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FARRIS

File No: 05497-278

September 3, 2020

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

Attention: Marija Tresoglavic, Acting Commission Secretary

Dear Ms. Tresoglavic:

Re: FortisBC Inc. Application for a CPCN for the Kelowna Bulk Transformer Addition

In accordance with British Columbia Utilities Commission Order G-107-20 establishing the Regulatory Timetable for the review of the above noted Application, FortisBC respectfully submits the attached final submission.

If further information is required, please contact the undersigned.

Yours truly,

FARRIS LLP

Per: E Miller

Erica C. Miller

ECM/
Enclosure
cc: Registered Parties

BRITISH COLUMBIA UTILITIES COMMISSION

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

and

FortisBC Inc. Application for a Certificate of Public Convenience and Necessity
for the Kelowna Bulk Transformer Addition Project

FINAL WRITTEN SUBMISSION OF FORTISBC INC.

DATED SEPTEMBER 3, 2020

FortisBC Inc.

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PART 1 - OVERVIEW

1. On April 24, 2020, FortisBC Inc. (**FBC** or the **Company**) filed an application (the **Application**) with the British Columbia Utilities Commission (**BCUC**) for a Certificate of Public Convenience and Necessity (**CPCN**) for the Kelowna Bulk Transformer Addition Project (the **KBTA Project** or the **Project**).[1]

2. In the Application, FBC seeks approval to purchase and install a third terminal transformer at the F.A. Lee Terminal Station (**LEE**), in the City of Kelowna, including the reconfiguration of the existing 138 kV bus into an industry-standard ring bus configuration.[2] The KBTA Project is necessary for FBC to maintain service reliability in the Kelowna area during peak periods, in the event of an outage or failure of one of the existing 230/138 kV transformers at LEE, by continuing to meet single contingency (N-1) transmission planning criteria.[3] The KBTA Project also will improve safety and reliability by reconfiguring the 138 kV portion of LEE from a split bus to a ring bus configuration. The estimated total cost of the Project is $23.288 million in as-spent dollars, which is estimated to result in a levelized rate increase of 0.39 percent.[4]

3. On May 5, 2020, pursuant to Order G-107-20, the BCUC established a public hearing process and a Regulatory Timeline for the Application.[5]

4. Four intervener groups participated in this proceeding: British Columbia Old Age Pensioners' Organization and others[6] (together, **BCOAPO**), Commercial Energy Consumers Association of British Columbia (**CEC**), Industrial Customers Group (**ICG**) and Tower Ranch Community Association (**TRCA**). In addition, two letters of comment were submitted to the BCUC by members of the public.

5. The written record in this proceeding is comprehensive. FBC filed a substantial and detailed Application.[7] This evidence has been supplemented by FBC through its responses to

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1 See Ex. B-1, Application.
2 Ex. B-1, Application, p. 1.
3 Ex. B-1, Application, p. 10.
4 Ex. B-1, Application, p. 3.
5 Order G-107-20 p. 2 and Appendix A.
6 British Columbia Old Age Pensioners' Organization, Council of Senior Citizens' Organizations of BC, Active Support Against Poverty, Disability Alliance BC, and Tenant Resource & Advisory Centre.
7 See Ex. B-1, Application with Appendices and Ex. B-1-1 with Confidential Appendices.

approximately 470 Information Requests (**IRs**), provided by the BCUC and interveners, over two rounds.

6. It is respectfully submitted that the evidentiary record confirms that the order the Company seeks should be granted.[8] While this Final Submission summarizes key points, the Company relies on the evidentiary record as a whole in support of its Application.

PART 2 - THE APPLICABLE STATUTORY FRAMEWORK

7. In the Application, FBC seeks a CPCN pursuant to sections 45 and 46 of the *Utilities Commission Act*, RSBC 1996, c 473 (the **UCA**). The Application meets the statutory criteria set out in the UCA, as well as the criteria applied by the BCUC in determining CPCN applications.

8. The Company has applied to the BCUC for a CPCN, as the KBTA Project involves a system extension, and the total capital cost[9] of the Project is forecast to exceed FBC's $20 million threshold for CPCN applications.[10]

A. <u>THE PROJECT IS IN THE PUBLIC CONVENIENCE AND NECESSITY</u>

9. Pursuant to section 45 of the UCA, FBC may not begin the construction or operation of an extension of a public utility plant or system, without first obtaining a CPCN from the BCUC. For the BCUC to grant a CPCN, it must be satisfied that the project is "necessary for the public convenience" and "properly conserves the public interest". The BCUC and the Supreme Court of Canada have described the test for approval of a CPCN as being whether the project is in the "public convenience and necessity".[11]

10. The UCA itself does not provide a definition or further explanation on when a project will be in the "public convenience and necessity". Instead, the BCUC has a broad discretion to consider a variety of factors and evidence, and has held that the test of what constitutes

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[8] See Ex. B-1, Application, Appendix F-2, Draft Order.

[9] The total capital cost of the KBTA Project is forecast to be approximately $23.288 million in as-spent dollars (Ex. B-1, Application, p. 52). See Part 6 of the Submission for a discussion on Project costs.

[10] FBC's $20 million threshold for CPCN applications was recently confirmed by the BCUC in Order G-166-20. See Ex. B-4, FBC Response to CEC IR1 1.1.

[11] See Order and Decision C-4-06, British Columbia Transmission Corporation's Application for a CPCN for the Vancouver Island Transmission Reinforcement Project (July 7, 206), pp. 11-15 and citing *Memorial Gardens Assn. (Can.) Ltd. v. Colwood Cemetery Co*., [1958] S.C.R. 353, para. 9.

public convenience and necessity is a "flexible test" where the BCUC is able to consider and weigh a "broad range of interests".[12]

11. While the relevant factors to consider under sections 45 and 46 of the UCA will vary with each application, in the circumstances of the KBTA Project, FBC submits that the pertinent considerations include: (a) the need for FBC to continue to serve all load in the event of an outage or failure of one of the LEE transformers, (b) the safety of FBC's employees and contractors operating the system, or carrying out system repairs or maintenance, (c) the operability of FBC's system, (d) the reliability of FBC's system, including the resulting customer benefits of this reliability, (e) the impact on potentially affected First Nations and members of the public, (f) British Columbia's energy objectives, (g) the cost-effectiveness of the Project, and (h) the rate impact of the Project. Considering all of these factors, as are discussed in more detail in this Submission, the KBTA Project is in the public interest and necessity and a CPCN should be granted.

