inject back into system during periods of high-demand



LNG Peak Shaving – Equipment

Liquefaction Unit

- 40 TPD (2028), 90 TPD (2030)



Simplified Liquefaction PFD

Boost Compressor

- Liquefaction unit requires 600 psig feed gas

LNG Peak Shaving – Equipment

LNG Storage and Vaporization

- 3x 50,000 US gal (2028), 6x 50,000 US gal (2030)

Horizontal Tanks

15,000 US gal vertical tank at Vedder Transport

LNG Peak Shaving – Siting

- Footprint @ 2028
  - 250 ft x 200 ft

LNG Peak Shaving – Other

- Capex
  - $25M-30M for equipment
  - $40M+ total
- O&M
  - Cost to operate the facility will substantially exceed all other options
  - Very low utilization of the equipment
- Land
  - Need to acquire new property on Kelowna or Polson TP/IP systems
- Utilities
  - ~2000 kVA electrical service required
  - Likely require TP and/or IP line extensions
- Schedule
  - 4-5 years – requires BCER LNG Facility Permit

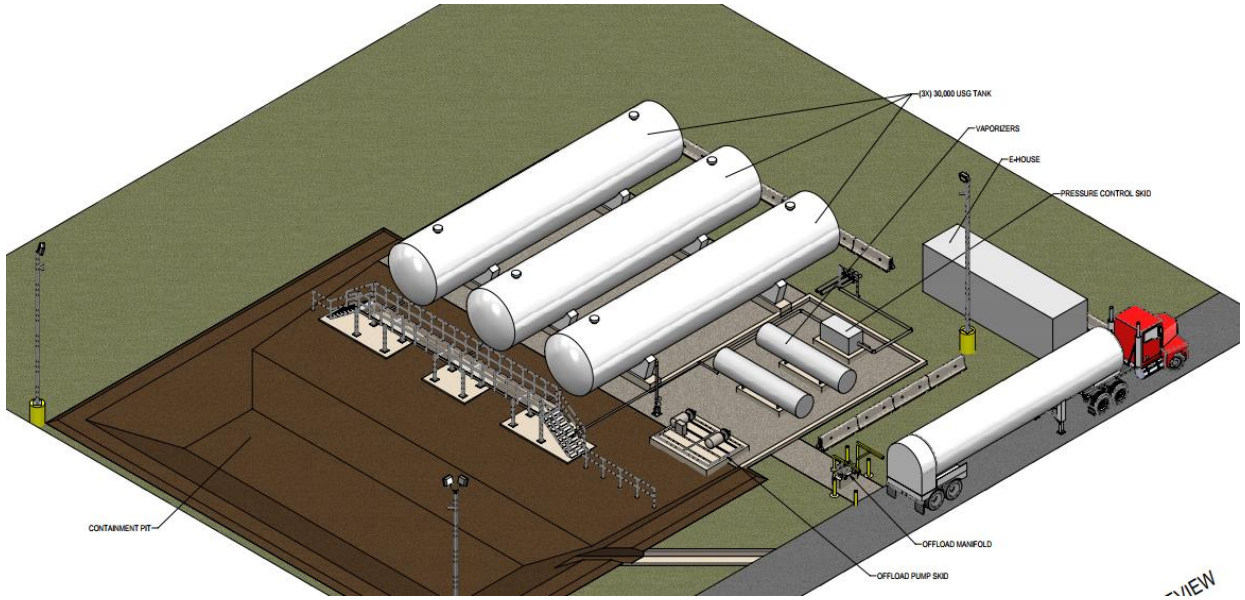
LNG Peak Shaving Summary

NOT VIABLE

- High capital and O&M cost
- Low utilization of equipment
- Timeline not achievable (2028 operation)

LNG Virtual Pipeline/Peak Shaving Hybrid – Overview

- Bulk transport of LNG from Tilbury LNG plant to Kelowna Gate Station
- Fixed LNG offload, storage and vaporization equipment at Kelowna Gate Station
- Fill LNG storage via tankers during shoulder season
- Vaporize and inject into IP system during periods of high-demand
- Supplement LNG supply with tanker loading as required during cold-weather events



LNG VP/Peak Shaving Hybrid – Equipment

LNG Bulk Transport Trailers (12,000 US gal)

- 2 required (2028), 4-5 required (2030)

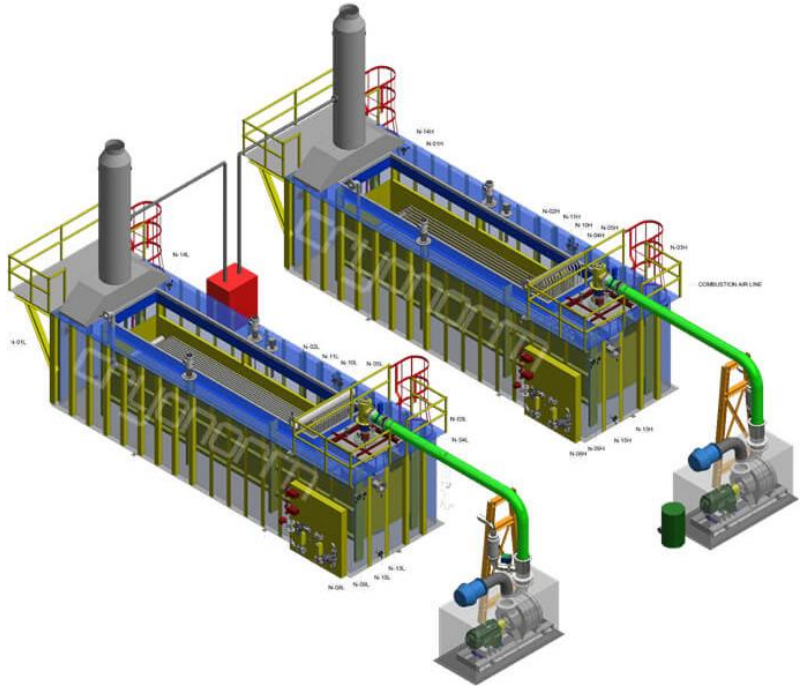
LNG Storage Tanks (50,000 US gal)

- 2-3 required (2028), 3-4 required (2030)

LNG VP/Peak Shaving Hybrid – Equipment

Skidded Gas Fired Vaporizer

- 2 required (2028), 3 required (2030)



LNG VP/Peak Shaving Hybrid – Siting

Loading at existing Tilbury Truck Loading Facility

2 trailer loads per day (2028)

3 trailer loads per day (2030)

IP/DP Injection at Kelowna Gate

Footprint required = 150 ft x 150 ft

Setback = 50 ft to property lines from impoundment

LNG VP/Peak Shaving Hybrid – Financial

- Capex
  - $4-9M in equipment
    - Less if existing LNG tankers can be utilized
  - $1-2M in site upgrades at Kelowna Gate
- O&M
  - Mobile equipment and trucking
    - LNG supply study est. $300K per year for 5 trailers
  - O&M for fixed facility

LNG VP/Peak Shaving Hybrid– Schedule

- Execution Timeline
  - 18-24 months to procure equipment and complete site upgrades
- Permitting
  - BCER LNG Facility Permit required for Kelowna Gate Station upgrade

LNG VP/Peak Shaving Hybrid – Other

- Utilities
  - Electrical service upgrade at Kelowna Gate Station
  - Instrument air system
- Safety
  - Trucking of LNG on highways with winter road conditions
  - Emergency response procedures
  - Spill impoundment required at Kelowna Gate
- Environment
  - Emissions from trucking
  - Potential boil-off gas venting
- Community
  - Truck traffic, noise at Kelowna Gate

LNG LNG VP/Peak Shaving Hybrid Summary

ADVANTAGES

- Lowest capital cost
  - Further cost savings if existing LNG tankers can be utilized
- Potentially lowest O&M cost
- LNG transport is primarily during off-season when road conditions are ideal
- Existing FEI operations experience with LNG tanker loading and transport
- Flexibility – optimize combination of LNG tankers and fixed storage

DISADVANTAGES

- Fixed equipment is stranded at site, cannot be utilized during ‘off-season’ as compared to dedicated VP options
- Larger footprint required vs. dedicated VP options
- More extensive site upgrades required vs. CNG
  - e.g. spill impoundment, brownfield development

Recommendations

Criteria	CNG Virtual Pipeline	LNG Virtual Pipeline	LNG Virtual Pipeline/Peak Shaving Hybrid
Infrastructure	O	Y	O
Financial	X	O	Y
Schedule	Y	O	Y
Safety	O	O	Y
Environment & Community	O	O	Y

Y = preferred

O = acceptable

X = unacceptable risk

THANK YOU!

Questions? Comments?

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Appendix B-3

JENMAR CLASS 4 SCOPE AND ESTIMATE REPORT ADDENDUM

FILED CONFIDENTIALLY

Appendix C
SITE SELECTION REPORT

Project: Okanagan Capacity Mitigation Project (OCMP) **FEI Doc No:** M-0009-ENG-REP-0002

Location: Kelowna, BC

Rev	Date (dd-mmm-yyyy)	Status	Prepared by	Checked by	Approved by
A	28-May-2024	Issued for Review	SH	AL	AL

FORTISBC ENERGY INC. (FEI)
OKANAGAN CAPACITY MITIGATION PROJECT (OCMP)

SITE SELECTION REPORT

CLASS 4

Prepared by:

FortisBC Energy Inc.

Project: Okanagan Capacity Mitigation Project (OCMP) **FEI Doc No:** M-0009-ENG-REP-0002

Location: Kelowna, BC

REVISION HISTORY

DATE	PAGE / SECTION	DESCRIPTION

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1.0 SELECTION SITE SCOPE

This document outlines the facility site selection process, the selection rationale and the results of the site selection for FortisBC Energy Inc.'s (FEI) Okanagan Capacity Mitigation Project (OCMP) of FEI's Interior Transmission System (ITS).

This report is an evaluation of site locations only and not intended to provide the level of accuracy required for detail design and construction. Formal site confirmation will occur during subsequent project development and design activities.

2.0 CRITERIA

In support of FEI Certificate of Public convenience and Necessity (CPCN) application the following are the categories, criteria and weighting used for the evaluation selection. The category criteria and weighting were determined in collaboration with FEI Subject Matter Experts and aligns with other recent FEI projects.

2.1 Technical Criteria (15% Weighting)

- Considers the system capacity requirements and the technical challenges to add additional infrastructure to the facility or system. To achieve the required increase in capacity, the injection must occur at a hydraulic low-pressure point. Between Polson IP System and Kelowna IP/DP system, Kelowna IP/DP system was deemed feasible to meet short and long-term hydraulic requirements. FEI System Capacity Planning identified the NPS 8 Intermediate Pressure (IP) lateral or the NPS 16 Distribution Pressure (DP) main as the most influential arteries.
- Considers long term operational impacts to safely maintain the facility and conduct operational activities. This would include evaluating the potential site configuration and layout such as suitable work space around equipment, potential of working from heights, confined space entry and proximity to major trucking routes.
- Considers the existing constraints on construction, productivity and non-standard, higher risk construction techniques within the existing site and temporary workspace.

2.2 Community and Stakeholder Criteria (25% Weighting)

- Considers the cultural values, economic well-being, and daily life for Indigenous groups, local stakeholders, and citizens during construction and during the life of the facility. This includes accessibility impacts to community infrastructure (e.g. schools, hospitals, recreation centres) and general traffic impacts to residents, businesses and visitors in the Project Area.
- Considers the impacts to the human environment including noise, local emissions, aesthetics, nuisance factor and the short and long-term visual effects that may be observed by residents, businesses, and visitors in the Project area.

2.3 Land Ownership, Permitting and Zoning Criteria (20% Weighting)

- Considers the complexity of acquisition and transfer of land ownership for project use and its impact to Project schedule. The process and required time to acquire parcels varies significantly on the current land ownership.
- Considers the regulatory requirements to permit the construction and operation of the facility and its impact on Project execution. Re-zoning and meeting municipal bylaws for land use and development may result in delays and other impacts to the Project execution.
- Considers the existing and future plans for land usage and development in the Project area.

2.4 Schedule and Project Execution Criteria (30% Weighting)

- Considers the risk to schedule and project execution that meets other criteria.

2.5 Financial (10% Weighting)

- Considers the Project costs that meet other criteria while considering the impacts to the rate base.

Selected sites were evaluated based on the criteria, and scores are assigned per the evaluation scoring shown in Table 1.

Table 1: Route Evaluation Scoring

Score	Impact Evaluation
5	Very low (negligible) impact, best choice
4	Low impact, better choice
3	Moderate impact, good choice
2	High negative impact, poor choice
1	Very high negative (unacceptable) impact, unviable choice

3.0 METHODOLOGY/EVALUATION

3.1 Methodology

This assessment is based on the input from multiple information sources including:

- ICIS Maps from Integrated Cadastral Information Society;
- Google Earth Imagery;
- FEI Geographic Information System Maps; and

- FEI System Capacity Models.

3.2 Initial Screening

A pool of 21 potential sites were selected for evaluation in the initial screening process. The criteria for selecting the potential site were the availability of sufficient land area for siting the required LNG equipment with appropriate offsets and proximity to existing natural gas infrastructure. A minimum footprint of 70 m x 50 m (3,500 m²) was found sufficient for the equipment installation.

Table 2 below lists the potential sites identified by their Pin numbers and Appendix A provides a map showing their locations.

Table 2: Site List for Initial Screening and Geographical Coordinates

Pin#	Longitude	Latitude	Municipal Location	Approximate Area Availability	Proximity to Existing Natural Gas Infrastructure
1	-119.4538	49.8854	City of Kelowna	4,500+ m²	DP and IP Pipeline On Site[2]
2	-119.4556	49.8881	City of Kelowna	5,500+ m²	IP Pipeline ~ 60-75+ m away from property[1]
3	-119.4695	49.8926	City of Kelowna	3,500+ m²	IP Pipeline ~ 35-50+ m away from property[1]
4	-119.4737	49.8936	City of Kelowna	3,500+ m²	IP Pipeline ~ 60-75+ m away from property[1]
5	-119.5353	49.8831	Westbank First Nation	16,000+ m²	IP Pipeline < 30 m away from property[1]
6	-119.5388	49.8830	Westbank First Nation	10,000+ m²	IP Pipeline ~ 180+ m away from property[1]
7	-119.5381	49.8782	Westbank First Nation	6,400+ m²	IP Pipeline ~ 35-50+ m away from property[1]
8	-119.5427	49.8750	Westbank First Nation	3,500+ m²	IP Pipeline ~ 60-75+ m away from property[1]
9	-119.5461	49.8729	City of West Kelowna	5,300+ m²	IP Pipeline Adjacent to Site[2]
10	-119.5562	49.8693	City of West Kelowna	7,900+ m²	IP Pipeline Adjacent to Site[2]
11	-119.5586	49.8666	City of West Kelowna	3,700 m²	IP Pipeline ~ 60-75+ m away from property[1]
12	-119.5605	49.8654	City of West Kelowna	62,000+ m²	IP Pipeline ~ 30-45+ m away from property[1]
13	-119.5624	49.8652	City of West Kelowna	4,000+ m²	IP Pipeline ~ 30-45+ m away from property[1]
14	-119.5640	49.8634	City of West Kelowna	4,000+ m²	IP Pipeline Adjacent to Site[2]
15	-119.5848	49.8618	City of West Kelowna	4,200+ m²	IP Pipeline ~ 30-45+ m away from property[1]
16	-119.5918	49.8584	City of West Kelowna	3,600+ m²	IP Pipeline ~ 30-45+ m away from property[1]
17	-119.6029	49.8452	Westbank First Nation	7,500+ m²	IP Pipeline Adjacent to Site[2]
18	-119.6131	49.8386	Westbank First Nation	4,000+ m²	IP Pipeline ~ 30-45+ m away from property[1]
19	-119.6187	49.8337	Westbank First Nation	9,500+ m²	IP Pipeline Adjacent to Site[2]
20	-119.6197	49.8320	Westbank First Nation	7,000+ m²	IP Pipeline Adjacent to Site[2]
21	-119.6246	49.8302	Westbank First Nation	3,500+ m²	IP Pipeline ~ 30-45+ m away from property[1]

Notes:
[1] Less favourable site location based on initial screening.
[2] Optimal site for further evaluation.

Sites were selected based on FEI System Capacity hydraulic models identifying the location would provide the necessary support to the low-pressure point.

Sites that were a significant distance from the NPS 8 IP pipeline or NPS 16 DP main would require complex crossings involving additional activities including constructing a new pipeline involving environmental and regulatory approvals were also eliminated.

Following this screening process, 7 optimal sites were identified to meet the selection criteria.

3.3 Secondary Screening

Following the initial screening, the seven preferred sites were evaluated. Despite all seven sites meeting the initial requirements, the projected timeline for land acquisition necessitated an expedited approach. Consequently, three sites were identified as feasible options for final evaluation. These sites not only align with the technical criteria but also offer feasible timelines, ensuring project timeline is not impacted.

The three preferred sites are described in detail and evaluated in Section 4.

4.0 SPECIFIC SITE EVALUATION AND SELECTION

In the following section, the site options from Section 3.3 are analyzed and reviewed to the evaluation criteria developed in Section 2.0 and a preferred option is selected.

4.1 Pin #1 - 1569 Spall Road (Kelowna Gate Station)

The initial location for the proposed tie-in location was selected based on the hydraulic requirement and availability of NPS 8 IP lateral and NPS 16 DP main tie-in at this location. The proposed site is located inside a FEI owned parcel at Kelowna Gate Station (FID: 10146) adjacent to FortisBC Inc. (FBC) electric substation. Land ownership for this location is private (FEI owned) and located in busy area of City of Kelowna. The site is currently utilized for emergency transmission pipe and fitting storage. The available area at this site is approximately 4,500 m². The proposed location is shown in Figure 1.

