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November 10, 2021

B.C. Sustainable Energy Association
c/o William J. Andrews, Barrister & Solicitor
70 Talbot Street
Guelph, ON.
N1G 2E9

Attention: Mr. William J. Andrews

Dear Mr. Andrews:

Re: FortisBC Energy Inc. (FEI)

Application for a Certificate of Public Convenience and Necessity (CPCN) for the Tilbury Liquefied Natural Gas (LNG) Storage Expansion (TLSE) Project (Application)

Response to the B.C. Sustainable Energy Association (BCSEA) Information Request (IR) No. 2

On December 29, 2021, FEI filed the Application referenced above. In accordance with the regulatory timetable established in British Columbia Utilities Commission Order G-185-21 for the review of the Application, FEI respectfully submits the attached response to BCSEA IR No. 2.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties

FortisBC Energy Inc. (FEI or the Company) Application for a Certificate of Public Convenience and Necessity (CPCN) for the Tilbury Liquefied Natural Gas (LNG) Storage Expansion (TLSE) Project (Application)	Submission Date: November 10, 2021
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1 **11.0 Topic: Project Need, BC Energy Objectives**

2 **Reference: Exhibit B-15, FEI Response to BCUC IR1 63.1, pdf p.261**

3 BCUC IR1 63.1 asks FEI to discuss the extent to which FEI considers the TLSE Project
4 is consistent with and will advance the BC government’s energy objectives (b) to take
5 demand-side measures and to conserve energy, (g) to reduce BC greenhouse gas
6 emissions, (h) to encourage the switching from one kind of energy source or use to another
7 that decreases greenhouse gas emissions in British Columbia, and (i) to encourage
8 communities to reduce greenhouse gas emissions and use energy efficiently.

9 FEI begins its response by stating:

10 “The TLSE Project is consistent with and will advance the BC government’s energy
11 objectives, as set out above.”

12 FEI sees a continued and growing role for its existing and proposed infrastructure,
13 including the TLSE Project, to achieve the BC government’s energy objectives to
14 strengthen its economy while driving the transition to a low-carbon energy system,
15 as identified in its legislated GHG emissions reduction targets. ...” [underline
16 added]

17 Later in its response, FEI states:

18 “The TLSE Project is a key addition to the resiliency and integrity of BC’s gas
19 distribution system and strengthens the overall Provincial energy system as it
20 decarbonizes in line with Provincial targets.”

21 11.1 Is it FEI’s view that the TLSE Project does not directly advance the BC energy
22 objectives regarding DSM, energy conservation and GHG emissions reductions,
23 but does indirectly advance these energy objectives by adding resiliency to the FEI
24 gas distribution system which FEI says advances these energy objectives?
25

26 **Response:**

27 Yes, by adding resiliency, FEI is indirectly enabling the BC energy objectives regarding DSM,
28 energy conservation and GHG emission reductions as a resilient energy delivery system is a
29 prerequisite to providing any sort of GHG reduction activity.

30 In Section 9.2 of the Application, FEI identified that the TLSE Project advances the objective in
31 section 2(k) of the *Clean Energy Act*. “to encourage economic development and the creation and
32 retention of jobs”. FEI focused on that objective because it is the most directly applicable of the
33 energy objectives. The TLSE Project is a resiliency project supporting FEI’s existing customers
34 with storage and regasification capability, and thus the Project scope does not include offering
35 demand-side management or energy conservation programs. It is similarly not specifically
36 targeted at reducing GHG emissions in the way that an RNG production facility would be (although



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1 it does potentially provide some emission reductions from the plant itself due to the newer boil-off
2 gas technology).

3 While FEI agrees that the TLSE Project's advancement of the objectives referenced in this
4 question and the response to BCUC IR1 63.1 is less direct than its advancement of the economic
5 development and jobs objective, the Project nonetheless aligns with these objectives in a broader
6 sense. FEI's view is that its system as a whole will play an important role in advancing
7 decarbonization, and the system needs to remain resilient (as assisted by the TLSE Project) to
8 play that role. FEI's response to BCUC IR1 63.1 focusses on that point.

9
10

11

12 11.2 If not, please discuss the extent to which FEI considers the TLSE Project directly
13 advances BC energy objectives regarding DSM, energy conservation and GHG
14 emissions reductions.

15

16 **Response:**

17 Please refer to the response to BCSEA IR2 11.1.

18

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1 **12.0 Topic: Project Need, Phase 2 Project**

2 **Reference: Exhibit B-18, FEI Response to BCSEA IR1 3.2, pdf p13**

3 FEI states that Regasification is a component of the TLSE Project, for which BCUC
4 approval is sought, and that Regasification is not a component of the Tilbury Phase 2 LNG
5 Expansion Project that is being considered in the environmental assessment process.

6 12.1 Why is Regasification not being considered in the environmental assessment
7 process?