B. SECTION 46(3.1) OF THE UCA

12. Section 46(3.1) of the UCA requires the BCUC to consider the following when deciding whether to issue a CPCN: (a) the "applicable of British Columbia's energy objectives", (b) "the most recent long-term resource plan filed by the public utility under section 44.1, if any", and (c) the extent to which the application is consistent with sections 6 and 19 of the *Clean Energy Act*, SBC 2010, c 22 (**CEA**).

13. With respect to British Columbia's energy objectives,[13] these objectives are set out in section 2 of the CEA. FBC was mindful of these objectives when designing the KBTA Project, and identified the Project as serving the following objectives in the CEA:

    a. Section 2(c) - to generate at least 93 percent of the electricity in British Columbia from clean or renewable resources and to build the infrastructure necessary to transmit that electricity;

    b. Section 2(h) - to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;

[12] Order and Decision C-4-06, p. 15.
[13] UCA, s. 46(3.1)(a).

c. Section 2(k) - to encourage economic development and the creation and retention of jobs; and

d. Section 2(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.[14]

14. While the KBTA Project does not directly impact the remaining objectives set out in section 2 of the CEA, it also does not hamper the advancement of these objectives through other projects or initiatives.[15] For additional information on the impact of the KBTA Project on each of the energy objectives set out in section 2 of CEA, see Table 8-1 of the Application.

15. With respect to the requirement for the BCUC to consider the most recent long-term resource plan filed by the public utility,[16] the KBTA Project was identified in section 6.3 of FBC's last Long Term Electric Resource Plan, filed on November 30, 2016 (the **2016 LTERP**).[17] The 2016 LTERP, for the years up to and including 2024, was accepted by BCUC in Order G-117-18.

16. Finally, with respect to consistency with the objectives set out in sections 6 and 19 of the CEA,[18] these provisions are not applicable to the KBTA Project, as the Project does not involve the construction or extension of generation facilities, and FBC is not a "prescribed public utility".

PART 3 – PROJECT NEED

17. FBC's Kelowna distribution system is supplied by the 230 kV and 138 kV transmission systems. While there is sufficient capacity on the 230 kV and 138 kV systems, transformation capacity from the 230 kV to the 138 kV system is becoming increasingly constrained. Presently, FBC is able to meet industry-standard single contingency (N-1) transmission planning criteria, which require that in the event of an outage of one of FBC's three 230/138 kV transformers in the Kelowna area, FBC is able to continue to reliably meet customer demand, even during periods of forecast peak demand. However, with load in the

14 Ex. B-1, Application, pp. 63 and 64.
15 Ex. B-1, Application, p. 63.
16 UCA, s. 46(3.1)(b).
17 In the 2016 LTERP, the KBTA Project was referred to as the Kelowna Bulk Transformer Capacity Addition project.
18 UCA, s. 46(3.1)(c).

Kelowna area continuing to grow, it will soon be the case that FBC is no longer able to satisfy the N-1 transmission planning criteria. More specifically, in the event of an outage of one of FBC's two 230/138 kV transformers at LEE during summer peak periods, FBC will no longer be able to reliably maintain supply beginning in 2023. In these circumstances, without an increase to transformer capacity, customer load will need to be shed to avoid overloading the remaining transformers.[19]

18. The KBTA Project serves this need for additional transformer capacity, as is described in more detail in this section of the Submission.[20]

19. In the summer of 2020 FBC set a new system-wide peak load. In the Kelowna area, peak load for year-to-date was 313.1 MW. Despite the existence of the COVID-19 pandemic, this peak load actually exceeded FBC's 1-in-20 year forecast value for 2020 (of 309.5), by 3.6 MW. This demonstrates that peak load has continued to grow in the Kelowna area, and has almost reached the 315 MW load level, at which point FBC will no longer be able to satisfy its N-1 transmission planning criteria. This demonstrates the imminent need for the Project: deferral is not possible, as the new transformer is required to be in service before the summer of 2023, to mitigate the risk of significant customer outages.[21]

A. THE KELOWNA AREA SYSTEM

20. While FBC's Kelowna load area covers a relatively small geographic area,[22] it has the highest load concentration in FBC's service territory. The Company serves approximately 76,600 direct customers in the Kelowna area, including within the City of Kelowna, as well as approximately 8,000 indirect customers in BC Hydro's Duck Lake service area, by way of the Duck Lake Wheeling Agreement.[23]

21. The distribution system in the Kelowna load area is supplied by the 230 kV and 138 kV transmission systems. Bulk power is delivered to the Kelowna area via FBC's 230 kV

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[19] Ex. B-1, Application, p. 10. See also Ex. B-2, FBC Response to BCUC IR1 8.1, which clarifies that while an outage of a LEE transformer in the summer of 2022 is projected to result in overloading of the remaining transformers, this overloading is not projected to persist for more than six hours, such that there is a low risk that customer load shedding would be required. As is described in more detail below under the heading "LEE Transformer Limits", FBC's operating procedures require that post-contingency flow be brought within the normal rating within six hours. As of 2023, overloading is projected to persist for more than six hours, which would necessitate load shedding to bring the post-contingency flow back within the normal rating (Ex. B-11, FBC Response to ICG IR2 6.3 and 15.1).

[20] For additional details on Project need, see Ex. B-1, Application, Section 3.

[21] Ex. B-11, FBC Response to ICG IR2 3.1.

[22] See Ex. B-1, Application, Figure 3-1, p. 11, for a map of the Kelowna Load Area.

[23] Ex. B-1, Application, p. 12.

system, specifically 72 and 74 Lines from BC Hydro's Vernon Terminal Station, and 73 Line from FBC's R.G. Anderson Terminal Station in Penticton.[24] This bulk power is delivered to FBC's two Kelowna area 230/138 kV terminal stations (LEE and DG Bell Terminal Station (**DGB**)), where it is converted to supply the 138 kV transmission system. At LEE and DGB, this is accomplished by way of two 168 MVA 230/138 kV transformers (at LEE) and one 200 MVA 230/138 kV transformer (at DGB).[25] Once converted, 138 kV lines supply 12 distribution substations which, in turn, service FBC's direct and indirect customers in the Kelowna area.[26]

1. <u>Single Contingency (N-1) Transmission Planning Criteria</u>

22. FBC's Kelowna area system is part of FBC's interconnected system.[27] FBC's transmission planning criteria specify that customer load should be able to be supplied under both normal (N-0) and single contingency (N-1) operations, consistent with typical industry transmission planning standards.[28] To satisfy N-1 conditions, the system needs to be able to continue to supply customers in the event of the loss of a single 230 kV/138 kV transformer, without exceeding any equipment limits.