Figure 1: Proposed Pin #1 Location

Table 3: Scoring Table for Pin#1

Criteria	Score	Weighted Score	Evaluation
Technical (15%)	5	0.75	Availability of the Tie-in was considered the best choice as located inside FEI existing Gate Station. Injecting into the DP system would eliminate the requirement for compressor units to simplify operations and maintenance.
Community & Stakeholder (25%)	4	1.00	The location is in the city near residents and busy road. Consultation would be required from the impacted property owners.
Land Ownership, Permitting and Zoning (20%)	4	0.80	The location is already FortisBC owned and is situated in the utility corridor adjacent to FBC electric substation. A Facility permit will be required from BCER. No rezoning is required, and existing pipeline appurtenance permit exists at this site.
Schedule (30%)	3	0.90	This location has moderate impact on the project schedule for completion by Q4 2026.
Financial (10%)	5	0.50	This location has the lowest impact on the project cost based on the other criteria discussed. Injecting into the DP system would eliminate the requirement for compressor units to reduce capital and O&M expenditure.
Total Score	**21**	**3.95**	

4.2 Pin #10 - 980 STEVENS Road

The initial location for the proposed tie-in location was selected based on the hydraulic requirement and availability of NPS 8 IP lateral adjacent to the site. The pipeline is adjacent to this land parcel and an above grade appurtenance will be required to install at this location. The proposed site is located on the private land within the City of West Kelowna and is currently used for commercial storage. The proposed location is shown in Figure 2.

Figure 2: Proposed Pin #10 Location

Table 4: Scoring Table for Pin#10

Criteria	Score	Weighted Score	Evaluation
Technical (15%)	4	0.60	The availability of the Tie-in location was a better choice as the NPS 8 IP lateral is adjacent to the land parcel. Site is located off HWY 97 on parallel road for worker safety.
Community & Stakeholder (25%)	3	0.75	The location is off HWY 97 and privately owned land. Not many business/properties impacted make this a good choice. Consultation would be required from the impacted property owners.

Land Ownership, Permitting and Zoning (20%)	3	0.60	New land acquisition and BCER facility permit would be required. Current zoning is likely suitable due to the location and the existing surrounding developments.
Schedule (30%)	3	0.90	This location has the moderate impact on the project schedule for completion by Q4 2026.
Financial (10%)	4	0.40	This location has low impact on the project cost based on the other criteria discussed.
Total Score	**17**	**3.25**	

4.3 Pin #14 Intersection of HWY 97 & Westlake Road

This location was selected based on the hydraulic requirement and availability of NPS 8 IP lateral. The proposed tie-in location is adjacent to this land parcel and an above grade appurtenance will be required to install at this location. Land ownership for this parcel is crown owned by BC Ministry of Transportation and Infrastructure and is located in the City of West Kelowna. The proposed location is shown in Figure 3.

Figure 3: Proposed Pin #14 Location

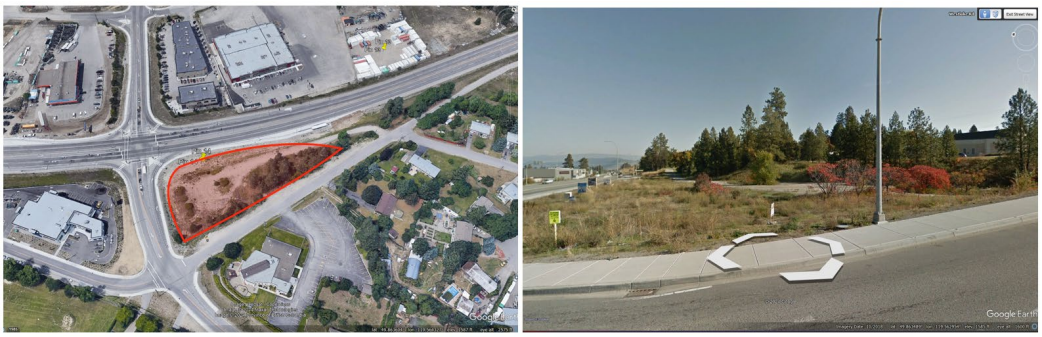


Table 5: Scoring Table for Pin#14

Criteria	Score	Weighted Score	Evaluation
Technical (15%)	3	0.45	The availability of the Tie-in location was a better choice as NPS 8 IP lateral is adjacent to the land parcel. Site is directly adjacent to a controlled intersection on Hwy 97 that may impact worker safety.
Community & Stakeholder (25%)	2	0.50	The location is directly off HWY 97 and on crown land. Several businesses, a church and an elementary school may be impacted make this a poor choice. Consultation would be required from the impacted Indigenous Nation.
Land Ownership, Permitting and Zoning (20%)	2	0.40	New land acquisition and BCER facility permit would be required. Rezoning is likely required due to the location and the existing surrounding developments.
Schedule (30%)	2	0.60	This location has a high negative impact on the project schedule for completion by Q4 2026.
Financial (10%)	3	0.30	This location has a moderate impact on the project cost based on the other criteria discussed.
Total Score	**13**	**2.25**	

5.0 CONCLUSION

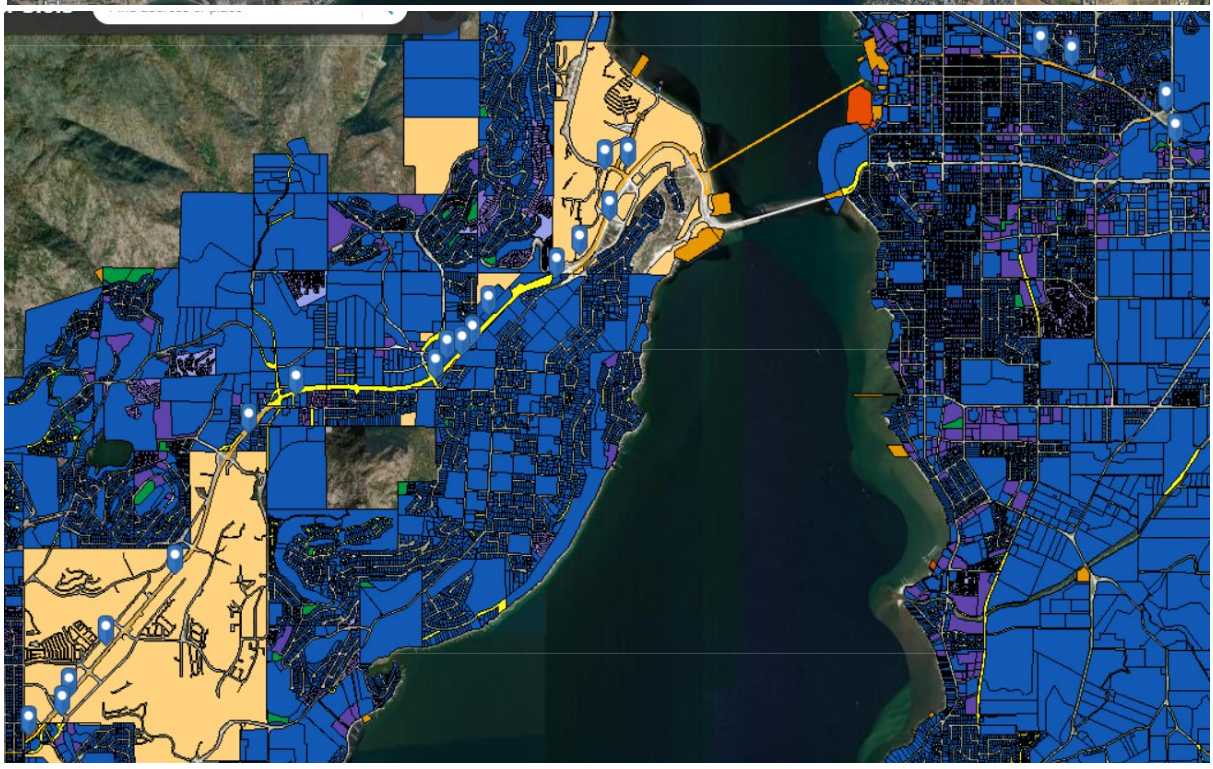
In conclusion, after a comprehensive desktop analysis of the evaluation categories listed in Section 2.0, it is evident that Kelowna Gate Station stands out as the most preferred location. This site obtained the highest score in every category between the alternatives. A summary of the scoring is in Table 6.

Table 6: Summary of Evaluation

Criteria	Kelowna Gate (1569 Spall Rd)		980 Stevens Road		Intersection of HWY 97 & Westlake Road	
	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Technical (15%)	5	0.75	4	0.60	3	0.45
Community & Stakeholder (25%)	4	1.00	3	0.75	2	0.50
Land Ownership, Permitting and Zoning (20%)	4	0.80	3	0.60	2	0.40
Schedule (30%)	3	0.90	3	0.90	2	0.60
Financial (10%)	5	0.50	4	0.40	3	0.30
Total Weighted Score (out of 5)		**3.95**		**3.25**		**2.25**

Therefore, FEI recommends the selected site for the OCMP. It provides the highest likelihood of meeting the required schedule execution timeline, ensuring optimal operation and efficiency. The Kelowna Gate Station is also expected to be the least cost alternative and received the highest technical score.

6.0 APPENDIX A - OVERVIEW MAP OF PROPOSED LOCATIONS



Appendix D
INTERIM SOLUTION ENVIRONMENTAL DESKTOP REVIEW

Okanagan Capacity Upgrade Interim Mitigation Plan Environmental Desktop Review

Liquified Natural Gas Hybrid Alternative – 1595 Spall Road, Kelowna, BC

Project Overview

To support the British Columbia Utility Commission (BCUC) application for a Certificate of Public Convenience and Necessity (CPCN) a desktop review of environmental sensitivities in the project area was completed by FortisBC Environment using publicly available resources (federal, provincial, and municipal) and internal reports. The planned project location is 1595 Spall Road, Kelowna, BC and is illustrated in Figure 1 below. A 500m buffer was used around the project site to identify potential environmental sensitivities.

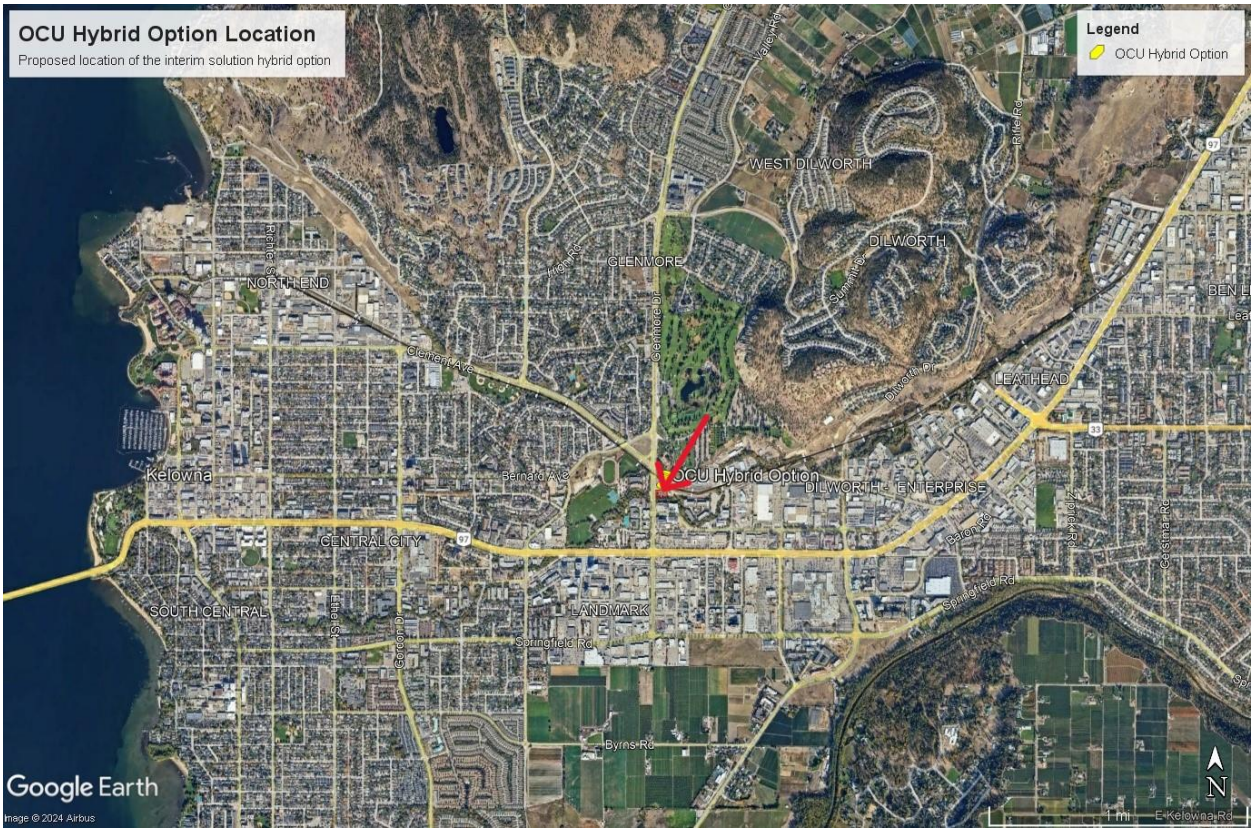


Figure 1. Proposed project location identified by red arrow (Google Earth, 2024)

The proposed interim capacity solution is a hybrid option including a combination of a Liquified Natural Gas (LNG) virtual pipeline and peak shaving facility to meet demand required on Design Degree Days (the Project).

The proposed facility will include the construction and installation of LNG tanks, vaporizers and associated infrastructure to enable injection into the existing natural gas system servicing the area. Site preparation will include grading and civil works.

Project Setting

The Project's planned location is to the east of the downtown core of Kelowna, near the intersection of Spall Road and Clement Avenue (Figure 2). The property is currently in use as storage space for equipment and materials for FortisBC Energy Inc (FEI) and is owned by FEI. It is fully fenced with a gravel surface. Access to the property is from the Alphonse Road dedication on the north side of the property. The surrounding area has mixed uses including other utility infrastructure, commercial, residential and park spaces.

Figure 2. Current site layout (Google Earth, 2024)

The proposed property has two zoning types that overlap the Project area - P4 – Utilities and I2 – General industrial; these zones carry over the properties to the east. The City of Kelowna's Official Community Plan to 2040 maintains this land use zoning. Surrounding properties are zoned P4 – Utilities to the north, CA1 – Core Area Mixed Use and MF3 – Apartment housing to the south, and to the west, across Spall Rd, P3 – Parks and Open Space, P1 – Major Institutional (Parkinson Recreation Park) and MF3 – Apartment housing.

There are two City of Kelowna Development Permit Areas (DPAs) that overlap the subject site. A Natural Hazard DPA for the Mill Creek Floodplain area overlaps the entire property (Figure 3) and a Natural Environment DPA for a watercourse overlaps the southern approximately 30m of the property (Figure 4).

Figure 3. Natural Hazard DPA (grey hatched) for the Mill Creek floodplain area overlapping the proposed property (yellow polygon) (City of Kelowna Map Viewer, 2024)

Figure 4. Natural Environmental DPA (vertical green hatched) for Watercourse map overlapping the proposed property (yellow polygon) (City of Kelowna Map Viewer, 2024)

The proposed Project location is within the Ponderosa Pine Very Dry Hot Okanagan (PPxh1) Biogeoclimatic Ecosystem Classification (BEC) Zone. The PP BEC zone is characterized by hot, dry summers with large moisture deficits during the growing season and cool winters with light snow cover (Lloyd, Angove, Hope and Thompson, 1990). It is known to be the driest and warmest forested zone in British Columbia with a strong rain shadow cast over the Interior Plateau by the Coast Mountains. Forests are often comprised primarily of Ponderosa pine (*Pinus ponderosa*) in open stands in a mosaic with Bluebunch wheatgrass (*Agropyron spicatum*). Other species (Douglas fir, trembling aspen, water birch, paper birch, black cottonwood) can be more dominant where there is more moisture present such as seepage zones and riparian areas.

Aquatic and Groundwater Resources

A review of aquatic and groundwater resources in the Project area, including watercourses, fish presence, aquifers and groundwater wells was completed via desktop.

Mill Creek is located adjacent to the south of proposed Project site. It is a fish bearing watercourse (Figure 5). Within the 500m buffer of the subject property, there are recorded observations of a number of fish species (native and invasive species) including Rainbow Trout, Kokanee, sculpin (species not identified), bass/sunfish, redside shiner, dace (species not identified), chub, carp, northern pikeminnow, goldfish, longnose dace, longnose sucker, peamouth chub, and largescale sucker. Just beyond the 500m buffer, prickly sculpin have also been recorded in Mill Creek.