8
9 **Response:**

10 The decision as to whether regasification is considered as part of the environmental assessment
11 process lies with the relevant statutory authorities overseeing those processes, and reflects the
12 applicable statutory framework (which differs from the legislation governing the Application before
13 the BCUC). Further details of the proposed scope of the Tilbury Phase 2 Expansion Project can
14 be found in the Detailed Project Description, as filed on EPIC (the Province of BC Environmental
15 Assessment Project website).

16

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1 **13.0 Topic: Project Need**

2 **Reference: Exhibit B-15, FEI Response to BCUC IR1, Attachment 1.5c, pdf p.284,**
3 **Assessment of Outage Probability, JANA Project 23247; FEI**
4 **Response to BCSEA IR1 8.1**

5 The JANA Report provides the results of an assessment of the cumulative probability of
6 an outage event on the T-South system over the economic life of the TLSE Project (67
7 years) based on two different sources of pipeline performance data: PHMSA (Pipeline and
8 Hazardous Materials Safety Administration), and TSB (Transportation Safety Board of
9 Canada).

10 13.1 Please discuss the extent to which the methodology applied in the JANA Report is
11 utilized and accepted within the pipeline industry.

12
13 **Response:**

14 The following response was provided by JANA:

15 The method of cumulative probabilities is a standard statistical approach for assessing
16 probabilities over time and is applicable for any analysis assessing a probability over time.

17
18

19
20 13.2 Please discuss the extent to which the methodology applied in the JANA Report
21 has been accepted by regulatory bodies for the purpose of assessing the need for
22 an incremental resiliency measure(s).

23
24 **Response:**

25 The following response has been provided by JANA:

26 It was not in JANA's scope to assess past regulatory submissions. The quantification of ruptures
27 was developed based on the specific request for that quantification in the first round of IRs (BCUC
28 IR1 1.5).

29
30

31
32 13.3 Please confirm, or otherwise explain, that the results provided in the JANA Report
33 are based on the occurrence of an "outage event" (rupture or ignited rupture) as
34 defined by the applicable regulatory body and do not take into account the severity
35 or consequence of the outage event.

36

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1 **Response:**

2 The following response was provided by JANA:

3 The assessment considered the forecast probability of an outage event from a rupture or ignited
4 rupture and did not assess the severity of the event.

5

6

7

8 13.4 Is JANA able to assess the cumulative probability of an outage event on the T-
9 South system over the economic life of the TLSE Project (67 years) where the
10 outage event would require full use of FEI's three-day Minimum Resiliency
11 Planning Objective? If so, please provide such an assessment. If not, please
12 explain briefly why not.

13

14 **Response:**

15 The following response was provided by JANA:

16 JANA's assessment considered the cumulative probability of ruptures and ignited ruptures in
17 response to the request for quantification of rupture potential in BCUC IR1 1.5 based on an
18 average performing pipeline system the length of the T-South system. Based on the analysis,
19 the cumulative probability of a rupture event is forecast to be between 83.1 percent and 97.9
20 percent.

21 Any rupture of a 30" or 36" NPS transmission pipeline would be expected to result in an outage
22 of at least two days duration and most likely three days or greater followed by some period of
23 reduced capacity on the lines. This is based on:

24 • 100 percent of PHMSA reported ruptures for pipelines 30" NPS or greater with reported
25 outage durations had an outage duration ≥ 2 days (26 of 26) and 96% ≥ 3 days (25 of 26).
26 For ignited ruptures, 100 percent of reported incidents had outage durations ≥ 3 days (20
27 of 20). Of the 4 TSB reported ruptures with outage durations for pipelines 30" and greater,
28 3 of 4 were ≥ 2 days and 2 of 4 were ≥ 3 days. For ignited ruptures, 100% of reported
29 incidents had outage durations ≥ 2 days and 2 of 3 ≥ 3 days.

30 • After a rupture of one pipeline in a shared ROW, a likely outcome is that the adjacent
31 pipeline would be taken out of service, (as was done following the T-South pipeline
32 rupture), therefore resulting in an outage on both lines. This outage would also be
33 expected to be on the order of two to three days based on the sequence of steps involved:
34 get to site, conduct investigation of site, assess potential impact on adjacent line,
35 determine if and additional integrity confirmations required, approve putting line back into
36 service, etc. (it was two days for the T-South system).



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- 1 • Upon resumption of flow it is common industry practice to operate at 80% of pre-rupture
2 pressures until additional investigations and confirmation of integrity can be conducted
3 (both the 30" and 36" T-South lines were returned to service at 80 percent operating
4 pressure). This could require supplemental gas supply through this extended period.

5
6 An outage duration of three days, therefore, for any rupture on the system seems to be a
7 reasonable minimum duration.

8 The impact of these flow outages and post outage flow restrictions will depend on the load
9 demand at the time of the outage. This would depend on how demand is expected to change
10 over the 67-year period and in what season the rupture occurs and the specifics of the weather
11 at the time of rupture.