23. In the present Application, the need for the KBTA Project stems specifically from an N-1 scenario involving the loss of a single 230/138 kV transformer at LEE.[29] If this occurs when peak load is above the summer aggregate transformer limit for the area of 315 MW[30] (an amount nearly exceeded in 2020[31]), FBC will be unable to meet the load from DGB and the remaining LEE transformer. In contrast, if there is a failure of the DGB transformer, the LEE transformers will be able to continue satisfy the N-1 conditions and supply all load.[32]

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24 Ex. B-1, Application, pp. 10, 13.
25 Ex. B-1, Application, p. 13.
26 Ex. B-1, Application, p. 14. See Figure 3-2 of the Application (Ex. B-1) for a line drawing that depicts the Kelowna area transmission system.
27 FBC considers an interconnected system to refer to areas or loads that are supplied by more than one transmission source (Ex. B-2, BCUC IR1 6.5). The Kelowna area system is supplied by more than one 230 kV source: 72 Line, 73 Line and 74 Line (Ex. B-1, Application, p. 18).
28 Ex. B-1, Application, p. 18.
29 The loss of a LEE transformer is a more critical outage than the loss of the DGB transformer, due to the geographic distribution of load in Kelowna, as more load is supplied from LEE than from DGB (Ex. B-3, FBC Response to BCOAPO IR1 6.1).
30 Ex. B-1, Application, p. 17.
31 Ex. B-11, FBC Response to ICG IR2 3.1.
32 Ex. B-1, Application, p. 12 and p. 19 (at footnote 18).

2. LEE Transformer Limits

24. Transformers have normal and emergency limits which are relevant to determining how much load they may serve without being overloaded. When actual or forecast peak load exceeds these limits, FBC will no longer be able to satisfy N-1 transmission planning criteria, if post-contingency flow cannot be brought back within the transformer's normal ratings within a specified time period. The below table summarizes the summer and winter normal rating and emergency rating for each of the transformers at LEE (T3 and T4), as well as the transformer at DGB. For ease of references, these ratings are provided in both MVA and MW (with MW in brackets):[33]

	Summer		**Winter**	
	Normal MVA (MW)	**Emergency MVA (MW)**	**Normal MVA (MW)**	**Emergency MVA (MW)**
LEE T3	168 (159)	210 (199)	199.5 (189)	226.8 (215)
LEE T4	168 (159)	210 (199)	205.8 (195)	226.8 (215)
DGB T2	200 (190)	250 (237)	237.5 (225)	270 (256)

25. FBC's operating procedures require that post-contingency flow be brought within the emergency rating for a transformer within 15 minutes, and within the normal rating within six hours.[34]

26. The summer and winter transformer limits for the Kelowna area, based on power flow models, are 315 MW and of 370 MW respectively; in the event of an outage of one LEE transformer, these are the maximum loads that the system can manage, after reconfiguration, while remaining within the normal operating limits of the transformers.[35] If post-contingency flow cannot otherwise be brought within these normal ratings within six hours, customer load will need to be shed during peak load periods to accomplish this.[36]

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[33] This table is adapted from the Table in Ex. B-2, FBC Response to BCUC IR1 7.3. As is discussed in this response, the conversion from MW to MVA utilizes a power factor of 0.95.
[34] Ex. B-2, FBC Response to BCUC IR1 7.2 and Ex. B-3, FBC Response to BCOAPO IR1 5.2. See also Ex. B-2, FBC Response to BCUC IR1 7.9 and 7.10, where FBC discusses how the six hour requirement was determined, and the relevant IEEE Standards.
[35] Ex. B-2, FBC Response to BCUC IR1 7.2.
[36] Ex. B-1, Application, p. 21.

27. Additionally, FBC emphasizes that overloading the existing transformers beyond their normal ratings will shorten their lifespans.[37] As the relationship between temperature and lifespan is exponential, consistent overloading could reduce the average lifespan of a transformer significantly. Given the importance of temperature, overloading in the summer is more detrimental to transformer life than overloading in the winter. The existing transformers at LEE and DGB are extremely important system assets and have lead times in excess of a year to replace. Overloading one of these transformers during an existing N-1 event poses a significant reliability risk and could contribute to a second failure. If this occurred, it would result widespread outages in the Kelowna area.[38]

B. THE KELOWNA AREA LOAD FORECAST

28. Based on the high levels of customer load growth in the Kelowna area, FBC forecasts that it will exceed summer peak load of 315 MW, and hence no longer be able to meet N-1 system reliability planning criteria, by the summer of 2022.[39] Beginning in 2023, once the duration of transformer overloading exceeds the limits of FBC's operating procedures, FBC will no longer be able to reliably maintain service to the Kelowna area load during peak periods in the event of an outage of one of the two existing 230/138 kV transformers at LEE.[40]

1. Population Growth in the Kelowna Area

29. As is set out in more detail in section 3.3.1 of the Application, the Kelowna area is the fastest growing region in FBC's service area. During the 20-year period of 1996-2016, the average annual rate of growth for the Kelowna area was 1.6 percent. Forecasts prepared by BC Stats in January 2020, for FBC's Kelowna load area, predict that population growth is expected to continue at a similar rate, an average of 1.5 percent per year, for the period of 2016-2036.[41]

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37 See Ex. B-1, Application, p. 20 and Figure 3-4, for a discussion on the relationship between overloading, temperature and transformer life expectancy.

38 Ex. B-1, Application, pp. 20-21. See also Ex. B-5, FBC Response to ICG IR1 8.3 for examples of the impact of overloading on transformer life.