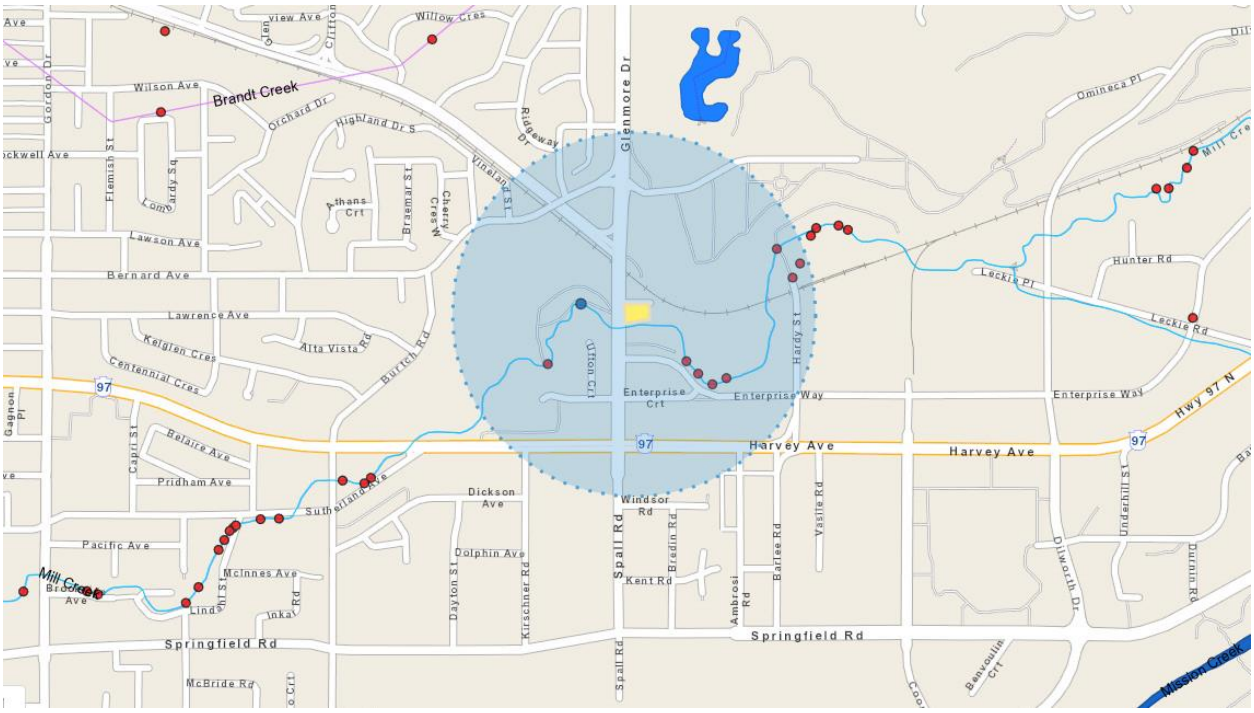


Figure 5. Recorded fish observations in the Project area (iMapBC, 2024). Site – yellow polygon, 500m buffer – blue circle

Species at Risk (SAR) are discussed further in the following section, however there are some aquatic SAR that have the potential be present in the BEC zone the project site is within.

There are recorded observations of aquatic invasive species downstream of the Project location, outside of the project 500m buffer and several kilometres from the project location, however there is potential they may be present in the project area. The recorded invasive species include common watercress (*Rorippa nasturtium-aquaticum*) and brook trout (*Salvelinus fontinalus*). The observations of both of these species are close to the outflow of Mill Creek into Okanagan Lake.

The proposed Project works are not anticipated to interact with Mill Creek. As much as is feasible, site components are designed to be outside of the Natural Environment DPA, and existing riparian area for Mill Creek.

The Project area is not mapped within a community watershed area.

Two aquifers were identified mapped underlying the proposed Project location, with one other mapped within 500m of the project site (Figure 6). Aquifer #467, Mission Creek Aquifer, is described as an unconfined sand and gravel aquifer – small stream system, with high vulnerability and productivity and moderate demand, with a median water depth of 2.44m below ground surface (bgs). Aquifer #464, Greater Kelowna Aquifer, is described as a confined sand and gravel – glacial aquifer, with low vulnerability and demand and high productivity, with a median water depth of 11.42 bgs. Aquifer #470, Kelowna north to Ellison Lake Aquifer, is mapped at approximately 400m north of the project location, is described as fractured, crystalline bedrock aquifer with moderate vulnerability and low demand and productivity. The proposed site works are not anticipated to have an impact on these aquifers, and no water withdrawal from any aquifer is included with the proposed Project design.

Figure 6. Mapped aquifers in the Project area (iMap, 2024)

Eleven groundwater wells were mapped within the 500m project study area (Figure 7). The closest groundwater well is located approximately 260m northwest of the proposed Project location. No impacts to the mapped wells are anticipated as a result of proposed Project works.

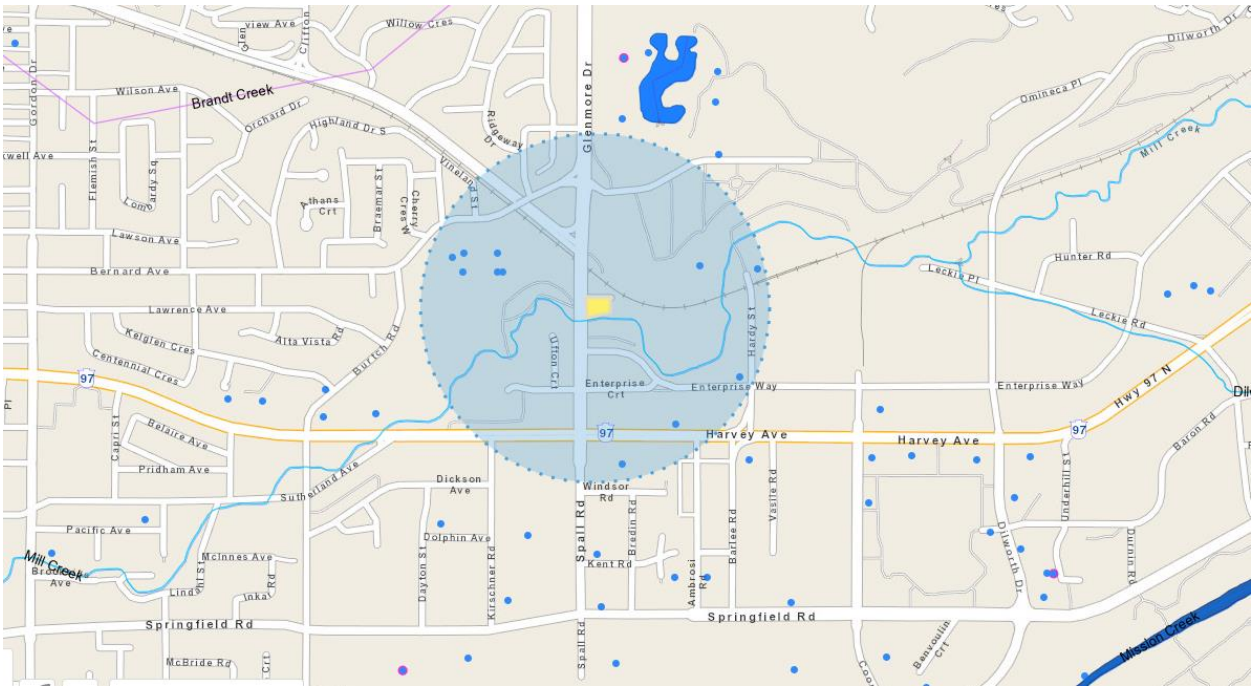


Figure 7. Mapped groundwater wells in the Project area (iMap, 2024)

Terrestrial Resources

This desktop review included terrestrial resources, using a 500m buffer around the proposed Project location to identify potential sensitivities.

One Critical Habitat (CH) polygon was identified overlapping the Project site with one other within 500m of the Project location (Figure 8). The overlapping CH polygon is a grid polygon for Great Basin Gophersnake (*Pituophis catenifer deserticola*). Unless a hibernaculum is identified within the project footprint, which is considered unlikely at this time due to ground conditions and ongoing activities at the site, no impacts to this species are anticipated. CH polygons for American badger jefferonii subspecies (*Taxidea taxus jeffersonnii*) were identified within 500m of the proposed Project footprint. These polygons included a safe movement polygon (approximately 35 northeast of the property) and 2 core habitat polygons (approximately 30m northeast and 260m northeast). Use of Best Management Practices (BMPs) is anticipated to be effective at mitigating potential impacts to this species. While not within 500m of the project footprint, it was noted that there are CH polygons for Great Basin Spadefoot (*Spea intermontana*) for core habitat and connectivity habitat located approximately 650m southwest and 560m west of the proposed project site, respectively. No impacts to this species are anticipated as a result of the proposed project works.

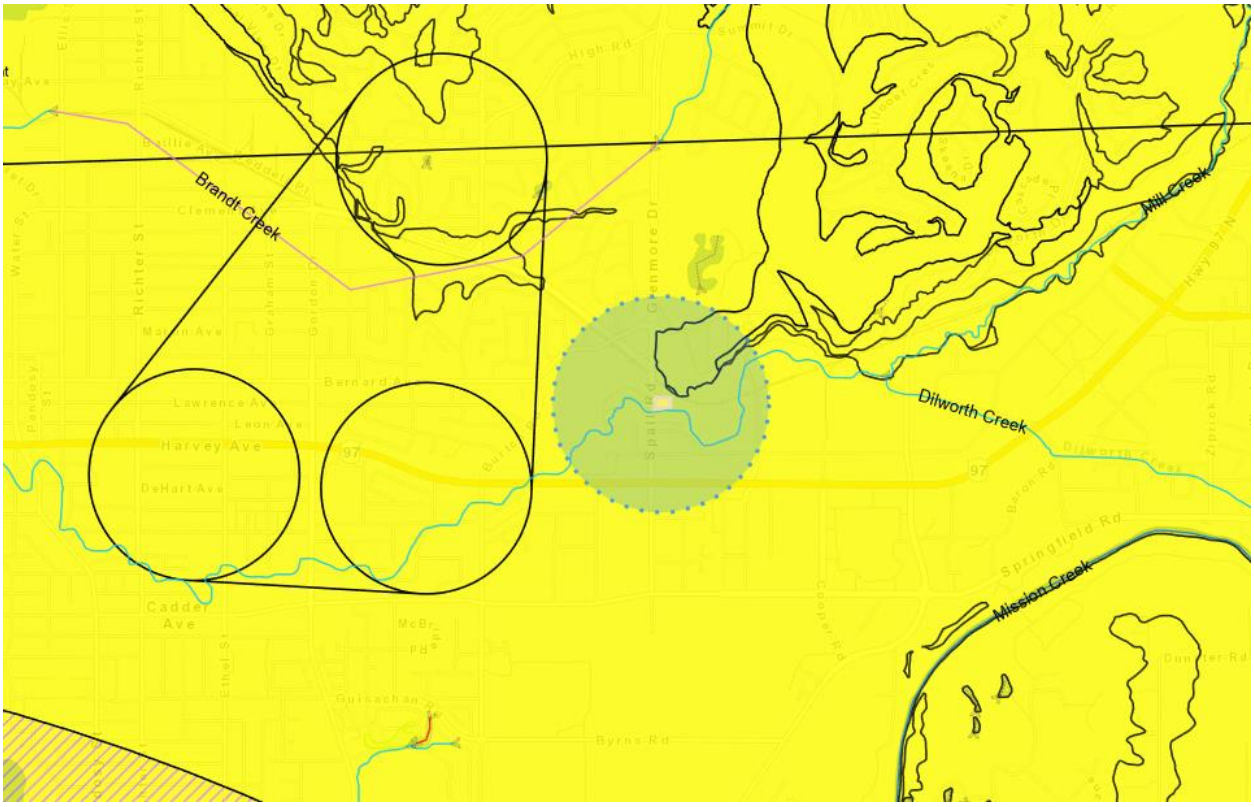


Figure 8. CH polygons in the Project area (iMapBC, 2024)

Two Species at Risk (SAR) occurrences were identified overlapping the proposed Project footprint – American badger and the Black cottonwood/common snowberry-rose (*Populus trichocarpa/ Symphoricarpus albus-Rosa spp.*) ecological community (Figure 9). The ecological community at risk is red/S1 listed provincially. Presence of this ecological community at risk in the adjacent riparian area will be determined, if present, during pre-construction field studies however there is

no anticipated clearing required in the riparian area therefore impact to the community at risk is unlikely. During pre-construction field studies, the potential presence of habitat features the American badger may rely on will also be determined. Impacts to these SAR are not anticipated as a result of the proposed Project activities. There is also a recorded SAR occurrence of Painted turtle Intermountain-Rocky Mountain population (*Chrysemys picta pop. 2*) approximately 420m northeast of the proposed Project location. Beyond the 500m buffer, there is also a recorded occurrence of North American Racer approximately 900m northeast of the Project location. A review of information from the BC Conservation Data Centre identified 164 species at risk with the potential to be present in the general project area and BEC Zone (Appendix A). The identification of potential habitat components to support these species was beyond the scope of this review, although based on the current land use at the site, any potential habitat components/features are anticipated to be minimal within the property boundary. Through the use of BMPs, no impacts to SAR in the area are anticipated as a result of the proposed Project works.

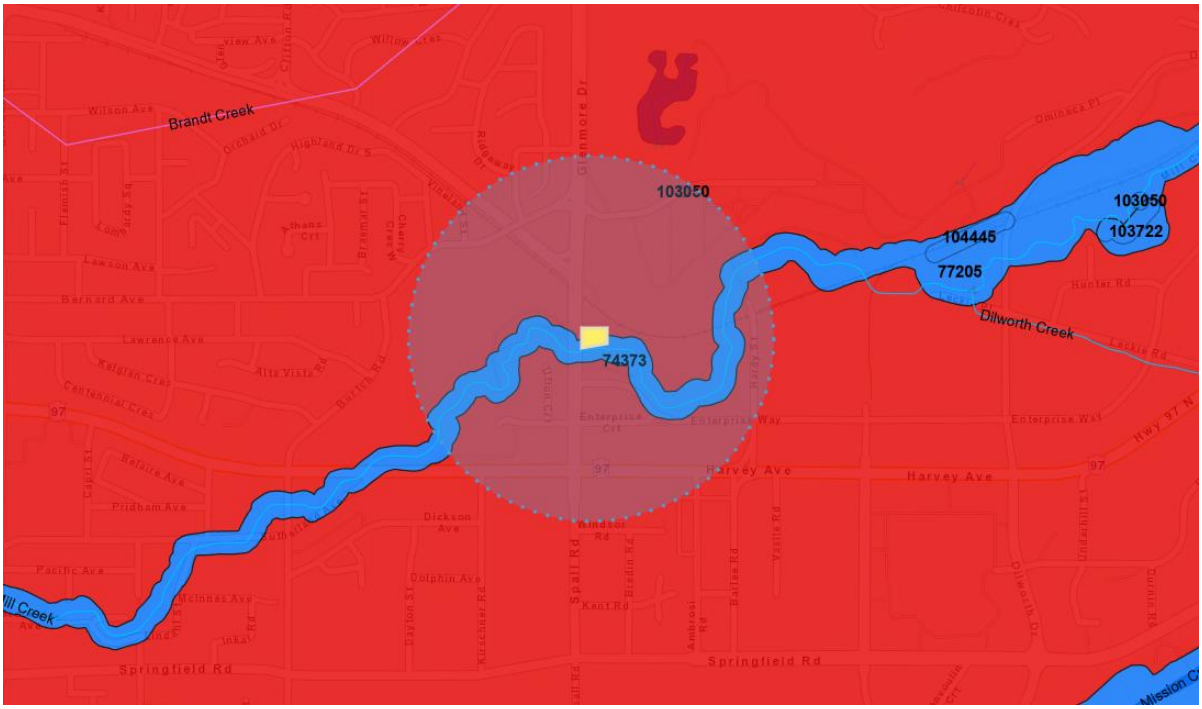


Figure 9. SAR occurrences in the Project area (iMapBC, 2024)

There is a mapped Ungulate Winter Range (UWR) for mule deer (u-8-001) overlapping the proposed Project location (Figure 10). No clearing of merchantable timber is expected as the project site is currently cleared and as such, there are no anticipated requirements under the UWR Order.

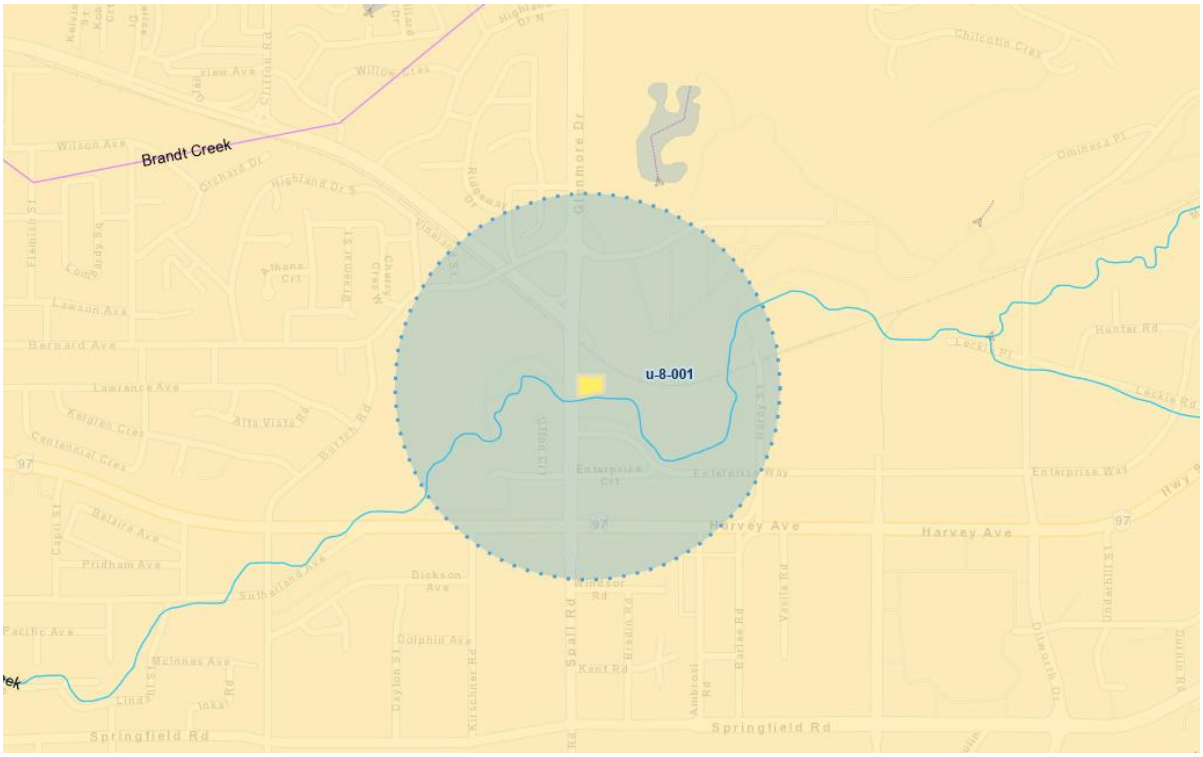


Figure 10. UWR overlapping the Project area (iMap, 2024)

There are no mapped Wildlife Habitat Areas (WHAs), or wildlife habitat features mapped within the Project area, or 500m study area buffer.