12
13

14
15 13.5 Please explain what is meant by this sentence on page 4 (pdf p.289): "The rupture
16 rate and ignited rupture rate for the T-South pipeline observed since installation
17 fall between the PHMSA and TSB rupture rates."

18
19 **Response:**

20 The following response was provided by JANA:

21 The actual observed historical rupture and ignited rupture rates for the T-South pipeline since
22 installation are between the mean PHMSA rates and the mean TSB rates.

23

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1 **14.0 Topic: Project Need**

2 **Reference: Exhibit B-15, FEI Response to BCUC IR1 9.2; Exhibit B-18, FEI**
3 **Response to BCSEA IR1 8.2**

4 FEI states:

5 “FEI has not identified a lower-cost or comparable solution that would provide the
6 necessary resiliency and ancillary benefits. This analysis demonstrates that the
7 TLSE Project will achieve FEI’s resiliency objectives for a reasonable cost and is
8 a prudent investment, which is in the public interest.” [underline added]

9 14.1 Given that the TLSE Project is the only option that would meet FEI’s resiliency
10 objectives, what criteria did FEI use to determine that the cost is reasonable?

11
12 **Response:**

13 During Step One of the two-step evaluation process to determine viable alternatives to meet the
14 Minimum Resiliency Planning Objective (MRPO), FEI identified and screened out alternatives that
15 were either not technically or financially feasible. A summary of these alternatives and the reasons
16 they were screened out included:

- 17 • **Load management:** does not avoid customer impacts (i.e., widespread and prolonged
18 customer outages);
- 19 • **Pipeline Expansions:** would leave FEI subject to a single point of failure, would rely on
20 displacement to flow gas, or would have a high cost when constructed solely for resiliency
21 purposes given the size that would be needed;
- 22 • **Underground storage:** is not permitted within the region supplied by the CTS;
- 23 • **Off-system storage:** is dependent on upstream pipeline capacity to transport gas, which
24 may not be available during an outage on the T-South system;
- 25 • **On-system storage (storage, regasification, liquefaction) at a new site:** would be
26 more costly and more impactful due to the need to acquire new property and construct
27 additional liquefaction; and
- 28 • **A combination of Base Plant storage and additional storage (tank and**
29 **regasification):** does not leverage economies of scale or address the aging Base Plant
30 facilities, which will still need replacement at some point.

31
32 Once FEI determined that on-system LNG storage at Tilbury between 2 and 3 Bcf, combined with
33 between 600 MMcf/day and 800 MMcf/day of regasification capacity, was the only feasible option
34 to meet the MRPO, it then evaluated the costs and benefits of these alternatives. This included a
35 consideration of tank sizes and regasification capacities relative to FEI’s storage and send-out
36 requirements. FEI determined that a 3 Bcf tank, together with 800 MMcf/day of regasification, is
37 the optimal and most cost-effective solution as:



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- 1 • It addresses FEI’s requirement for three days of storage volume to withstand no-flow
2 events;
 - 3 • Has sufficient send-out (regasification) capability to meet all but one day of forecast peak
4 demand;
 - 5 • Leverages economies of scale in tank sizing;
 - 6 • Replaces the aging Base Plant facilities (which will need replacement at some point); and
 - 7 • After reserving 2 Bcf for resiliency purposes, the “third Bcf” provides immediate supply
8 and operational benefits (including replacing the peak shaving capabilities currently
9 provided by the Base Plant) and other potential rate-mitigation commercial opportunities.
- 10
11 Finally, FEI considered the cost of the TLSE Project in relation to the societal and economic
12 consequences of a widespread outage (i.e., an incident that results in the loss of supply to
13 hundreds of thousands of customers in the Lower Mainland). FEI determined that the cost of the
14 TLSE Project is reasonable in comparison to the potentially significant consequences related to
15 a widespread outage which would be more costly to FEI, its customers, and society as a whole.
- 16



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1 **15.0 Topic: Project Need, FEI’s Minimum Resiliency Planning Objective**

2 **Reference: Exhibit B-18, FEI Response to BCSEA IR1 1.1; Exhibit B-15, FEI**
3 **Response to BCUC IR1 8.4**

4 15.1 Can FEI confirm that if the TLSE Project is implemented then no additional projects
5 will be required in order to meet FEI’s Minimum Resiliency Planning Objective? If
6 not, please explain fully.

7
8 **Response:**

9 FEI confirms that if the TLSE Project is implemented then no additional projects will be required
10 in order to meet FEI’s Minimum Resiliency Planning Objective (MRPO) for the Lower Mainland.

11 FEI’s other projects (e.g., the AMI and RGSD projects) will also add resiliency. However, these
12 projects are not required to meet the MRPO – nor would they on their own provide an alternate
13 method for FEI to meet the MRPO. They also have other business justifications apart from
14 resiliency.

15