39 In the summer of 2022, the outage of a LEE transformer under peak load conditions is forecast to result in overloading of the remaining transformers, even after Kelowna network reconfiguration. However, as of the summer of 2022, this overloading is not expected to persist for more than six hours, such that there is a low risk that customer shedding would be required. As peak load increases, so will the need for customer shedding without additional resources (Ex. B-2, FBC Response to BCUC IR1 8.1).

40 Ex. B-1, Application, p. 19 and Ex. B-11, FBC Response to ICG IR2 6.3.

41 Ex. B-1, Application, p. 14, Table 3-2 and Ex. B-2, FBC Response to BCUC IR1 3.2 and 3.3.

30. This population forecast, supported by forecasts set out in the Kelowna 2030 Official Community Plan, and data on Housing Starts in the area,[42] indicates that future growth in the Kelowna load area is likely to be consistent with past trends.[43]

2. Growth in Kelowna Area Load Forecast

31. FBC forecasts regional peak load growth using trends in historical regional peak load data. For system planning purposes, peak load forecasting needs to be able to account for possible weather high or low temperature extremes[44] that directly impact winter and summer peak loads, in order to ensure that sufficient capacity is available under adverse conditions. This is accomplished through the use of a 1-in-20 year peak load forecast.[45]

32. In FBC's revised response to BCUC IR1 4.4,[46] the Company set out in detail how the 1-in-20 year peak load forecast was completed. The resulting forecast is based on the maximum peaks that occurred during the preceding twenty-year period, which occurred on extreme weather days.[47] Self-generation and BC Hydro wheeling losses are excluded from the forecast.[48]

33. FBC has been using 1-in-20 year peak load forecasts for planning purposes since at least 2011. This forecasting method was examined in FBC's Application for Approval of 2012-2013 Revenue Requirements and Review of 2012 Integrated System Plan, and has underpinned FBC's capital plans, including the 2014-2019 Performance-Based Rates Application and the capital plan filed in the 2020-2024 Multi-Year Rate Plan Application. A 1-in-20 year forecast was also used by FBC to support its application for a CPCN with respect to the Grand Forks Terminal Station Reliability Project, which was approved by the BCUC in Order C-2-19.[49]

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42 See Ex. B-1 Application, section 3.3.1.
43 Ex. B-1, Application, p. 15.
44 FBC considers "extreme weather" to be high or low temperatures that occur only once per twenty years (see Ex. B-2, FBC Response to BCUC IR1 4.5.
45 Ex. B-1, Application, p. 15 and Ex. B-2-1-1, FBC Revised Response to BCUC IR1 4.4.
46 Ex. B-2-1-1, FBC Response to BCUC IR1 4.4. See also Ex. B-7, FBC Response to BCUC IR2 34 series, for additional discussion around the 1-in-20 peak load forecast.
47 Ex. B-2, FBC Response to BCUC IR1 4.6.
48 Ex. B-9, FBC Response to BCOAPO IR2 20.2. Self-generating customers' peak loads are excluded due to their intermittent nature that the variability that they would introduce into the forecast, if included (see Table in BCOAPO IR2 20.2). Wheeling losses are excluded as they are losses transferred to BC Hydro, under FBC's Wheeling Agreement with BC Hydro, and they are losses incurred on BC Hydro's system, and not FBC's system.
49 Ex. B-2, FBC Response to BCUC IR1 4.2.

34. Taking into account future growth in the Kelowna area and the 1-in-20 year peak load forecast, Kelowna's peak load for the years 2020-2028 is forecast as follows:[50]

Table 3-5: Kelowna Load Area Summer and Winter Peak Load Forecast, 2020-2028

	2020	2021	2022	2023	2024	2025	2026	2027	2028
Summer (MW)	309.5	314.6	319.8	325.5	331.5	336.5	343.3	349.4	355.5
Winter (MW)	340.4	343.9	348.3	352.9	357.0	361.3	365.8	370.3	374.5

35. After forecasting peak load from historical data, FBC considered whether there were any known or highly probable load developments to be included in the forecast. With respect to the present Application, the above forecast was not adjusted to take into account any load developments, as there were not any confirmed incremental loads. However, as was described in more detail in the Application, FBC has received several service interconnection inquiries related to future cannabis, cryptocurrency and data processing facilities. While not probable enough to include in the forecast, it is reasonable to expect that some new incremental loads will materialize in the near to medium term, further increasing peak load from what has been forecast. The continued adoption of electric vehicles, and further electrification of transit fleets are also expected to increase the Kelowna area load in the future.[51]

36. Based on the 1-in-20 peak load forecast, FBC expects that summer peak load will be almost 315 MW in the summer of 2021 and exceed 315 MW in the summer of 2022 and onwards.[52] Beginning in 2023, once the duration of transformer overloading exceeds the limits of FBC's operating procedures, FBC will no longer be able to reliably maintain service to the Kelowna area load during peak periods in the event of an outage of one of the two existing 230/138 kV transformers at LEE.[53] At this point, additional resources (such as an additional transformer, as contemplated by the KBTA Project) will be necessary in order for FBC to continue to satisfy its transmission planning criteria.

37. In August 2020, FBC provided an update that its Kelowna peak load for year-to-date was 313.1 MW, a new peak record which exceeded FBC's 1-in-20 year forecast value for 2020. This demonstrates that peak load has continued to grow in the Kelowna area, and has

50 Ex. B-1, Application, Table 3-5.
51 Ex. B-1, Application, p. 16.
52 Ex. B-1, Application, p. 19.
53 See Footnote 19 above.

almost reached the 315 MW load level[54], at which point FBC will no longer be able to satisfy its N-1 transmission planning criteria. With actual peak load in 2020 exceeding the 1-in-20 year forecast value for the year, FBC submits that peak load in the upcoming years may also be higher than forecast. This demonstrates the imminent need for the Project, to mitigate the risk of significant customer outages.

3. COVID-19 will not delay need for the Project

38. The peak demand load forecast described in the previous section of this Application was prepared in 2019, based on the most recent information available at the time, and prior to the onset of the COVID-19 pandemic. The Application was filed in April 2020, shortly after the onset of the pandemic, at which time the Company stated that it was optimistic about the timeline for recovery from any potential pandemic impacts, particularly when considered with the fact that the KBTA Project would not be in service until the end of 2022.[55]

39. Since the filing of the Application, FBC has continued to closely monitor the COVID-19 situation, including with respect to the potential impacts on load growth. FBC continues to believe that the Project will be necessary to ensure that FBC is able to comply with N-1 transmission planning criteria, and that the timing of approval of the Application or commencement of the Project should not be delayed as a result of the pandemic.