One invasive plant species, Baby's breath (*Gypsophila panicula*), has a mapped occurrence within 500m of the Project footprint (Figure 11). Baby's breath is a designated noxious species by the BCER, but is not listed as a provincially or regionally noxious species. It is expected additional invasive plant species will be identified during pre-construction field studies and may include noxious species. Any identified invasive species will be handled per requirements under the provincial *Weed Control Regulation*, and the introduction and/or spread of invasive and noxious plant species will be mitigated using BMPs or site-specific measures, as needed.

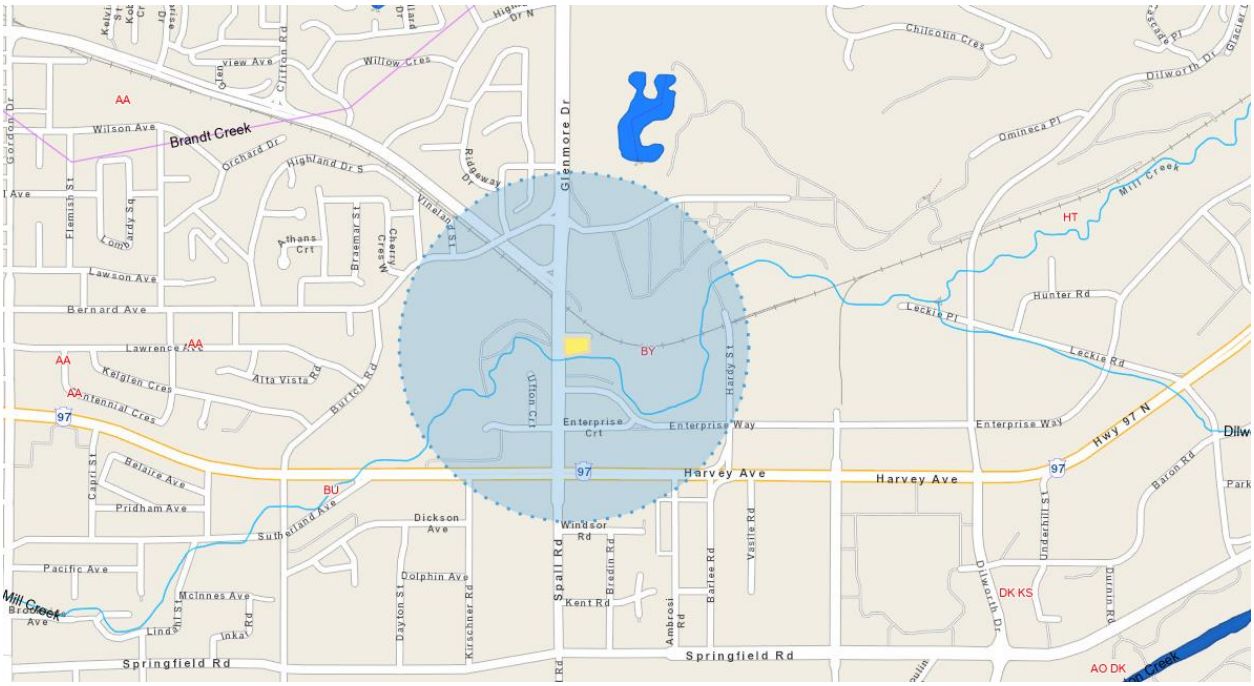


Figure 11. Recorded invasive plant occurrences in the Project area (iMapBC, 2024)

Contaminated Sites

<u>Schedule 2 Activities:</u>

The *Contaminated Sites Regulation (CSR)* identifies commercial/industrial land uses that have been determined by the Ministry of Environment & Climate Change Strategy (BCENV) as being likely sources of contamination, which are listed in Schedule 2 of the *CSR*. The subject site is listed in BC Contaminated Sites Registry with other sites listed within 500m of the Project location (Figure 12). No federally listed contaminated sites were identified in the Project area.

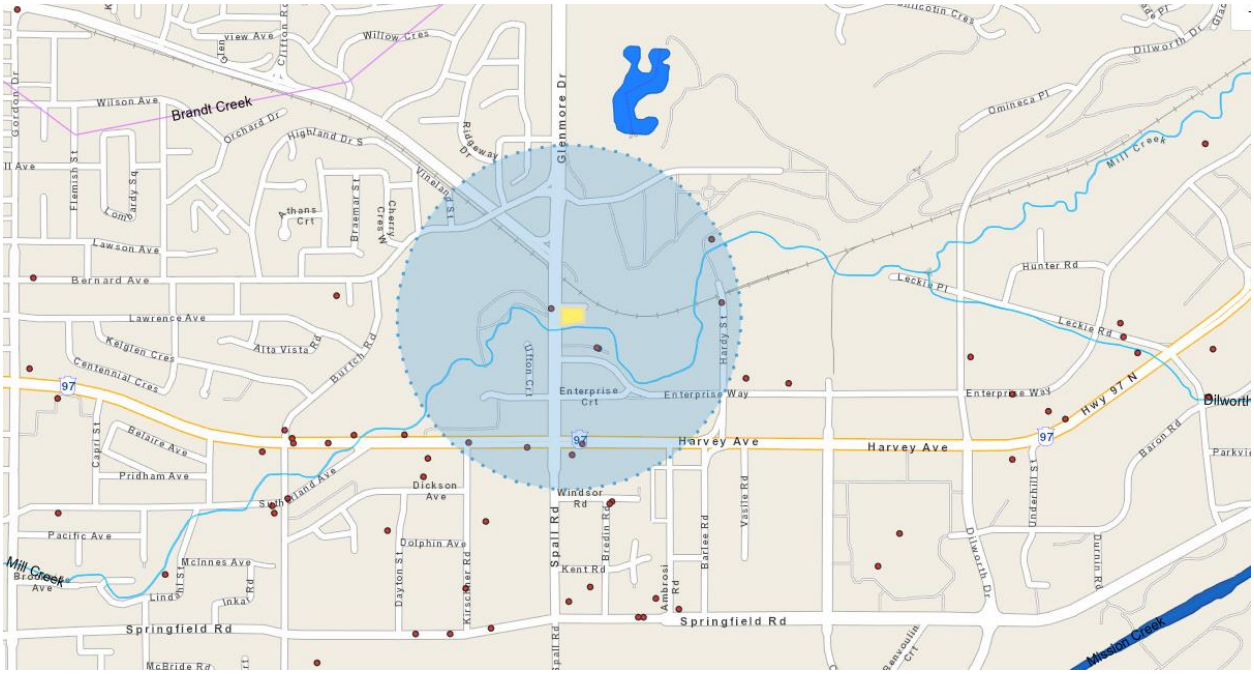


Figure 12. Contaminated Site Registry sites in the project area (iMapBC, 2024)

Soil disturbance on a site with historical or current Schedule 2 activities triggers regulatory requirements with respect to:

- Soil handling and offsite disposal, and
- Any potential municipal approvals (e.g., building permits).

A Site Registry Detail Report (Appendix B) for Kelowna Gate Station includes a notation that suspected land use (i.e., Schedule 2 activities) includes:

- measuring instruments (containing mercury) manufacture, repair or wholesale bulk storage (this description is listed in Schedule 2 under "E – Miscellaneous industries, operations or activities" as "E8")

In 2023, a Stage 1 Preliminary Site Investigation (PSI) was completed for a separate project at the Kelowna Gate Station which confirmed no Schedule 2 activities currently or historically on the property (SLR[1], 2023).

Stage 14 amendments to the CSR (effective March 1, 2023) included the introduction of Protocol 19 which outlines requirements for soil characterization and notifications associated with soil relocation from Schedule 2 activity sites. Since the Stage 1 PSI for Kelowna Gate Station concluded that Schedule 2 activities do not apply to the site, Stage 14 amendments and Protocol 19 requirements do not apply to soil handling. However, the Stage 1 PSI did identify areas of potential environmental concern (APECs) and associated potential contaminants of concern (PCOCs) which will require characterization prior to any soil relocation offsite; this is further detailed in the section below.

<u>Contaminated Sites</u>

The Kelowna Gate Station site is listed in the Site Registry as Site ID 2475. The site appears to be listed due to submission of notifications regarding remediation of mercury contamination sourced from historical leaks of mercury instrumentation at the site. Mercury instrumentation

was also identified in a notation indicating that Schedule 2 activities apply to the site, however, as detailed above, a Stage 1 PSI was completed in 2023 which confirmed that Schedule 2 activities do not currently apply to the site. However, the Stage 1 PSI identified the following APECs and PCOCs (Figure 13 and 14):

APECs	Description	PCOCs - Soil	PCOCs - Groundwater	PCOCs - Vapour
APEC 1	Fill material of unknown origin and quality areas with former buildings on site	LEPHs/HEPHs/PAHs, metals	EPHw10-19, PAHs, dissolved metals	NA
APEC 2	Former mercury contaminated area, fill of unknow origin and quality	LEPHs/HEPHs/PAHs, metals (including mercury)	EPHw10-19, PAHs, dissolved metals (including mercury)	NA
APEC 3	Herbicide (Dicamba) application area – western portion of the site, 2 m perimeter and driveway	Dicamba	Dicamba	NA

Notes:
LEPH – light extractable petroleum hydrocarbons
HEPH – heavy extractable petroleum hydrocarbons
PAHs – polycyclic aromatic hydrocarbons

Figure 13. APECs identified through the previously completed Stage 1 PSI (SLR, 2023)

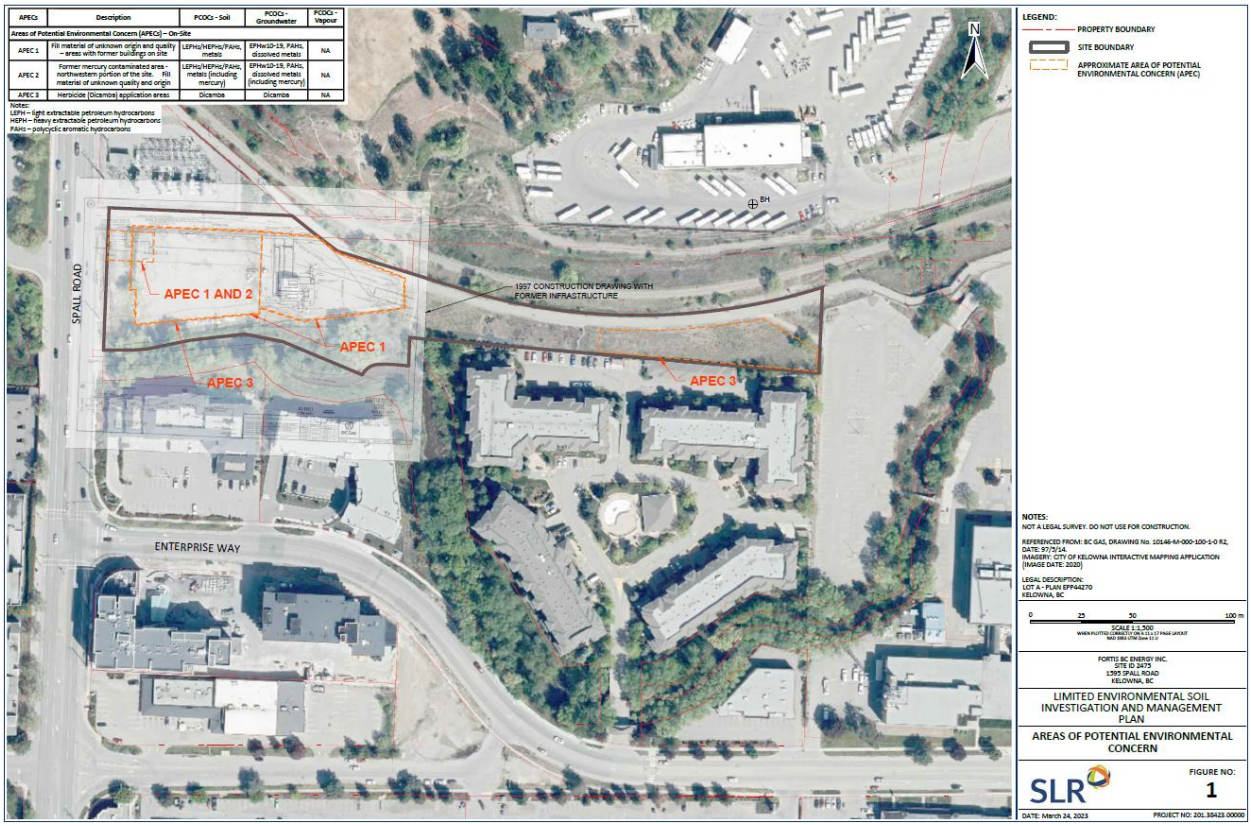


Figure 14. APEC Plan prepared as a part of the previously completed Stage 1 PSI (SLR, 2023)

A soil quality testing program was also completed in 2023 to support soil management decisions for site upgrades planned at the time (SLR[2], 2023). The soil quality testing program did not identify concentrations of analyzed substances above the applicable site standards. However, sample collection was limited to two isolated areas on the site that were proposed to generate excess soils during site excavations. Based on this, prior to site construction, soil quality testing targeting all proposed soil disturbance areas should be completed to support soil management planning.

Permitting

Based on the proposed Project footprint and works, there are not anticipated to be any significant permitting concerns. It is anticipated that a BC Energy Regulator (BCER) permit for the facility will be required which may need further habitat assessment to support the application. There is potential that BCER Construction In and About a Stream (CIAS) permitting may be triggered due to the project site's proximity to the riparian area of Mill Creek but there are no currently expected impacts to the riparian area and site components are designed to be outside of the riparian zone as much as is feasible.

Municipal permitting, such as development or building permits where soil disturbance is likely to occur, which may include a Site Disclosure Statement (SDS) to support the Contaminated Site Regulation (CSR) requirements, are anticipated to be required.

Summary

Based on the desktop review of the area, and the proposed Project's location within an urban area, on a disturbed, utility/industrial site, significant impacts to environmental sensitivities are not anticipated and can be managed through general BMPs, and site-specific mitigation measures as needed.

References

City of Kelowna, Interactive Map Viewer, 2024, Kelowna Map Viewer

Google Earth, 2024

Lloyd, D., Angove K., Hope, G., Thompson C., *A Guide to Site Identification and Interpretation for the Kamloops Forest Region*, February 1990

Province of British Columbia, Conservation Data Centre, Species & Ecosystem Explorer, 2024, Search Criteria (gov.bc.ca)

Province of British Columbia, iMapBC, 2024, iMapBC (gov.bc.ca)

SLR Consulting (Canada) Ltd[1], Stage 1 Preliminary Site Investigation, 1595 Spall Road, Kelowna, Site ID2475, February 2023

SLR Consulting (Canada) Ltd[2], Limited Environmental Soil Investigation and Management Plan, 1595 Spall Road, Kelowna, BC, April 2023

Appendix A – BC CDC Potential Species List

BC Species and Ecosystems Explorer Search Results **164 records**

Close

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Accipiter gentilis atricapillus	Northern Goshawk, *atricapillus* subspecies	BWBS ESSF ICH IDF MS PP SBPS SBS SWB	S3S4 (2017)	Blue	G5 (2023)	NAR					
Aechmophorus occidentalis	Western Grebe	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS	S1S2B,S2N (2023)	Red	G5 (2016)	SC	1-SC (2017)			Y	Y
Aeronautes saxatalis	White-throated Swift	BAFA BG CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS	S3S4B (2022)	Blue	G5 (2016)					Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Aeshna constricta	Lance-tipped Darner	BG ESSF ICH IDF PP	S3 (2023)	Blue	G5 (2016)						
Ambystoma mavortium	Western Tiger Salamander	BG ICH IDF PP	S2 (2021)	Red	G5 (2015)	E	1-E (2018)	Y		Y	Y
Ammodramus savannarum	Grasshopper Sparrow	BG CDF IDF PP	S1B (2022)	Red	G5 (2016)			Y		Y	Y
Anaxyrus boreas	Western Toad	BG BWBS CDF CWH ESSF ICH IDF PP SBS SWB	S4 (2022)	Yellow	G4 (2008)	SC	1-SC (2018)				
Antrozous pallidus	Pallid Bat	BG PP	S2 (2022)	Red	G4 (2016)	T	1-T (2003)			Y	Y
Apodemia mormo	Mormon Metalmark	BG ESSF IDF PP	S1S2 (2020)	Red	G5 (2022)	E	1-E (2005)			Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Ardea herodias herodias	Great Blue Heron, *herodias* subspecies	BG ICH IDF MS PP SBS	S3? (2017)	Blue	G5T5 (2016)			Y		Y	
Argia vivida	Vivid Dancer	BG CWH ICH IDF PP	S3 (2023)	Blue	G5 (2015)	SC	1-SC (2019)			Y	Y
Aristida purpurea - Hesperostipa comata - Erigeron filifolius	red three-awn - needle-and-thread grass - thread-leaved daisy	IDFxh4/Gg26 PPxh1/Gg26 PPxh3/Gg26	S1S2 (2019)	Red	GNR	N/A	N/A				
Artemisia tridentata / Pseudoroegneria spicata	big sagebrush / bluebunch wheatgrass	BGxh1/01 BGxh2/01 BGxh3/01 BGxw1/04 BGxw2/00 PPxh1/00 PPxh2/05	S2? (2022)	Red	G2	N/A	N/A			Y	Y
Artemisia tridentata / Pseudoroegneria spicata - Balsamorhiza sagittata	big sagebrush / bluebunch wheatgrass - arrowleaf balsamroot	IDFxh1a/92 IDFxh1a/94 PPxh1/03	S2 (2004)	Red	G2	N/A	N/A			Y	
Artemisia tripartita / Pseudoroegneria spicata - Balsamorhiza sagittata	threetip sagebrush / bluebunch wheatgrass - arrowleaf balsamroot	PPxh1/00	S1 (2004)	Red	G1	N/A	N/A				