40. FBC provided updates with respect to the impact of the COVID-19 situation in its responses to Information Requests. In July 2020, FBC confirmed that the pandemic had not had a significant impact on load, and that from mid-March 2020 (the time of the onset of many shutdowns as a result of the pandemic), there was less than a one percent difference in energy consumption from the average of the most recent three years, after adjusting for weather and load growth.[56] This difference in energy consumption remained within the same range, in comparison to the most recent three years, in August 2020.[57]

41. While FBC has provided evidence that commercial loads were down from 2019 and from forecast for 2020, these reductions had been offset by higher load in other customer segments. For example, residential load grew as customers began working from home

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54 Ex. B-11, FBC Response to ICG IR2 3.1.
55 Ex. B-1, Application, p. 17.
56 Ex. B-2, FBC Response to BCUC IR1 5.1.
57 EX. B-11, FBC Response to ICG IR2 5.1

more, or otherwise spending more time at home.[58] Further, with the Province's implementation of its reopening plans in May and June 2020, the commercial load reduction for June 2020 was less than for the prior month of May 2020, demonstrating a return towards normal, as businesses reopened.[59]

42. FBC responded that it does not believe that any of the minimal changes in total load due to the pandemic would have resulted in a materially different peak load forecast.[60] FBC also does not have any evidence to suggest that there is expected to be a lasting impact to the City of Kelowna's growth rates, as a result of the pandemic, that would impact the proposed timing for the KBTA Project.[61] In response to an IR posed by CEC, FBC confirmed that even a 10 percent reduction in commercial load, with no corresponding increase in residential demand or demand for new connections and a three year recovery period, would result in a delay of no more than one year for the need for the Project, from current forecasts.[62] This forecast is conservative, given the exclusion of any offsetting increases in residential demand (which, as noted above, FBC has been experiencing in conjunction with the reductions of commercial load), and given more recent information on year-to-date peak load. In fact, as set out in paragraph 37 above, peak demand has clearly not been reduced as a result of the pandemic.

43. In light of the higher than forecast 2020 summer peak during the COVID-19 pandemic, as set out in paragraph 37, FBC submits that further deferral of the Project is not possible, and that the new transformer is required to be in service before the summer of 2023, to mitigate the risk of significant customer outages.

PART 4 - ALTERNATIVE A IS THE PREFERRED OPTION

A. <u>ALTERNATIVES CONSIDERED</u>

44. FBC identified a number of alternatives to increase the 138 kV capacity in the Kelowna area, to enable it to continue meeting the transmission planning criteria and maintain reliable service to Kelowna's customer base. A number of the alternatives identified were rejected

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58 Ex. B-1, Application, p. 17.
59 Ex. B-4, FBC Response to CEC IR1 7.1.
60 Ex. B-2, FBC Response to BCUC IR1 5.1.
61 Ex. B-4, FBC Response to CEC IR1 4.3.
62 Ex. B-4, FBC Response to CEC IR1 7.3.

at a preliminary stage, as they failed to meet the objective of increasing the 138 kV transmission capacity, or were otherwise clearly inferior to other alternatives.[63]

45. Three of the identified alternatives warranted a detailed analysis, and were discussed in detail in the Application, specifically:

a. **Alternative A –** purchase and install a third terminal transformer at LEE, and reconfigure the existing 138 kV split bus into a ring bus configuration;

b. **Alternative B** – purchase and install a third terminal transformer at LEE, and extend the existing 138 kV split bus configuration, which is not currently industry standard; and

c. **Alternative C** – purchase and install a second terminal transformer at DGB, and extend the existing 138 kV ring bus configuration.

46. Each of these three Alternatives involves the installation of an additional terminal transformer at an existing terminal station. However, the three alternatives differ from each other in two key ways: (1) the location of the additional terminal station: LEE or DGB, and (2) the bus configuration utilized: ring or split bus. These important distinctions are discussed next. Ultimately, as is returned to below in this submission, FBC submits that Alternative A is the preferred option, and the KBTA Project proposed in the Application incorporates this Alternative.

1. The Applicable Station – LEE versus DGB

47. FBC's two 230/138 kV terminal stations in the Kelowna area are LEE and DGB, where bulk power is converted to supply the 138 kV transmission system.[64] Adding another terminal transformer to one of these existing terminal stations was identified as being the preferred means of increasing the 138 kV supply to the Kelowna area.[65] Alternative A and B involve the addition of this further transformer at LEE (to bring the total transformers at LEE to

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[63] See Section 4.2 of the Application for a description of alternatives that were considered, but rejected at a preliminary stage. These alternatives included maintaining the status quo, using demand response to reduce or shift peak load, adding firm generation resources, or adding a terminal transformer to a distribution system. In addition to the alternatives identified in the Application. See also Ex. B-2, FBC Response to BCUC IR1 10.3.2 and Ex. B-11, FBC Response to ICG IR2 12.2, for alternatives that were not actively considered by FBC, and the reason why these alternatives are not feasible.

[64] Ex. B-1, Application, p. 13.

[65] Ex. B-1, Application, p. 23.

three), while Alternative C involves the addition of a further transformer at DGB (to bring the total transformers at DGB to two).

48. With respect to LEE, adding an additional transformer is expected to add 235 MW of incremental emergency capacity, meaning that a further terminal transformer addition would not be required until summer peak load reaches 550 MW (which is not expected to occur until approximately 2060 based on the current forecast).[66] In contrast, the incremental capacity that would be achieved through installing an additional transformer at DBG is lower, at only 85 MW.[67] A further transformer addition would be required when summer peak load in the Kelowna area reaches 400 MW,[68] which is estimated to occur by no later than 2036.[69]

49. In addition to providing less incremental capacity, adding the further transformer at DGB requires that certain transmission line reconductoring work be completed, to achieve even the more limited incremental capacity. Similar work is not required as part of an addition at LEE. More specifically, with the addition of a second transformer at DGB, reconductoring of 60 Line and 51 Line would be necessary to increase the capacity of these 138 kV transmission lines, in order to transmit the incremental capacity installed.[70]

2. <u>Applicable Bus Configuration – Ring versus Split</u>

50. A second key differentiation between the three alternatives identified by FBC is the bus configuration utilized: Alternative A involves reconfiguring the 138 kV split bus currently utilized at LEE to a ring bus configuration, Alternative B involves extending the current 138 kV split bus at LEE and Alternative C involves extending the current 138 kV ring bus at DGB.