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Asio flammeus	Short-eared Owl	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS SWB	S3B,S1N (2022)	Blue	G5 (2016)	T	1-SC (2012)	Y		Y	
Athene cunicularia	Burrowing Owl	BG CDF IDF PP	S1B (2020)	Red	G4 (2024)	E	1-E (2003)	Y		Y	
Berula incisa	cut-leaved water-parsnip	BGxh CWHdm IDFxh PPxh	S3? (2019)	Blue	G4G5 (1984)					Y	Y
Betula occidentalis / Rosa spp.	water birch / roses	BG/Ff01 BGxh1/Ff01 BGxh1/Fl07 BGxh2/Ff01 BGxh3/Fl07 BGxw2/Fl07 IDF/Ff01 IDFxh1/Ff01 IDFxh1/Fl07 IDFxh2/Ff01 PP/Ff01 PPxh1/Ff01 PPxh1/Fl07 PPxh1a/Fl07 PPxh2/Ff01 PPxh2/Fl07	S1S2 (2018)	Red	G3G4	N/A	N/A	Y		Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Bolboschoenus maritimus var. *paludosus* Alkali Marsh	seacoast bulrush Alkali Marsh	BGxh1/Wm11 BGxh2/Wm11 BGxw1/Wm11 CDFmm/Wm11 IDFdk1/Wm11 IDFxh1/Wm11 IDFxh2/Wm11 IDFxm/Wm11 PPxh1/Wm11 PPxh2/Wm11	S1 (2015)	Red	GNR	N/A	N/A			Y	
Botaurus lentiginosus	American Bittern	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS	S3B,SNRN (2015)	Blue	G5 (2016)					Y	
Bryoerythrophyllum columbianum	Columbian carpet moss	BG IDF MH PP	S2S3 (2015)	Blue	G3G4 (2008)	SC	1-SC (2005)			Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Buteo lagopus	Rough-legged Hawk	BAFA BG BWBS CDF CWH ESSF ICH IDF IMA MS PP SBPS SBS SWB	S3N (2015)	Blue	G5 (2016)	NAR					
Buteo swainsoni	Swainson's Hawk	BG BWBS CDF ICH IDF MS PP SBS	S2B (2022)	Red	G5 (2016)					Y	
Butorides virescens	Green Heron	BG CDF CWH ICH IDF PP SBS	S3S4B (2015)	Blue	G5 (2016)					Y	

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Calcarius pictus	Smith's Longspur	BAFA BG BWBS CDF CMA CWH IDF MS PP SBS SWB	S3S5B (2015)	Blue	G4G5 (2016)						
Callophrys affinis	Immaculate Green Hairstreak	BG ESSF IDF MS PP	S2S3 (2020)	Blue	G4 (2022)					Y	Y
Catherpes mexicanus	Canyon Wren	BG ICH IDF PP	S3? (2015)	Blue	G5 (2016)	NAR				Y	Y
Charina bottae	Northern Rubber Boa	BG CWH ICH IDF PP	S4 (2018)	Yellow	G5 (2016)	SC	1-SC (2005)				

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Chondestes grammacus	Lark Sparrow	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS	S2S4B (2022)	Blue	G5 (2016)					Y	Y
Chordeiles minor	Common Nighthawk	BG BWBS CDF CWH ESSF ICH IDF MH MS PP SBPS SBS SWB	S3S5B (2022)	Blue	G5 (2016)	SC	1-SC (2023)				
Chrysemys picta	Painted Turtle	BG CDF CWH ICH IDF MH PP SBS	S3 (2018)	No Status	G5 (2024)	T/SC	1-T/SC (2021)				

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Chrysemys picta pop. 2	Painted Turtle - Intermountain - Rocky Mountain Population	BG ICH IDF PP SBS	S3? (2018)	Blue	G5T2T3Q (2008)	SC	1-SC (2007)			Y	Y
Cicindela decemnotata	Badlands Tiger Beetle	BG PP	S1S3 (2017)	Red	G4G5 (2018)					Y	
Cicindela hirticollis	Hairy-necked Tiger Beetle	BAFA BG CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS	S2S4 (2017)	Blue	G5 (2016)						
Cicindela parowana	Dark Saltflat Tiger Beetle	BG IDF PP	S1 (2015)	Red	G4 (2016)	E	1-E (2012)			Y	Y
Cicindela pugetana	Sagebrush Tiger Beetle	BG PP	S3S4 (2017)	Blue	G4 (2016)					Y	

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Coccothraustes vespertinus	Evening Grosbeak	BG BWBS CDF CWH ESSF ICH IDF MH MS PP SBPS SBS SWB	S5 (2022)	Yellow	G5 (2016)	SC	1-SC (2019)				
Coccyzus americanus	Yellow-billed Cuckoo	BG CDF CWH ICH PP	SXB (2022)	Red	G5 (2016)						
Coluber constrictor	North American Racer	BG ICH IDF PP	S2S3 (2018)	Blue	G5 (2016)	T	1-T (2023)	Y		Y	Y
Contopus cooperi	Olive-sided Flycatcher	BWBS CDF CWH ESSF ICH IDF MH MS PP SBPS SBS SWB	S4B (2022)	Yellow	G4 (2024)	SC	1-SC (2023)				

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Corynorhinus townsendii	Townsend's Big-eared Bat	BG CDF CWH ICH IDF PP	S3 (2022)	Blue	G4 (2016)					Y	Y
Cottus hubbsi	Columbia Sculpin	BG ICH IDF PP	S3 (2019)	Blue	G4Q (2011)	SC	1-SC (2003)			Y	Y
Crepis atribarba ssp. *atribarba*	slender hawksbeard	BGxh ESSFmw PPxh	S3 (2019)	Blue	G5T5 (1997)					Y	
Crossidium seriatum	tiny tassel	PP	S3 (2015)	Blue	G2G4 (2009)	SC	1-SC (2019)			Y	
Crotalus oreganus	Western Rattlesnake	BG IDF PP	S2S3 (2018)	Blue	G5 (2016)	T	1-T (2005)	Y		Y	Y
Cypseloides niger	Black Swift	BAFA BG CDF CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS SWB	S2S4B (2022)	Blue	G4 (2016)	E	1-E (2019)				

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Danaus plexippus	Monarch	BG CDF CWH ESSF ICH IDF MS PP	S1?B (2020)	Red	G4 (2015)	E	1-E (2023)				
Distichlis spicata - Hordeum jubatum	alkali saltgrass - foxtail barley	BGxh1/Ga01 BGxw2/Ga01 IDFdk1/Ga01 IDFdk3/Ga01 IDFdk4/Ga01 IDFdm2/Ga01 IDFxh1/Ga01 IDFxh1a/Ga01 IDFxh2/Ga01 IDFxh2a/Ga01 IDFxm/Ga01 MSxk2/Ga01 PPdh2/Ga01 PPxh1/Ga01 PPxh1a/Ga01 PPxh2/Ga01	S2S3 (2018)	Blue	GNR	N/A	N/A	Y		Y	Y
Dolichonyx oryzivorus	Bobolink	BG BWBS CDF CWH ICH IDF PP SBS	S2?B (2022)	Red	G5 (2016)	SC	1-T (2017)			Y	Y

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Dryobates albolarvatus	White-headed Woodpecker	BG ICH IDF PP	S1 (2022)	Red	G4 (2016)	E	1-E (2003)	Y		Y	Y
Eleocharis engelmannii	Englemann's spike-rush	PPxh	S3 (2019)	Blue	G4G5 (2002)					Y	
Empidonax wrightii	Gray Flycatcher	BG IDF PP	S2S3B (2022)	Blue	G5 (2016)	NAR				Y	
Enallagma clausum	Alkali Bluet	BAFA BG CDF CMA CWH ESSF ICH IDF IMA MH MS PP SBPS	S3 (2023)	Blue	G5 (2015)						
Entosthodon rubiginosus	rusty cord-moss	PP	S2S3 (2015)	Blue	G1G3 (2006)	SC	1-E (2021)			Y	Y
Eremophila alpestris merrilli	Horned Lark, *merrilli* subspecies	BG ICH IDF PP	S1S3 (2022)	Red	G5T4 (2016)						
Euderma maculatum	Spotted Bat	BG IDF PP	S3S4 (2022)	Blue	G4 (2016)	SC	1-SC (2005)	Y		Y	Y

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Euphagus carolinus	Rusty Blackbird	BG BWBS CDF CWH ESSF MS PP SBPS SBS SWB	S3S4B (2015)	Blue	G4 (2016)	SC	1-SC (2009)				
Falco mexicanus	Prairie Falcon	BG BWBS CDF CWH ESSF ICH IDF MS PP SBS	S1 (2018)	Red	G5 (2016)	NAR		Y			Y
Falco peregrinus	Peregrine Falcon	BG BWBS CDF CWH ESSF ICH IDF MS PP SBS SWB	S3 (2015)	No Status	G4 (2016)	SC	1-SC				

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Falco peregrinus anatum	Peregrine Falcon, *anatum* subspecies	BG BWBS CDF CWH IDF MS PP SBS	S2? (2011)	Red	G4T4 (2016)	NAR					Y
Festuca idahoensis - Pseudoroegneria spicata - Lupinus sericeus - Koeleria macrantha	Idaho fescue - bluebunch wheatgrass - silky lupine - junegrass	BGxh1/Gg11 BGxh1/Gg13 BGxh2/Gg11 ESSFmh/Gg11 ICHdw4/Gg11 ICHxw/Gg11 IDFdk1/Gg11 IDFdk1/Gg13 IDFdm1/Gg11 IDFdm1/Gg13 IDFxh1/Gg11 IDFxh1/Gg13 IDFxh1a/91 IDFxh2/Gg13 IDFxh4/Gg11 IDFxh4/Gg13 MSdm1/Gg11 MSdm2/Gg11 PPdh1/Gg11 PPdh1/Gg13 PPxh1/Gg11 PPxh1/Gg13 PPxh2/Gg13 PPxh3/Gg11 PPxh3/Gg13	S2 (2018)	Red	GNR	N/A	N/A			Y	
Fulgensia desertorum	desert sulphur	PPxh	S2S3 (2019)	Blue	G3G5 (2001)						

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Galba dalli	Dusky Fossaria	BG CDF CMA CWH ESSF ICH IDF IMA MH MS PP	S3S4 (2015)	Blue	G5 (1999)						
Galba obrussa	Golden Fossaria	BAFA BG ESSF ICH IDF IMA MS PP SBPS SBS	S2S3 (2015)	Blue	G5 (2015)						
Galba truncatula	Attenuate Fossaria	ICH IDF PP SWB	S3S5 (2015)	Blue	G5 (2008)						
Gonidea angulata	Rocky Mountain Ridged Mussel	BG IDF PP	S2 (2014)	Red	G3 (2024)	E	1-SC (2005)			Y	
Hemphillia camelus	Pale Jumping-slug	CWH ICH IDF MS PP	S3 (2015)	Blue	G4 (2006)						

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Hesperia nevada	Nevada Skipper	BG ESSF IDF MS PP	S3S4 (2020)	Blue	G5 (2023)					Y	
Hirundo rustica	Barn Swallow	BAFA BG BWBS CDF CWH ESSF ICH IDF IMA MH MS PP SBPS SBS SWB	S4B (2022)	Yellow	G5 (2016)	SC	1-T (2017)				
Hydroprogne caspia	Caspian Tern	BG BWBS CDF CWH ICH IDF PP SBS	S3B (2015)	Blue	G5 (2016)	NAR					
Hypsiglena chlorophaea	Desert Nightsnake	BG IDF PP	S2 (2018)	Red	G5 (2016)	E	1-E (2003)			Y	Y

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Icteria virens	Yellow-breasted Chat	BG CDF CWH ICH IDF PP SBS	S2B (2018)	Red	G5 (2016)	E	1-E (2003)	Y		Y	Y
Juncus balticus - *Carex praegracilis*	Baltic rush - field sedge	BG/Ga03 BGxh2/Ga03 IDFdh/Ga03 IDFdk1/Ga03 IDFdk2/Ga03 IDFdk3/Ga03 IDFdk3/W3 IDFdk4/Ga03 IDFdk5/Ga03 IDFdm1/Ga03 IDFdm2/Ga03 IDFdw/Ga03 IDFxh4/Ga03 IDFxk/Ga03 IDFxm/Ga03 IDFxx1/Ga03 IDFxx2/Ga03 PP/Ga03 PPdh2/Ga03 PPxh3/Ga03 SBPSdc/Ga03 SBPSxc/Ga03 SBPSxc/W2	S2? (2021)	Red	G3G4	N/A	N/A			Y	

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Juncus balticus - Potentilla anserina	Baltic rush - common silverweed	BGxh1/Wm07 BGxw1/Wm07 BGxw2/Wm07 ICHmk4/Wm07 IDFdh/Wm07 IDFdk1/Wm07 IDFdk2/Wm07 IDFdk5/Wm07 IDFdm1/Wm07 IDFdm2/Wm07 IDFxc/Wm07 IDFxh1/Wm07 IDFxh2/Wm07 IDFxk/Wm07 IDFxm/Wm07 IDFxx1/Wm07 IDFxx2/Wm07 PPxh1/Wm07 PPxh2/Wm07	S3 (2021)	Blue	GNR	N/A	N/A			Y	Y
Larus californicus	California Gull	BG BWBS CDF CWH ICH IDF MS PP SBS	S1B,SNRN (2022)	Red	G5 (2016)						

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Lasionycteris noctivagans	Silver-haired Bat	BG BWBS CDF CWH ESSF ICH IDF MH MS PP SBPS SBS	S4S5 (2022)	Yellow	G3G4 (2016)	E					
Lasiurus cinereus	Hoary Bat	BG BWBS CDF CWH ICH IDF MS PP SBS	S3S4 (2022)	Blue	G3G4 (2022)	E					
Lepus townsendii	White-tailed Jackrabbit	BG ESSF ICH IDF IMA MS PP	SX (2022)	Red	G5 (2016)						
Libellula pulchella	Twelve-spotted Skimmer	BG IDF PP	S3 (2023)	Blue	G5 (2015)						

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Limenitis archippus	Viceroy	BG ESSF ICH IDF MS PP	SX (2020)	Red	G5 (2023)						
Limnodromus griseus	Short-billed Dowitcher	BG BWBS CDF CWH ICH IDF PP SWB	S1S2B,S2S3M (2023)	Red	G5 (2024)					Y	
Lindernia dubia var. *dubia*	yellowseed false pimpernel	CWHxm PPxh	S3? (2018)	Blue	G5T5 (2016)					Y	
Lithobates pipiens	Northern Leopard Frog	CDF ICH IDF PP	S1 (2021)	Red	G5 (2016)	E	1-E (2003)	Y		Y	
Lupinus sulphureus	sulphur lupine	IDFdk IDFmw IDFxh MSdk PPxh	S3 (2019)	Blue	G5						
Lycaena nivalis	Lilac-bordered Copper	BG ESSF ICH IDF MS PP	S3 (2020)	Blue	G5 (2023)					Y	

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Marsilea vestita	hairy water-clover	BGxh IDFmw IDFxh PPxh	S3 (2019)	Blue	G5 (2011)					Y	Y
Massalongia microphylliza	chopped liver	PPxh	S2S3 (2019)	Blue	G2G4 (2002)						
Megascops kennicottii	Western Screech-Owl	BG CDF CWH ICH IDF PP	S4 (2015)	No Status	G4G5 (2016)	T	1-T				
Megascops kennicottii macfarlanei	Western Screech-Owl, *macfarlanei* subspecies	BG ICH IDF PP	S3 (2017)	Blue	G4G5T4 (2016)	T	1-T (2005)	Y		Y	Y
Melanerpes lewis	Lewis's Woodpecker	BG CDF CWH ICH IDF PP SBS	S2S3B (2022)	Blue	G4 (2016)	T	1-T (2012)	Y		Y	Y
Melanitta perspicillata	Surf Scoter	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS SWB	S3B,S4N (2015)	Blue	G5 (2016)					Y	

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Microbryum vlassovii	nugget moss	BG PP	S2 (2015)	Red	G2? (1997)	E	1-E (2009)			Y	
Myotis ciliolabrum	Western Small-footed Myotis	BG IDF PP	S3S4 (2022)	Blue	G5 (2016)					Y	Y
Myotis lucifugus	Little Brown Myotis	BG BWBS CDF CWH ESSF ICH IDF MH MS PP SBPS SBS SWB	S3S4 (2022)	Blue	G3G4 (2021)	E	1-E (2014)				
Myotis thysanodes	Fringed Myotis	BG ICH IDF PP	S2S3 (2022)	Blue	G4 (2016)	DD	3 (2005)	Y		Y	Y
Myotis yumanensis	Yuma Myotis	BG CDF CWH ICH IDF MH PP	S3 (2022)	Blue	G5 (2016)						