51. While a number of different types of station bus configurations exist, FBC currently utilizes two types at its 230/138 kV terminal stations: ring bus and split bus. Two of FBC's 230/138 kV terminal stations (DGB and the Bentley terminal station near Oliver BC) utilize a ring bus

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66 Ex. B-1, Application, p. 24 and Figure 4-1 and Ex. B-2, FBC Response to BCUC IR1 11.2. While the theoretical summer capacity would be 570 MW, a decision about the future expansion of the Kelowna transmission system will be required at the 550 MW load level, and this level was used (Ex. B-3, FBC Response to BCOAPO IR1 5.1).

67 As is described in more detail on page 25 of Ex. B-1, Application, and at Ex. B-3, FBC Response to BCOAPO IR1 9.1, the lower incremental capacity is due to the distribution of load in the Kelowna area and configuration of the transmission network. DGB is more distant from the high-load area, and has only two 138 kV transmission lines (versus four at LEE), which act as a constraint from FBC utilizing the full name-plate capacity of two transformers at DGB, even after reconductoring.

68 Ex. B-1, Application, p. 25. See also Figure 4-2 of the Application, which depicts this incremental increase.

69 Ex. B-1, Application, p. 36; Ex. B-4, FBC Response to CEC IR1 13.3.

70 Ex. B-1, Application, p. 25. For additional information on the reconductoring, see section 4.4.3.1 of the Application.

configuration, while only the third station (LEE) utilizes a split bus configuration (for the 138 kV portion of the station specifically, as this portion was constructed before FBC adopted ring bus as its standard configuration) With respect to other voltage classes, FBC also utilizes a ring bus configuration at its newer stations, such as Vaseaux Lake Terminal, Warfield Terminal, Black Mountain and Duck Lake.[71]

52. In a ring bus configuration, each transformer or transmission line has its own discrete node in the bus, between two breakers. In contrast, with a split bus, each transformer or transmission line is connected to or isolated from the bus by a single breaker.[72]

53. As is discussed in more detail in this section, FBC considers a ring bus configuration to be superior to a split bus for a number of reasons.

54. A ring bus configuration is widely used in the industry due to its combination of flexibility and cost-effectiveness, and is today's minimum industry standard for a 230/138 kV terminal station.[73] FBC surveyed sixteen utilities across North America, and found that the preferred bus configurations for terminal substations in the voltage class of LEE and DGB were the ring bus and breaker-and-a-half configurations. While breaker-and-a-half configurations provide high levels of reliability, this Application has focused on the alternatives of ring bus (which also provides very good reliability and operability) and split bus, due to the high capital costs associated with a breaker-and-a-half configuration.[74] There are a number of advantages of a ring bus configuration over a split bus configuration, which include increasing reliability and reducing customer outages, being easier to maintain and operate, increasing safety and being expandable.

55. With respect to reliability, a ring bus configuration creates a redundant path for power to flow. This increases system reliability as the faulty sections of lines can be isolated without affecting the zones where there are no faults.[75] Research on substation reliability shows that a ring bus configuration results in a more than 50 percent reduction in outage minutes per year as compared to a split bus configuration.[76]

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71 Ex. B-1, Application, p. 27; Ex. B-2, FBC Response to BCUC IR1 13.1.
72 Ex. B-1, Application, p. 26.
73 Ex. B-1, Application, p. 26.
74 Ex. B-9, FBC Response to BCOAPO IR2 32.1.
75 Ex. B-1, Application, p. 26.
76 Ex. B-1, Application, p. 26. See also Ex. B-2, FBC Response to BCUC IR1 17.4 for additional information on the source of this research.

56. Outages are disruptive to customers, and when they occur, homes, businesses and other institutions are unable to operate normally. For example, a restaurant or a retail store may not be able to serve their customers where there is a loss of electricity, due to the inability to operate cooking equipment, or use electronic payment systems. Similarly, even short outages can be disruptive for industrial customers. It is beneficial to customers if the frequency and duration of outages can be reduced.[77]

57. Three outages have affected equipment at LEE in the past five years, one of which resulted in a loss of customer load. This instance occurred on February 4, 2015 when a circuit breaker failed (LEE CB CAP1), tripping 50 Line and 46 Line and causing an outage for nearly 25,000 customers. These customers were without power for approximately 30 minutes, until the faulted equipment could be isolated and bypass switches used to feed the customers from a separate line breaker, while the equipment was repaired. It took 2 hours and 27 minutes for the faulted equipment to be repaired, and to restore the system to its normal configuration. If LEE had been configured with a ring bus, as opposed to a split bus, these customer outages would not have occurred.[78]

58. Further, the ring bus configuration has less complicated protection and switching schemes than split bus because each transformer and transmission line has its own discrete node in the bus between two breakers.[79] This leads to a number of benefits. For example, a ring bus configuration is easier to maintain and operate than split bus because any single breaker can be taken out of service without the need for bus reconfiguration.[80] With a ring bus configuration, the operation and protection scheme of the station are unaffected by an outage of any one element. Conversely, in a split bus configuration, removing a station element from service leads to complicated offloading, switching and isolation procedures, which could differ between each element, depending on the station set up.[81]

59. As a result of the inherent complexity of switching and equipment isolation associated with a split bus, FBC estimates that a split bus (contemplated as part of Alternative B) would require up to $15,700 more in annual O&M expenditures, as compared to the ring bus

77 Ex. B-7, FBC Response to BCUC IR2 38.3.
78 Ex. B-2, FBC Response to BCUC IR1 12.2 and 17.7.1. For an additional example of how a ring bus configuration can result in fewer outages than a split bus configuration, see FBC's response to BCOAPO IR1 10.1 at Ex. B-3.
79 Ex. B-1, Application, p. 26.
80 Ex. B-1, Application, p. 26.
81 Ex. B-3, FBC Response to BCOAPO IR1 10.3.