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Nannopterum auritum	Double-crested Cormorant	BWBS CDF CWH ICH IDF PP SBPS SBS	S3S4 (2015)	Blue	G5 (2016)	NAR				Y	
Neofuscelia loxodes	blistered toad	BGxh BGxw PPxh	S3 (2019)	Blue	G3G5 (2000)						
Neofuscelia subhosseana	erupting toad	BGxh BGxw PPxh	S2S3 (2010)	Blue	G4G5 (2001)						
Numenius americanus	Long-billed Curlew	BG CDF CWH ICH IDF PP SBPS SBS	S4B (2022)	Yellow	G5 (2024)	T	1-SC (2005)	Y		Y	Y
Nycticorax nycticorax	Black-crowned Night-Heron	BG CDF CWH ICH IDF PP	S1 (2022)	Red	G5 (2016)						

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Ophiogomphus occidentis	Sinuous Snaketail	BAFA BG CDF CMA CWH ESSF ICH IDF IMA MH MS PP SBPS	S3 (2023)	Blue	G5 (2015)						
Oreamnos americanus	Mountain Goat	BAFA BG BWBS CDF CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS SWB	S3 (2015)	Blue	G5 (2016)						
Oreoscoptes montanus	Sage Thrasher	BG CDF CWH ICH IDF PP	S1B (2022)	Red	G4 (2016)	E	1-E (2003)	Y		Y	Y

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Ovis canadensis	Bighorn Sheep	BAFA BG ESSF ICH IDF IMA MS PP	S3? (2015)	Blue	G4 (2016)			Y			
Pekania pennanti	Fisher	BAFA BWBS CDF CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS SWB	S3 (2020)	No Status	G5 (2016)			Y			
Pelecanus erythrorhynchos	American White Pelican	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS	S1B (2022)	Red	G4 (2016)	NAR		Y		Y	

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Perognathus parvus	Columbia Plateau Pocket Mouse	BG IDF PP	S3 (2015)	Blue	G5 (2016)					Y	Y
Phalaropus lobatus	Red-necked Phalarope	BG BWBS CDF CWH ICH IDF MS PP SBPS SBS SWB	S3B,SNRM (2023)	Blue	G4G5 (2016)	SC	1-SC (2019)				
Phanogomphus graslinellus	Pronghorn Clubtail	BG IDF PP	S2S3 (2023)	Blue	G5 (2015)						
Phlox speciosa ssp. *occidentalis*	showy phlox	BGxh IDFxh PPxh	S2 (2022)	Red	G5TNR	T	1-T (2006)			Y	
Pholisora catullus	Common Sootywing	BG ESSF ICH IDF MS PP	S3 (2020)	Blue	G5 (2021)						
Physcia dimidiata	exuberant rosette	BGxh PPxh	S3 (2019)	Blue	G5? (2002)						
Pinus ponderosa / Aristida purpurea var. *longiseta*	ponderosa pine / red three-awn	BGxh1/04 BGxh2/03 PPxh1/02	S3 (2013)	Blue	GNR	N/A	N/A				Y

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Pinus ponderosa / Pseudoroegneria spicata - Festuca campestris	ponderosa pine / bluebunch wheatgrass - rough fescue	BGxw1/05 PPxh1/05 PPxh2/01	S2 (2013)	Red	GNR	N/A	N/A			Y	Y
Pinus ponderosa / Pseudoroegneria spicata - Festuca idahoensis	ponderosa pine / bluebunch wheatgrass - Idaho fescue	PPxh1/01	S3 (2013)	Blue	GNR	N/A	N/A				
Pituophis catenifer	Gophersnake	BG CDF CWH IDF PP	S3 (2018)	No Status	G5 (2015)	XT/T	1-XT/T (2005)				
Pituophis catenifer deserticola	Gophersnake, *deserticola* subspecies	BG IDF PP	S3 (2018)	Blue	G5T5 (2016)	T	1-T (2005)	Y		Y	Y
Plestiodon skiltonianus	Western Skink	BG ICH IDF PP	S3S4 (2018)	Blue	G5 (2016)	SC	1-SC (2005)			Y	Y
Pluvialis dominica	American Golden-Plover	BAFA BG BWBS CDF CWH ICH IDF MS PP SBS SWB	S3S4B (2015)	Blue	G5 (2016)						

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Podiceps nigricollis	Eared Grebe	BAFA BG BWBS CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS	S3B (2015)	Blue	G5 (2016)						
Polites sabuleti	Sandhill Skipper	BG ESSF ICH IDF MS PP	S2 (2020)	Red	G5 (2023)					Y	
Polites sonora	Sonora Skipper	BG ESSF IDF IMA MS PP	S3 (2020)	Blue	G4 (2020)	NAR		Y		Y	Y
Populus tremuloides / Symphoricarpos albus / Poa pratensis	trembling aspen / common snowberry / Kentucky bluegrass	BGxw1/08 IDFdk1a/94 IDFxh1/98 IDFxh1a/98 IDFxh2a/95 PPxh1/00 PPxh1a/00	S2 (2004)	Red	GNR	N/A	N/A			Y	Y

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Populus trichocarpa - Pseudotsuga menziesii / Symphoricarpos albus - Cornus sericea	black cottonwood - Douglas-fir / common snowberry - red-osier dogwood	IDFxh1/00 PPxh1	S1S2 (2004)	Red	G1G2	N/A	N/A			Y	Y

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Populus trichocarpa / *Symphoricarpos albus - Rosa spp.*	black cottonwood / common snowberry - roses	BGxh1/Fm01 BGxh2/Fm01 BGxh3/Fm01 BGxw1/Fm01 BGxw2/Fm01 ICHdm/Fm01 ICHdw1/Fm01 ICHdw4/Fm01 ICHmk1/Fm01 ICHmk4/Fm01 ICHmw2/Fm01 ICHmw4/Fm01 ICHmw5/Fm01 ICHxm1/Fm01 ICHxw/Fm01 IDFdh/Fm01 IDFdk5/Fm01 IDFdm1/Fm01 IDFdm2/Fm01 IDFdw/Fm01 IDFmw1/Fm01 IDFmw2/Fm01 IDFww/Fm01 IDFxc/Fm01 IDFxh1/Fm01 IDFxh2/Fm01 IDFxh4/Fm01 IDFxk/Fm01 IDFxx1/Fm01 IDFxx2/Fm01 MSdk/Fm01 MSdk1/Fm01 MSdw/Fm01 PPdh2/Fm01 PPxh1/Fm01 PPxh2/Fm01 PPxh3/Fm01	S1 (2019)	Red	GNR	N/A	N/A			Y	Y

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Populus trichocarpa / Toxicodendron rydbergii - Rosa spp.	black cottonwood / poison ivy - rose spp.	BGxh1/Fm06 BGxh2/Fm06 BGxh3/Fm06 PPxh1/Fm06	S1S2 (2021)	Red	GNR	N/A	N/A			Y	Y
Promenetus umbilicatellus	Umbilicate Sprite	BG CDF IDF PP	S2S3 (2015)	Blue	G4 (2015)					Y	
Pseudoroegneria spicata - Balsamorhiza sagittata	bluebunch wheatgrass - arrowleaf balsamroot	IDFxh1/00 IDFxh1a/93 IDFxm/00 PPdh1/03 PPxh1/00K PPxh3/	S3 (2013)	Blue	GNR	N/A	N/A			Y	
Pseudotsuga menziesii / Symphoricarpos albus / Calamagrostis rubescens	Douglas-fir / common snowberry / pinegrass	PPxh1/06	S2 (2004)	Red	GNR	N/A	N/A				
Pseudotsuga menziesii / Symphoricarpos albus - Spiraea betulifolia	Douglas-fir / common snowberry - birch-leaved spirea	IDFxh1/06 IDFxh1/07 PPxh1/07	S2S3 (2016)	Blue	GNR	N/A	N/A				
Psiloscops flammeolus	Flammulated Owl	BG IDF PP	S3B (2022)	Blue	G4 (2016)	SC	1-SC (2003)	Y		Y	
Pterygoneurum kozlovii	alkaline wing-nerved moss	BG IDF PP	S3 (2015)	Blue	G3 (2018)	T	1-T (2006)			Y	Y

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Purshia tridentata / Hesperostipa comata	antelope-brush / needle-and-thread grass	BGxh1/02 IDFxh1 PPxh1 PPxh1a	S1S2 (2021)	Red	G2	N/A	N/A	Y		Y	Y
Pyrgus communis	Checkered Skipper	BG ESSF ICH IDF IMA MS PP	S3 (2020)	Blue	G5 (2021)						
Recurvirostra americana	American Avocet	BG BWBS CDF CWH ICH IDF MS PP SBPS	S2S3B (2023)	Blue	G5 (2016)					Y	
Reithrodontomys megalotis	Western Harvest Mouse	BG IDF PP	S3 (2015)	Blue	G5 (2016)	E	1-SC (2009)			Y	Y
Salvelinus confluentus	Bull Trout	BG BWBS CWH ESSF ICH IDF MS PP SBPS SBS SWB	S3S4 (2018)	Blue	G5 (2017)	SC		Y			

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Satyrium behrii	Behr's Hairstreak	BG ESSF IDF IMA MS PP	S1 (2020)	Red	G5 (2023)	E	1-E (2003)			Y	Y
Satyrium californica	California Hairstreak	BG ESSF ICH IDF IMA MS PP	S3 (2020)	Blue	G5 (2023)					Y	
Satyrium semiluna	Half-moon Hairstreak	BG ESSF IDF IMA MS PP	S1 (2020)	Red	G4 (2021)	T	1	Y		Y	

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Schoenoplectus acutus Deep Marsh	hard-stemmed bulrush Deep Marsh	BGxh1/Wm06 BGxh2/Wm06 BGxw1/Wm06 BGxw2/Wm06 BWBSdk/Wm06 BWBSmw/Wm06 CDFmm/Wm06 CWHxm1/Wm06 ICHdm/Wm06 ICHdw1/Wm06 ICHdw4/Wm06 ICHmk1/Wm06 ICHmk4/Wm06 ICHmw2/Wm06 ICHmw5/Wm06 ICHwk1/Wm06 ICHxm1/Wm06 ICHxw/Wm06 IDFdc/Wm06 IDFdh/Wm06 IDFdk1/Wm06 IDFdk2/Wm06 IDFdk3/Wm06 IDFdk4/Wm06 IDFdk5/Wm06 IDFdm1/Wm06 IDFdm2/Wm06 IDFmw1/Wm06 IDFxc/Wm06 IDFxh1/Wm06 IDFxh2/Wm06 IDFxk/Wm06 IDFxm/Wm06 IDFxx1/Wm06 IDFxx2/Wm06 MSdk/Wm06 MSdk1/Wm06 MSdk2/Wm06	S3 (2020)	Blue	G5	N/A	N/A			Y	Y

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		MSdm2/Wm06 MSdw/Wm06 MSxk1/Wm06 MSxk2/Wm06 PPxh1/Wm06 PPxh2/Wm06 PPxh3/Wm06 SBPSmk/Wm06 SBPSxc/Wm06 SBSmk2/Wm06									
Schoenoplectus pungens var. *longispicatus* Alkali Marsh	long-awned three-square bulrush Alkali Marsh	BGxh1/Wm08 BGxh2/Wm08 BGxw1/Wm08 IDFdk1/Wm08 IDFdk3/wm08 IDFxh1/Wm08 IDFxh2/Wm08 IDFxm/Wm08 PPxh1/Wm08 PPxh2/Wm08	S1 (2015)	Red	GNR	N/A	N/A			Y	
Scytinium schraderi	collapsing vinyl	PPxh	S2? (2019)	Red	GNR						
Sisyrinchium idahoense var. *occidentale*	Idaho blue-eyed grass	IDFxh PPxh	S1S3 (2015)	Red	G5T3T5 (2002)					Y	
Sorex merriami	Merriam's Shrew	BG PP	S1 (2015)	Red	G4 (2016)					Y	
Sorex preblei	Preble's Shrew	BG IDF PP	S1S2 (2015)	Red	G4 (2016)					Y	

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Spea intermontana	Great Basin Spadefoot	BG IDF MS PP	S3S4 (2022)	Blue	G5 (2016)	T	1-T (2003)	Y		Y	Y
Speyeria mormonia erinna	Mormon Fritillary, *erinna* subspecies	BG ESSF IDF MS PP	S2 (2021)	Red	G5T4 (2003)					Y	
Sphaerium occidentale	Herrington Fingernailclam	BG CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS	S2S3 (2015)	Blue	G5 (2015)						

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Sphaerium striatinum	Striated Fingernailclam	BAFA BG BWBS CDF CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS SWB	S3S4 (2015)	Blue	G5 (2015)						
Sphyrapicus thyroideus	Williamson's Sapsucker	BG ICH IDF MS PP	S3B (2022)	Blue	G5 (2016)	E	1-E (2006)			Y	
Spizella breweri breweri	Brewer's Sparrow, *breweri* subspecies	BG IDF PP	S2S3B (2018)	Blue	G5T5 (2016)			Y		Y	Y
Stagnicola apicina	Abbreviate Pondsnail	BG IDF PP	S2S3 (2015)	Blue	GU (2015)						

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Stagnicola traski	Widelip Pondsnail	BG CMA CWH ESSF ICH IDF IMA MH MS PP SBPS SBS	S3S4 (2015)	Blue	G3G4 (2017)						
Sterna forsteri	Forster's Tern	BG BWBS CDF CWH ICH IDF PP	S1B (2022)	Red	G5 (2016)	DD				Y	
Sylvilagus nuttallii	Nuttall's Cottontail	BG IDF PP	S3 (2015)	Blue	G5 (2016)	SC	1-SC (2007)			Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Symphoricarpos albus - Rosa woodsii	common snowberry - prairie rose	BGxh2/Ff02 BGxh3/97 BGxh3/Ff02 BGxw1/97 BGxw1/Ff02 BGxw2/97 BGxw2/Ff02 IDFdm2/97 IDFdm2/Ff02 IDFmw1/Ff02 IDFxh1/97 IDFxh1/Ff02 IDFxh1a/97 IDFxh2/97 IDFxh2/Ff02 PPdh2/97 PPdh2/Ff02 PPxh1/97 PPxh1/Ff02 PPxh2/Ff02	S3 (2018)	Blue	GNR	N/A	N/A				
Symphyotrichum frondosum	short-rayed aster	BGxh PPxh	S2 (2019)	Red	G4 (1987)	E	1-E (2007)			Y	Y
Taxidea taxus	American Badger	BG ESSF ICH IDF IMA MS PP SBPS	S2 (2015)	Red	G5 (2016)	E	1-E (2018)	Y		Y	
Tympanuchus phasianellus columbianus	Sharp-tailed Grouse, *columbianus* subspecies	BG IDF PP SBPS SBS	S2S3 (2005)	Blue	G5T3 (2022)			Y		Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
Typha latifolia Marsh	common cattail Marsh	BGxh1/Wm05 BGxh2/Wm05 BGxw1/Wm05 BWBSmw/Wm05 CDFmm/Wm05 CWHdm/Wm05 CWHxm1/Wm05 CWHxm2/Wm05 ICHdm/Wm05 ICHdw1/Wm05 ICHdw4/Wm05 ICHmk1/Wm05 ICHmk4/Wm05 ICHmw2/Wm05 ICHmw4/Wm05 ICHmw5/Wm05 ICHxm1/Wm05 ICHxw/Wm05 IDFdc/Wm05 IDFdh/Wm05 IDFdk1/Wm05 IDFdk2/Wm05 IDFdk3/Wm05 IDFdk5/Wm05 IDFdm1/Wm05 IDFdm2/Wm05 IDFmw1/Wm05 IDFmw2/Wm05 IDFxc/Wm05 IDFxh1/Wm05 IDFxh2/Wm05 IDFxk/Wm05 IDFxx1/Wm05 IDFxx2/Wm05 MSdk/Wm05 MSdm1/Wm05 MSdw/Wm05 PPdh2/Wm05	S3 (2020)	Blue	G5	N/A	N/A			Y	Y

Scientific Name	English Name	Biogeoclimatic Units	Provincial	BC List	Global	COSEWIC	SARA	Provincial FRPA	Land Use Objectives	CDC Mapped Locations	
										Public	Confidential
		PPxh1/Wm05 PPxh2/Wm05									
Tyto alba	Barn Owl	BG BWBS CDF CWH ICH IDF PP	S3 (2022)	Blue	G5 (2016)	T	1-T (2018)				

Search Criteria

Area Of Interest: User Defined Polygon
AND BGC Zone, Subzone: PPxh
Sort Order:Scientific Name Ascending

Notes

1. Citation: B.C. Conservation Data Centre. 2024. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: https://a100.gov.bc.ca/pub/eswp/ (https://a100.gov.bc.ca/pub/eswp/) (accessed Jun 10, 2024).

2. The data contained in the Results Export in BCSEE are provided under the Open Government License - BC (http://www.data.gov.bc.ca/local/dbc/docs/license/OGL-vbc2.0.pdf).

3. We welcome your comments at cdcdata@gov.bc.ca.

Appendix B – BC Site Registry Detail Report

Detail Report

SITE LOCATION

Site ID: 2475 Latitude: 49d 53m 07.8s
Victoria File: Longitude: 119d 27m 16.8s
Regional File: 26250-20/2475
Region: PENTICTON, SOUTHERN INTERIOR

Site Address: 1595 SPALL ROAD
City: KELOWNA Prov/State: BC
Postal Code:

Registered: OCT 20, 1997 Updated: APR 12, 2001 Detail Removed: MAR 27, 2001

Notations: 2 Participants: 2 Associated Sites: 0
Documents: 0 Susp. Land Use: 1 Parcel Descriptions: 3

Location Description: LAT/LONG DERIVED BY BC ENVIRONMENT REFERENCING THE TRANSPORTATION CENTERLINE NETWORK (TCN), NAD 83

Record Status: NOT ASSIGNED
Fee category: UNRANKED

= =

NOTATIONS

Notation Type: REMEDIATION COMPLETION REPORT SUBMITTED
Notation Class: ADMINISTRATIVE
Initiated: FEB 23, 1993 Approved: FEB 23, 1993

Ministry Contact: BOYES, DARRYL K

Notation Participants	Notation Roles
BC GAS UTILITY LTD (HEAD OFFICE (LANDS SERVICES DEPT))	SUBMITTED BY
BOYES, DARRYL K	RECEIVED BY

Note: OCTOBER 1992 - BC GAS REMEDIATED LOCALIZED MERCURY CONTAMINATED SOIL AT KELOWNA #1 GATE STATION. SOIL REMOVED DURING THE REMEDIATION PROCESS WAS TRANSFERRED TO THE ARLINGTON HAZARDOUS WASTE LANDFILL FACILITY. THE SITE HAS BEEN REMEDIATED TO BELOW LEVEL C CRITERIA AND SHOULD REQUIRE NO FURTHER REMEDIATION.

- -

Notation Type: MONITORING REPORT SUBMITTED
Notation Class: ADMINISTRATIVE
Initiated: DEC 09, 1992   Approved: DEC 09, 1992

Ministry Contact: BOYES, DARRYL K

Notation Participants	Notation Roles
BOYES, DARRYL K	RECEIVED BY

Note: MERCURY SOIL ANALYSIS AFTER EXCAVATION.

= =

SITE PARTICIPANTS

Participant: BC GAS UTILITY LTD (HEAD OFFICE (LANDS SERVICES DEPT))
Role(s): OPERATOR
PROPERTY OWNER
Start Date: DEC 09, 1992   End Date:
Notes: RANDY HOFBAUER

- -

Participant: BOYES, DARRYL K
Role(s): MAIN MINISTRY CONTACT
Start Date: DEC 09, 1992   End Date: APR 01, 1999

= =

SUSPECTED LAND USE

Description: MEASURE INSTR. (W/MERCURY) MANU/REPAIR/WHOLESALE BULK STORAG
Notes: BC GAS GATE STATION

= =

PARCEL DESCRIPTIONS

Date Added: OCT 16, 1996   Crown Land PIN#:
LTO PID#: 006969844   Crown Land File#:
Land Desc: LOT A DISTRICT LOT 140 OSOYOOS DIVISION YALE DISTRICT PLAN 22470

- -

Date Added: MAY 29, 1999   Crown Land PIN#:
LTO PID#: 024512079   Crown Land File#:
Land Desc: LOT 1 DISTRICT LOT 140 OSOYOOS DIVISION YALE DISTRICT   PLAN

KAP64473

- -

Date Added: MAR 05, 2015   Crown Land PIN#:

LTO PID#: 029502837   Crown Land File#:

Land Desc: LOT A DISTRICT LOT 140 OSOYOOS DIVISION YALE DISTRICT PLAN EPP44270

No activities were reported for this site

End of Detail Report

Appendix E
WSP ARCHAEOLOGICAL SCREENING REPORT

TECHNICAL MEMORANDUM

DATE 10 July 2024

Reference No. CA0006275.0098-002-TM-Rev1

TO Catherine Hayes
FortisBC Energy Inc.

FROM Chris Dodd

EMAIL chris.dodd@wsp.com

HERITAGE RESOURCE REVIEW FOR THE FORTISBC ENERGY INC. OKANAGAN CAPACITY UPGRADE INTERIM 'HYBRID' SOLUTION CPCN IN KELOWNA, BRITISH COLUMBIA

This high-level heritage resource review, conducted on behalf of FortisBC Energy Inc. (FortisBC) by WSP Canada Inc. (WSP), summarizes existing heritage resources and data associated with FortisBC's interim "Hybrid" solution Certificate of Public Convenience and Necessity (CPCN) within the City of Kelowna (the Project). The purpose of this review is to provide an opinion on whether the proposed Project could adversely affect heritage resources and to identify the need and scope for additional archaeological work prior to commencing the Project.

As defined here, heritage resources include archaeological sites and historical sites protected under the provincial *Heritage Conservation Act* (HCA). Readily available data have been reviewed to evaluate the relative heritage resource potential and associated heritage risks, should the Project proceed.

1.0 PROJECT DESCRIPTION

The Project is located within the fenced FortisBC property southeast of the intersection of Spall Road and Alphonse Road in the City of Kelowna, BC (Figure 1). While the Project is expected to be contained within the fenced property, it may expand slightly west towards Spall Road and some upgrades may be required along Alphonse Road (Figures 2).

The proposed Project will involve the installation of LNG tanks and the construction of associated equipment and access. As described above, the Project may also involve moving the existing fence west towards Spall Road, taking into account any setback constraints, and potential upgrades to Alphonse Road which is currently a gravel road.

Development activities with the potential to impact heritage resources may include, but are not limited to, subsurface excavation, grading, grubbing of soils and sediments, and tree removal.

2.0 METHODS

WSP assembled and reviewed readily available information for the Project area pertaining to the environmental setting, registered heritage sites, and previous archaeological studies.

The sources of available information that were reviewed include:

- Provincial Heritage Register (PHR) using the Remote Access to Archaeological Data application maintained by the Archaeology Branch, including the following layers:
  - Archaeological Sites
  - Historic Places
  - Okanagan Timber Supply Area Archaeological Overview Assessment
  - Archaeological Study Areas
- Ortho-imagery.
- Historical air photos.
- Keyword search of the Provincial Archaeological Report Library (PARL) online application and readily available heritage and archaeological reports.

3.0 RESULTS

The Project area is located within the Mill Creek flood plain, immediately north of Mill Creek itself, and at the base of Dilworth Mountain. A review of readily available air photos does show that Mill Creek is in the same location today as it was in 1951, the earliest air photo available (RDCO 2024). The Project area is situated within a municipal setting with varying degrees of disturbance from previous road and infrastructure construction, including the fenced property being completely gravelled.

Previous overlapping or immediately adjacent archaeological studies are summarized in Section 3.1. Registered archaeological sites within 2 km of the Project area are summarized in Section 3.2, as they can provide an understanding of site types that may be encountered. While numerous registered historic sites are located throughout the City of Kelowna, none are located within or immediately adjacent the Project area and are therefore not summarized further.

3.1 Previous Archaeological Studies

HCA Permit 1978-0008

An archaeological survey of the Thompson-Okanagan was completed in 1978 (Howe and Rousseau 1978). The survey included surface inspections for a residential development south of Dilworth Mountain during which archaeological sites DlQU-19, DlQU-20, and DlQu-21 were identified, all east-northeast and within 2 km of the Project area. Map data for the specific survey coverage area is not available, nor was it clear if other areas of potential were identified or subject to subsurface testing in the vicinity of the Project area.

Non-permit 1997 AOA

The entirety of the Project area is considered to have moderate archaeological potential as defined in the 1997 AOA completed by Arcas Consulting Archaeologists Ltd. (Arcas) for the Okanagan Timber Supply Area (Arcas 1997). Note that while this model is available for the Project area on the PHR, it was developed for forestry planning purposes and completed prior to 2009 (i.e., prior to the development of the archaeological overview standards by the Archaeology Branch) and is therefore limited in use and should not be solely relied upon.

HCA Permit 2007-0054

An archaeological impact assessment (AIA) was undertaken in 2007 by Arcas for the Central Okanagan Multi-Modal Corridor (COMC) along the proposed Clement Avenue Bypass Extension corridor, part of which is located immediately north of the Project area (Arcas 2007). The AIA included survey to identify areas of archaeological potential and subsequent subsurface testing. One area of archaeological potential was subject to subsurface testing approximately 50 m north of the Project area on a terrace overlooking Mill Creek. While no archaeological materials were encountered at that location, the overall AIA did result in the identification of archaeological site DlQu-202. Additional subsurface testing was also completed at archaeological site DlQu-22.

3.2 Registered Archaeological Sites

No registered archaeological sites directly overlap the Project area. Three registered archaeological sites, located within 2 km of the Project area, are summarized in Table 1.

Table 1: Archaeological Sites within 2 km of the Project Area

Archaeological Site	Site Notes	Permit Number Identified Under
DlQu-19	Surface lithic scatter. Located approximately 0.8 km east-northeast of the Project area	1978-0008
DlQu-20	Surface lithic scatter. Located approximately 1.3 km east-northeast of Project area	1978-0008
DlQu-21	Subsurface lithic and faunal scatter. Located approximately 1.6 km east-northeast of the Project area	1978-0008

3.3 Archaeological Potential Assessment

The Project area is considered to have archaeological potential given its close proximity to Mill Creek. Further, the presence of registered archaeological sites east-northeast of the Project area, also in proximity to Mill Creek, supports this assessment of archaeological potential. While these sites were identified on higher terraces overlooking Mill Creek, it does show evidence of past use of this landscape along Mill Creek. The area is also within modelled archaeological potential as defined in the Okanagan Timber Supply Area Archaeological Overview Assessment, however the modelled potential assessment was not the driving factor in assigning archaeological potential to the Project area given it's limitations (see Section 3.1).

4.0 RECOMMENDATIONS

WSP recommends an AIA be conducted for the Project area in the form of surface and subsurface inspection under an HCA Section 12.2 inspection permit prior to commencing any ground-disturbing activities. Should archaeological sites be identified during the AIA, an HCA Section 12.4 site alteration permit would be required prior to any impacts within these archaeological sites, during which concurrent archaeological monitoring may also be required. It is further recommended that heritage permits with those Indigenous groups requiring them for the Project area be obtained prior to any archaeological fieldwork being conducted; our current understanding is that this would include permits with Okanagan Indian Band, Westbank First Nation, and Upper Nicola Band. If the Project area is altered to include additional areas, those areas should also be subject to review and further archaeological work may be warranted.

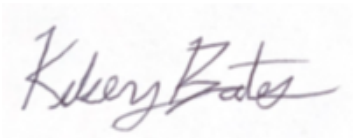
5.0 STUDY LIMITATIONS

This review is intended to provide a high-level summary of known and reasonably foreseeable archaeological conditions and risk. The scope of work did not include a detailed review of archival, historical, or “grey literature” sources, field verification, or contact with First Nations to provide local knowledge of potential heritage resources in the Project area.

This review was prepared for the exclusive use by FortisBC or other consultants or contractors acting on FortisBC’s behalf and is intended for internal use only. The purpose of this heritage review is to assist FortisBC in determining the requirement for further heritage studies for the Project.

This review is not intended to identify, assess, or address traditional land use or other heritage concerns of the First Nations with traditional territories in the Project area and should not be relied on for those purposes. This report was written without prejudice to potential or established Aboriginal rights, including title or treaty rights. We trust the information in this report is sufficient for your present needs. Should you have any questions regarding the Project, please do not hesitate to contact the undersigned.

WSP Canada Inc.



Kelsey Bates, BA
Archaeologist

Chris Dodd, BA, RPCA
Principal Archaeologist

KB/CD/jts

Attachments: Figures 1 and 2

https://wsponlinecan.sharepoint.com/sites/gld-130180/project files/6 deliverables/issued to client_for wp/ca0006275.0098 use for june 2023 onwards/ca0006275.0098-002-tm-rev1/ca0006275.0098-002-tm-rev1-fortisbc hybrid option screening 10jul_24.docx

6.0 REFERENCES CITED

Arcas Consulting Archaeologists Ltd.

1997 Okanagan Timber Supply Area Archaeological Overview Assessment (PENTIC 518). Report on file with the Archaeology Branch, Victoria, B.C.

2007 Central Okanagan Multi-Modal Corridor, Kelowna, B.C. Archaeological Impact Assessment. Heritage Conservation Act Permit 2007-0054. Report on file with the Archaeological Branch, Victoria, B.C.

Archaeology Branch

2024a Information on Remote Access Archaeological Database (RAAD). Accessed June 2024

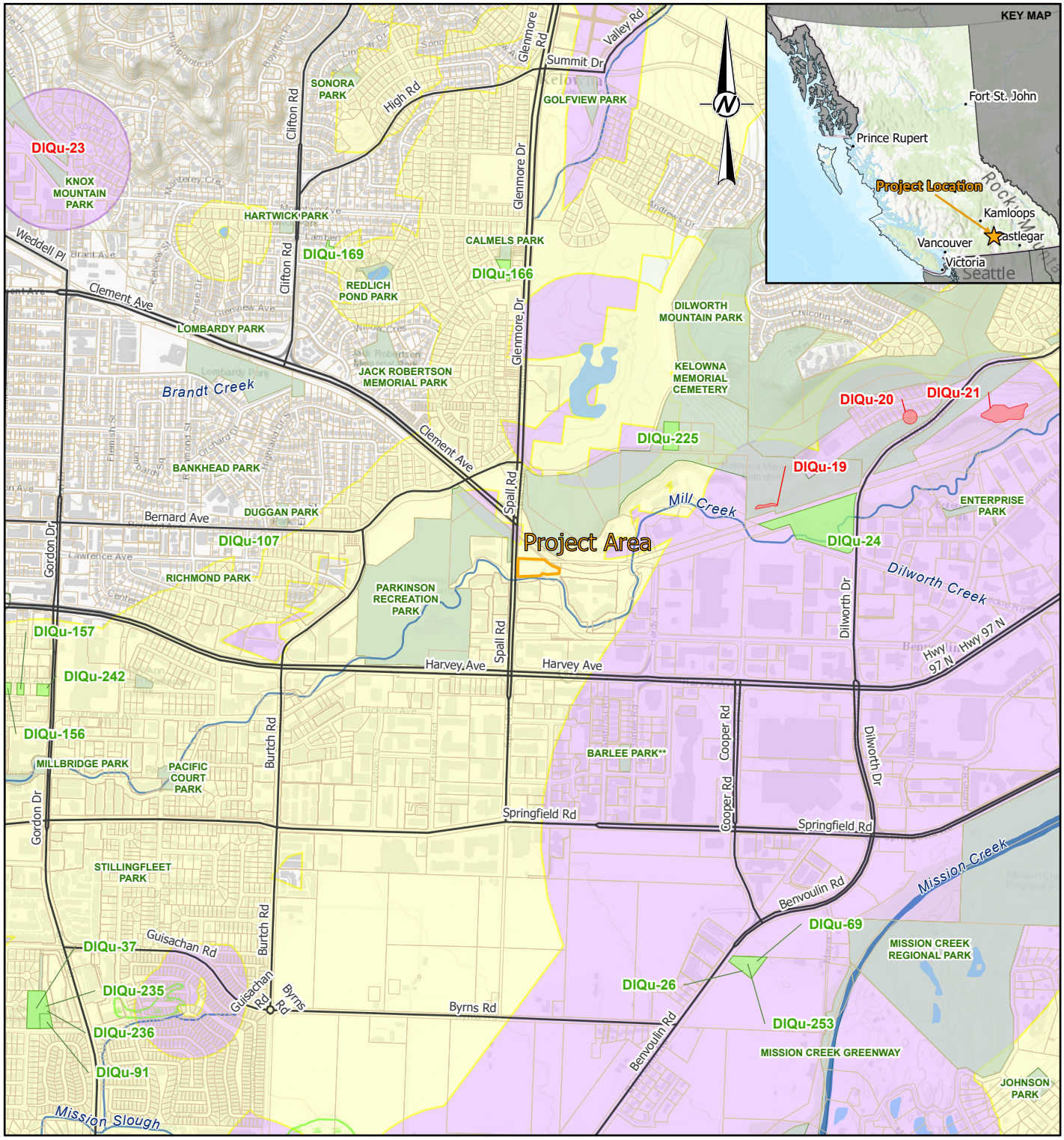
2024b Information on the Provincial Archaeological Report Library (PARL). Accessed June 2024

Howe, G., and M. Rousseau

1978 Thompson-Okanagan Regional Inventory Final Report. Heritage Conservation Act Permit 1978-0008. Report on file with the Archaeology Branch, Victoria, B.C.

Regional District of Central Okanagan

2024 RDCO Historical Air Photos, Layer: 1951 Air Photos. Accessed July 2024. https://rdco.maps.arcgis.com/apps/ImageryViewer/index.html?appid=b8b05a87dedd4ca3a7c2e794724b5754#!