contemplated in Alternative A.[82] In FBC's response to BCOAPO IR1 10.3., FBC provides a demonstration that illustrates that the isolation and restoration procedure for a ring bus configuration takes significantly less time to implement (approximately 3.25 hours), as opposed to a similar procedures undertaken on a split bus system (approximately 13 hours), representing a time savings of approximately 75 percent.[83]

60. Additionally, the less complicated protection and switching scheme means that a ring bus configuration enhances safety, when compared to a split bus. A ring bus provides a clear zone of isolation when working on equipment that is free from complex transfer buses and switches,[84] while the protection scheme associated with a split bus requires careful examination to ensure that each element has been isolated properly. This makes a split bus inherently more exposed to human error. As a result, a ring bus adds an additional layer of protection to ensure the safety of personnel by reducing this operating complexity.[85]

61. In recent experience, switching at the LEE station has been required approximately sixteen times per year.[86] While it is possible for FBC to operate the split bus safety utilizing comprehensive work methods, training and the diligent safety focus of personnel, it is an accepted principle in high-risk industries that engineered barriers which are not reliant on human intervention are the most effective in reducing incidents. Further, if a safety incident were to occur, it would have a very high consequence potential.[87]

62. The reduced complexity of the ring bus configuration, and fact that it is less prone to human error when operating, results in in fewer instances of mis-operation than a split bus. The ring bus configuration is both FBC's current standard, as well as an industry standard. A ring bus reduces both the amount of initial training required for FBC's station crews and system control centre and the complexity of operating procedures, and therefore reduces the likelihood of a potential incident since employees will more quickly develop familiarity with this simpler and more standard bus configuration.[88]

63. With respect to LEE specifically, switching to a ring bus configuration provides the benefit of aligning with FBC's standard configuration, providing consistency both with FBC's other

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82 Ex. B-9, FBC Response to BCOAPO IR2 36.1.
83 Ex. B-3, FBC Response to BCOAPO IR1 10.3.
84 Ex. B-1, Application, p. 26.
85 Ex. B-2, FBC Response to BCUC IR1 12.4.
86 Ex. B-2, FBC Response to BCUC IR1 12.4.1.
87 Ex. B-2, FBC Response to BCUC IR1 12.4 and Ex. B-3, FBC Response to BCOAPO IR1 11.1.
88 Ex. B-1, Application, pp. 26-27.

230/138 kV terminal stations, as well as terminal stations in other voltage classes. Further, as LEE currently utilizes a ring bus configuration for the 230 kV portion of the system, utilizing this configuration for the 138 kV portion would provide consistency in the bus configurations at LEE.[89]

64. A final benefit of a ring bus configuration over a split bus is its potential for expansion: the seven breaker ring bus may be converted in the future to a nine breaker ring, without expanding the bus. This would create two additional nodes for connection of a new transmission line, and/or a 138/13 kV transformer.[90] While there is currently no planned timeline for these types of expansions at LEE, the flexibility to efficiently add a line or transformer is a valuable attribute. In particular, as LEE is centrally located between several stations, the flexibility to later add a transformer could provide support for distribution load growth and distribution contingency scenarios in this area of Kelowna. Similarly, FBC has received several large load requests, and the ability to add an additional 138 kV transmission line at LEE without having to expand the bus would provide FBC with flexibility to meet demand using the LEE terminal.[91] FBC believes that it is likely that it will be beneficial to expand the function of the LEE terminal at some point during the life of the station.[92]

B. EVALUATION CRITERIA

65. FBC completed an in-depth evaluation of the three identified Alternatives. In doing so, the following technical criteria were considered by FBC:

   a. Meets Single Contingency (N-1) Transmission Planning Criteria

   b. Safety and Operability

   c. Potential for Future Expansion

   d. System Reliability; and

   e. Project Risk, including Schedule Risk, Lands Risk, Environmental Risk, and Archaeological Risk.

89 Ex. B-1, Application, p. 27; Ex. B-2, FBC Response to BCUC IR1 13.1.
90 Ex. B-1, Application, p. 28.
91 Ex. B-2, FBC Response to BCUC IR1 14.1.
92 Ex. B-4, FBC Response to CEC IR1 14.6.

66. For each criterion, FBC scored each of the Alternatives with a 1 (Fair), 2 (Good) or 3 (Best). Each criterion was also assigned a respective weighting, based on input gathered from FBC's internal stakeholders, with a 20 percent weighting being assigned to the most important criteria, 10 percent being assigned to important criteria that were partially addressed by other criteria (and with Project Risk being weighted this, in aggregate) and 5 percent being assigned to criteria that warranted consideration but had a low impact on the ultimate outcome.[93]

67. The results of FBC's evaluation are found at Table 4-1 of the Application. In summary, the following scores were assigned to each Alternative, based on the technical criteria:

a. Alternative A: 2.98

b. Alternative B: 1.85; and

c. Alternative C: 2.48.

68. FBC also performed a financial evaluation, considering the impact of each of the Alternatives on annual O&M costs, the present value of the incremental revenue requirement and the levelized rate impact.[94] This information is found in Table 4-2 of the Application, as follows:

	Financial Considerations				
			OPTION A	OPTION B	OPTION C
6	Annual O&M Costs	N/A	$0.028M reduction	$0.023M reduction	$0.020M increase
7	Present Value Incremental Revenue Requirement	N/A	$23.0M	$17.1M	$44.0M
8	Levelized Rate Impact	N/A	0.39% $0.00045 /kWh	0.29% $0.00034 /kWh	0.75% $0.00086 /kWh

C. ALTERNATIVE A IS THE PREFERRED OPTION

69. Each of the three identified Alternatives will initially allow FBC to continue to meet the N-1 reliability criteria. However, Alternative C (involving the installation of a transformer at DGB) will only allow this to occur until Kelowna summer peak reaches 400 MW, whereas

93 Ex. B-2, FBC Response to BCUC IR1 16.1. To the extent there is a relationship between certain of the criterion, the weighting takes this into account, as discussed in Ex. B-9, FBC Response to BCOAPO IR2 31.1.