LEGEND

- PROJECT AREA
- PREVIOUSLY RECORDED ARCHAEOLOGICAL SITE
- HISTORICAL SITE

AOA POTENTIAL MODEL (OKANAGAN TSA 1997)

- HIGH ARCHAEOLOGICAL POTENTIAL
- MODERATE ARCHAEOLOGICAL POTENTIAL
- MAJOR ROAD
- PARCEL
- LAKE

0 500 1,000

1:20,000 METRES

REFERENCE(S)

1. ARCHAEOLOGICAL SITES OBTAINED FROM B.C. MINISTRY OF FORESTS ON 2024-05-30.
2. ROAD AND PARCEL DATA CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
3. ARCHAEOLOGY POTENTIAL MODEL – OKANAGAN TSA (1997)
4. IMAGERY COPYRIGHT © 20240628 ESRI PROPERTY "PROJECTED COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 11N

CLIENT
FORTISBC ENERGY INC

PROJECT
INTERIM HYBRID SOLUTION CPCN, KELOWNA, BC

TITLE
OVERVIEW MAP

CONSULTANT

wsp

YYYY-MM-DD	2024-06-28
DESIGNED	KB
PREPARED	KS
REVIEWED	KB
APPROVED	CD

PROJECT NO.	CONTROL	REV.	FIGURE
CA0006275.0098	4	0	1

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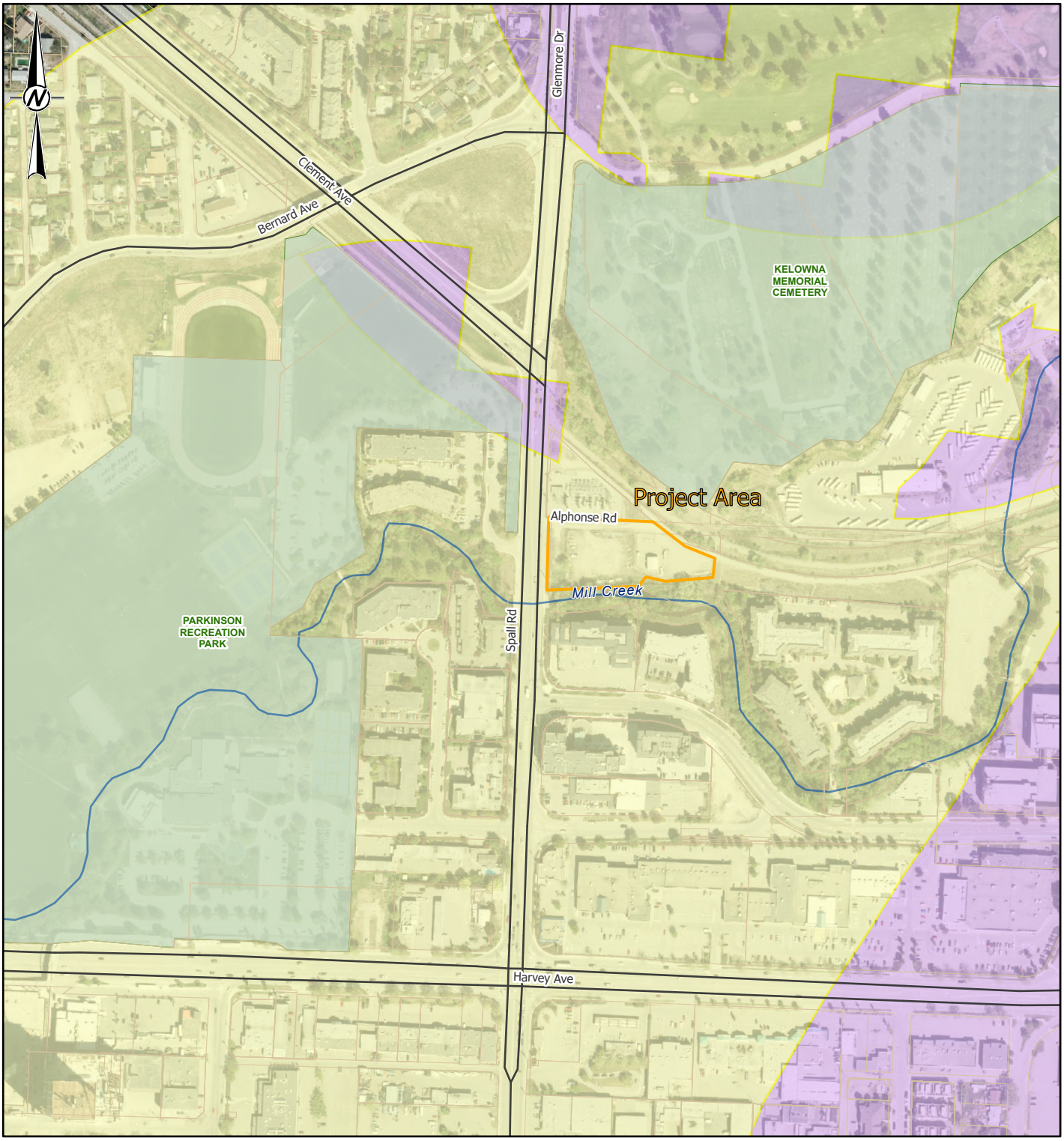

LEGEND

- PROJECT AREA
- MAJOR ROAD

AOA POTENTIAL MODEL (OKANAGAN TSA 1997)

- HIGH ARCHAEOLOGICAL POTENTIAL
- MODERATE ARCHAEOLOGICAL POTENTIAL
- PARCEL
- LOCAL AND REGIONAL GREENSPACE

0 100 200

1:5,000 METRES

REFERENCE(S)

1. ROAD AND PARCEL DATA CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – BRITISH COLUMBIA.
2. ARCHAEOLOGY POTENTIAL MODEL – OKANAGAN TSA (1997)
3. IMAGERY COPYRIGHT © 20240628 ESRI PROPERTY "PROJECTED COORDINATE SYSTEM: NAD 1983 CSRS UTM ZONE 11N

CLIENT
FORTISBC ENERGY INC

PROJECT
INTERIM HYBRID SOLUTION CPCN, KELOWNA, BC

TITLE
MIDRANGE MAP

CONSULTANT

wsp

YYYY-MM-DD	2024-06-28
DESIGNED	KB
PREPARED	KS
REVIEWED	KB
APPROVED	CD

PROJECT NO.	CONTROL	REV.	FIGURE
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25mm

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Appendix F

CONSTRUCTION COST ESTIMATES - FEI

FILED CONFIDENTIALLY

Appendix F-1

CONSTRUCTION COST ESTIMATE 3 LNG TANKS - FEI

FILED CONFIDENTIALLY

Appendix F-2

CONSTRUCTION COST ESTIMATE 6 LNG TANKS - FEI

FILED CONFIDENTIALLY

Appendix G
RISK REGISTER

FILED CONFIDENTIALLY

Appendix H

VALIDATION ESTIMATING CONTINGENCY REPORT

FILED CONFIDENTIALLY

Appendix I

VALIDATION ESTIMATING ESCALATION REPORT

FILED CONFIDENTIALLY

Appendix J

FINANCIAL SCHEDULES

REFER TO LIVE SPREADSHEET MODEL

Provided in electronic format only

FILED CONFIDENTIALLY

Appendix K
DRAFT ORDERS

Appendix K-1
DRAFT PROCEDURAL ORDER

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
G-xx-xx

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
Okanagan Capacity Mitigation Project

BEFORE:
[Panel Chair]
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. On July 30, 2024, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to sections 45 to 46 of the *Utilities Commission Act* (UCA) for the Okanagan Capacity Mitigation Project (OCMP or Project) (Application);

B. On December 22, 2023, the BCUC issued its Decision and Order G-361-23 denying FEI's application for a CPCN for the Okanagan Capacity Upgrade (OCU) Project in respect of its Interior Transmission System (ITS) and directed FEI to develop and file for BCUC review and approval a mitigation plan to address the imminent capacity shortfall on the ITS and a compliance filing setting out FEI's proposed accounting treatment for the pre-construction development costs;

C. The OCMP is a new small scale liquefied natural gas (LNG) storage and regasification facility and involves bulk transport of LNG from FEI's Tilbury LNG facility. The scope of the OCMP includes:

    i. Modifications and additions to FEI's facilities and distribution system connected to its ITS pipeline to accommodate the design, construction, commissioning and operation of LNG storage, vaporization, odorization, and injection of LNG into FEI's distribution system operating at 420 kPa at the Kelowna Gate Station; and

    ii. Transportation of LNG by truck from FEI's Tilbury LNG facility to the Kelowna Gate Station;

D. FEI also seeks, pursuant to sections 59 to 61 of the UCA, approval of the following:

i. A depreciation rate of 3.33 percent and a net salvage rate of 0.5 percent applicable to the new small scale LNG tank and vaporization (i.e., send-out) equipment as well as the LNG transport trailers related to the Project;

ii. Rename the existing non-rate base OCU Preliminary Stage Development Costs deferral account, which attracts an after-tax weighted average cost of capital return, to the OCMP Application and Preliminary Stage Development Costs deferral account;

iii. Record the Application costs and preliminary stage development costs for the OCMP in the existing (renamed) OCMP Application and Preliminary Stage Development Costs deferral account; and

iv. Transfer the balance in the OCMP Application and Preliminary Stage Development Costs deferral account (which includes the pre-construction development costs for the original OCU CPCN project from the period of 2018 to 2023) to rate base on January 1 of the year following the BCUC's decision on the OCMP Application and amortize the balance over four years;

E. FEI requests that the following information contained in the Application be held confidential, pursuant to Section 18 of the BCUC's Rules of Practice and Procedure:

i. Cost estimates and financial schedules filed as Appendices A, F-1, F-2, H, I, and J, which are stated to contain the costs of the various and specific Project components. Confidentiality is requested on the basis that FEI intends to contract the majority of the construction for the Project and providing potential bidders with this information could reasonably be expected to prejudice FEI's negotiating position; and

ii. Engineering documents and documents that identify Project risks filed as Appendices B-1, B-3, and G, which contain operationally sensitive information pertaining to FEI's assets. These documents also include cost estimates and identify Project risks; and

F. The BCUC has commenced its review of the Application and finds that the establishment of a written public hearing process is warranted.

NOW THEREFORE the BCUC orders as follows:

1. A written public hearing is established for the review of the Application in accordance with the regulatory timetable as set out in Appendix A to this order.

2. FEI is directed to provide a copy of this Application and this order, electronically where possible, on or before day, date xx, 2024, to all registered interveners in the OCU Project CPCN proceeding.

3. FEI is directed to publish the Application and a copy of this order on its website at www.fortisbc.com as soon as practicable, but no later than day, date xx, 2024.

4. FEI is directed to post notice of the Application and this order on its relevant and existing social media platforms, including but not limited to X (formerly Twitter) and Facebook, beginning as soon as practicable, but no later than day, date xx, 2024. Weekly reminder posts must be posted on each platform until the conclusion of the intervener registration period on day, date xx, 2024.

5. FEI is directed to provide confirmation to the BCUC that it has complied with Directives 2, 3, and 4 of this order by day, date xx, 2024.

6. Appendices A, B-1, B-3, F-1, F-2, G, H, I, and J attached to the Application will be held confidential unless determined otherwise by the BCUC.

7. In accordance with the BCUC's Rules of Practice and Procedure, parties who wish to actively participate in this proceeding must submit the Request to Intervene Form, available on the BCUC's website at https://www.bcuc.com/GetInvolved/GetInvolvedProceeding, by day, date xx, 2024, as established in the regulatory timetable. Parties may also submit letters of comment by completing a Letter of Comment Form, available on the BCUC's website.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Attachment

FortisBC Energy Inc.
Application for a Certificate of Public Convenience and Necessity for the
Okanagan Capacity Mitigation Project

REGULATORY TIMETABLE

Action	Date (2024)
FEI provides notice of Application	Friday, August 30
FEI provides confirmation of compliance with public notice requirements	Friday, September 6
Intervener registration deadline	Thursday, September 19
BCUC Information Request (IR) No. 1	Tuesday, September 24
Intervener IR No. 1	Tuesday, October 1
FEI responses to IR No. 1	Tuesday, October 22
Letters of comment deadline	Thursday, October 31
FEI final argument	Tuesday, November 19
Intervener final argument	Tuesday, December 3
FEI reply argument	Tuesday, December 17

bcuc
British Columbia Utilities Commission

We want to hear from you

FortisBC Energy Inc.
Application for Approval of a Certificate of Public Convenience and Necessity for the Okanagan Capacity Mitigation Project

On July 30, 2024, FortisBC Energy Inc (FEI) filed its Application for Approval of a Mitigation Plan for the Okanagan Capacity Shortfall (Application) with the British Columbia Utilities Commission. The purpose of the project is to address the imminent capacity shortfall of the Interior Transmission System (ITS) for the winter of 2026/2027.

HOW TO PARTICIPATE

- **Submit a letter of comment**
- **Request intervener status**

IMPORTANT DATES

1. [**Day/DATE** – Deadline to register as an intervener with the BCUC

For more information about the Application, please visit the Proceeding Webpage on bcuc.com under "Our Work – Proceedings." To learn more about getting involved, please visit our website (www.bcuc.com/get-involved) or contact us at the information below.

GET MORE INFORMATION

FortisBC Energy Inc. Regulatory Affairs

16705 Fraser Highway
Surrey, BC Canada V4N 0E8

E: gas.regulatory.affairs@fortisbc.com

P: 604.592.7664

British Columbia Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3

E: Commission.Secretary@bcuc.com

P: 604.660.4700

Appendix K-2
DRAFT FINAL ORDER

bcuc
British Columbia
Utilities Commission

Suite 410, 900 Howe Street
Vancouver, BC Canada V6Z 2N3
bcuc.com

P: 604.660.4700
TF: 1.800.663.1385
F: 604.660.1102

ORDER NUMBER
C-xx-xx

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
Okanagan Capacity Mitigation Project

BEFORE:
[Panel Chair]
Commissioner
Commissioner

on Date

ORDER

WHEREAS:

A. On July 30, 2024, FortisBC Energy Inc. (FEI) filed an application with the British Columbia Utilities Commission (BCUC) for a Certificate of Public Convenience and Necessity (CPCN) pursuant to sections 45 to 46 of the *Utilities Commission Act* (UCA) for the Okanagan Capacity Mitigation Project (OCMP or Project) (Application);

B. On December 22, 2023, the BCUC issued its Decision and Order G-361-23 denying FEI's application for a CPCN for the Okanagan Capacity Upgrade (OCU) Project in respect of its Interior Transmission System (ITS) and directed FEI to develop and file for BCUC review and approval a mitigation plan to address the imminent capacity shortfall on the ITS and a compliance filing setting out FEI's proposed accounting treatment for the pre-construction development costs;

C. The OCMP is a new small scale liquefied natural gas (LNG) storage and regasification facility and involves bulk transport of LNG from FEI's Tilbury LNG facility. The scope of the OCMP includes:

    i. Modifications and additions to FEI's facilities and distribution system connected to its ITS pipeline to accommodate the design, construction, commissioning and operation of LNG storage, vaporization, odorization, and injection of LNG into FEI's distribution system operating at 420 kPa at the Kelowna Gate Station; and

    ii. Transportation of LNG by truck from FEI's Tilbury LNG facility to the Kelowna Gate Station;

D. FEI also seeks, pursuant to sections 59 to 61 of the UCA, approval of the following:

i. A depreciation rate of 3.33 percent and a net salvage rate of 0.5 percent applicable to the new small scale LNG tank and vaporization (i.e., send-out) equipment as well as the LNG transport trailers related to the Project;

ii. Rename the existing non-rate base OCU Preliminary Stage Development Costs deferral account, which attracts an after-tax weighted average cost of capital return, to the OCMP Application and Preliminary Stage Development Costs deferral account;

iii. Record the Application costs and preliminary stage development costs for the OCMP in the existing (renamed) OCMP Application and Preliminary Stage Development Costs deferral account; and

iv. Transfer the balance in the OCMP Application and Preliminary Stage Development Costs deferral account (which includes the pre-construction development costs for the original OCU CPCN project from the period of 2018 to 2023) to rate base on January 1 of the year following the BCUC's decision on the OCMP Application and amortize the balance over four years;

E. By Order G-xx-24, the BCUC established the regulatory timetable for the proceeding; and

F. The BCUC has reviewed the Application, evidence and submissions in this proceeding and makes the following determinations.

NOW THEREFORE pursuant to sections 45, 46 and 59 to 61 of the UCA, for the reasons set out in the Decision issued concurrently with this order, the BCUC orders as follows:

1. FEI is granted a CPCN to construct and operate the OCMP.

2. A depreciation rate of 3.33 percent and a net salvage rate of 0.5 percent applicable to the new small scale LNG tank and vaporization (i.e., send-out) equipment as well as the LNG transport trailers related to the Project are approved.

3. FEI is granted approval to:

   a. Rename the existing non-rate base OCU Preliminary Stage Development Costs deferral account to the OCMP Application and Preliminary Stage Development Costs deferral account;

   b. Record the Application costs and preliminary stage development costs for the OCMP in the OCMP Application and Preliminary Stage Development Costs deferral account; and

   c. Transfer the balance in the OCMP Application and Preliminary Stage Development Costs deferral account (which includes the pre-construction development costs for the original OCU CPCN project from the period of 2018 to 2023) to rate base as described in the Application and amortize the balance over four years.

4. The BCUC will continue to hold confidential Appendices A, B-1, B-3, F-1, F-2, G, H, I, and J and associated materials filed in this proceeding unless determined otherwise by the BCUC.

DATED at the City of Vancouver, in the Province of British Columbia, this (XX) day of (Month Year).

BY ORDER

(X. X. last name)
Commissioner

Appendix K-3

CONFIDENTIALITY DECLARATION AND UNDERTAKING FORM

Confidentiality Declaration and Undertaking Form

In accordance with the Commission's Rules of Practice and Procedure, please provide a completed form to the party who filed the confidential document and copy Commission Secretary at commission.secretary@bcuc.com. If email is unavailable, please mail the form to the address above.

Undertaking

I, _____, am representing the party _____ in the matter of

____FEI Application for a CPCN for the Okanagan Capacity Mitigation Project_____

In this capacity, I request access to the confidential information in the record of this proceeding. I understand that the execution of this undertaking is a condition of an Order of the Commission, and the Commission may enforce this Undertaking pursuant to the provisions of the *Administrative Tribunal Act*.

Description of document:	

I hereby undertake:

(a) to use the information disclosed under the conditions of the Undertaking exclusively for duties performed in respect of this proceeding;

(b) not to divulge information disclosed under the conditions of this Undertaking except to a person granted access to such information or to staff of the Commission;

(c) not to reproduce, in any manner, information disclosed under the conditions of this Undertaking except for purposes of the proceeding;

(d) to keep confidential and to protect the information disclosed under the conditions of this Undertaking;

(e) to return to the applicant, ____FortisBC Energy Inc._____,all documents and materials containing information disclosed under the conditions of this Undertaking, including notes and memoranda based on such information, or to destroy such documents and materials within fourteen (14) days of the Commission's final decision in the proceeding; and

(f) to report promptly to the Commission any violation of this Undertaking.

Signed at _____ this _____.

Signature: _____

Name (please print): _____

Email address: _____

Representing (if applicable): _____