94 Ex. B-1, Application, p. 33.

Alternatives A and B (involving the installation of a transformer at LEE) will support Kelowna peak summer load up to 550 MW. [95]

70. Alternative C also has the highest capital cost of the three Alternatives, at $32.332 million, including the costs associated with the required transmission line reconductoring and construction a new 230 kV yard on an undeveloped portion of land owned by FBC. In addition, Alternative C will require an additional investment in 2036 to install a fifth terminal transformer, which brings the present value of the incremental revenue requirement up to $44 million, and the levelized rate impact to 0.75 percent.[96]

71. As a result of the above, FBC rejected Alternative C, on both technical and financial bases, as a solution to the Kelowna area 138 kV transformation capacity constraint.[97]

72. As between Alternative A and Alternative B, the fundamental difference relates to the bus. Alternative A includes an upgrade to a ring bus configuration which is superior to a split bus configuration in many ways, as described above under the heading "Applicable Bus Configuration – Ring versus Split".[98] With respect to the technical evaluation, Alternative A scored higher than Alternative B (2.98 versus 1.85), obtaining 3 out of 3 points for each of the technical factors, with the exception of Schedule Risk. Alternative A scored one point lower with respect to Schedule Risk (2 out of 3), as there are more construction activities associated with Alternative A than Alternative B, due to the addition of the ring bus configuration.

73. With respect to the financial evaluation, Alternative B has the lowest cost, as it does not include an upgrade to a ring bus configuration. The rate impact of Alternative A is approximately 10 basis points (0.10 percent) higher than Alternative B, representing a difference in annual bill impact of approximately $1.27 (based on an average residential customer using 11,000 Kwh).[99]

74. Of the options, Alternative A provides the best technical solution. While the rate impact of Alternative A is approximately 10 basis points higher than Alternative B, FBC submits that the advantages of Alternative A with respect to reliability, operability, safety and

[95] Ex. B-2, FBC Response to BCUC IR1 17.1.
[96] Ex. B-1, Application, pp. 30 and 32 and Ex. B-2, FBC Response to BCUC IR1 15.2. The cost of the additional transformer is relevant to ensuring that the three Alternatives may be evaluated over the same 40 year period.
[97] Ex. B-1, Application, pp. 34-35.
[98] Ex. B-4, FBC Response to CEC IR1 1.2.2.
[99] Ex. B-1, Application, pp. 35-36.

expandability justify this additional expense. In particularly, FBC refers to the benefits of the reconfiguration to a ring bus, which are described above under the heading "Applicable Bus Configuration: Ring versus Split". Using a balanced approach to compare and select amongst project alternatives,[100] FBC identified Alternative A as its preferred option.

PART 5 - PROJECT DESCRIPTION

75. Alternative A, the proposed KBTA Project, involves the installation of a new 230/138 kV transformer at LEE, and the reconfiguration of the existing 138 kV split bus to a ring bus configuration. The details of the proposed KBTA Project, including Project engineering and design, Project management and resources, Project schedule, environmental and archeological impacts of the Project, a description of additional approvals required, and a risk assessment, are set out in Part 5 of the Application. In this Submission, FBC highlights a few points with respect to the Project, based on questions raised in IRs.

76. With respect to Project management and resources, FBC confirms that it will use external resources to complete the engineering design and construction of the Project. FBC made the decision to use external resources, due to the magnitude of this Project and FBC's other capital requirements. The Company does not staff its engineering or construction workforces to meet its peak requirements, and to do so would be less efficient since staff would likely be under utilized during times of low work volume. Utilizing external resources will allow FBC's staff to maintain focus on the engineering and design of FBC's sustainment and other capital projects (which are more difficult to contract out). It also allows FBC to leverage the external contractor's construction experience for the duration of the Project, and to release the contractor once the Project is complete. Additionally, FBC's construction crews are able to complement the Project by focusing on other key tasks such as switching, outage coordination, protection and control, and communications. A further advantage of utilizing external resources is that external engineering vendors have the capacity to create the Issue for Construction (IFC) packages in a shorter period to meet construction needs[101] FBC will assign an internal Project Engineer, Project Manager and Construction Manager to oversee and manage completion of all aspects of the Project, including design and construction.[102]

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[100] Ex. B-3, FBC Response to BCOAPO IR1 14.1.
[101] Ex. B-2, FBC Response to BCUC IR1 21.1 and Ex. B-11, FBC Response to ICG IR2 9.3.
[102] Ex. B-1, Application, p. 41.

77. With respect to the Project schedule specifically, a preliminary schedule is included at Figure 5-3 of the Application. Engineering and procurement for the Project will begin immediately upon BCUC approval.[103] Assuming FBC receives approval of the Project by the end of December 2020, the KBTA Project is expected to be in service by late December 2022.[104]

78. FBC does not anticipate that the COVID-19 pandemic will have a material impact on the Project schedule.[105] The Company's work, which includes the KBTA Project, has been deemed essential, and FBC has put in place measures to mitigate COVID-19 risks for workers and contractors on its construction sites and in its offices.[106]

79. FBC expects that the largest risk to the schedule is with respect to material delivery time of major equipment (such as circuit breakers or the power transformer). To mitigate against this risk, FBC has created an internal task force to identify critical long-lead items, communicate with vendors, and monitor the supply chain.[107] Further, FBC notes that there are risk mitigations available, in the event that delay does materialize, such as scheduling float for major equipment supply, construction methodology resequencing, resource levelling and blitzing, overtime and shift rotations, and activity stacking.[108] FBC also incorporates late delivery penalties as part of its purchase orders for certain major equipment, such as large power transformers, typically in the range of 0.5 to 1 percent of the contract total per week, up to a maximum of ten percent. This helps alleviate the risk and impact of delays. FBC also continually monitors material purchase orders, to ensure that materials are received on time.[109]

PART 6 - PROJECT COST

80. With respect to Project costs, the total capital cost of the KBTA Project is forecast to be $23.288 million in as-spent dollars. FBC developed this cost estimate to a Class 3 degree of accuracy, as defined by the Association of Advancement of Cost Engineering (**AACE**) recommended practice, and in accordance with the BCUC's CPCN Guidelines.[110]

103 Ex. B-1, Application, p. 42.
104 Ex. B-1, Application, p. 43.
105 Ex. B-2, FBC Response to BCUC IR1 23.2.
106 Ex. B-2, FBC Response to BCUC IR1 23.1.
107 Ex. B-2, FBC Response to BCUC IR1 23.4.
108 Ex. B-1, Application, p. 45.
109 Ex. B-7, FBC Response to BCUC IR2 41.1.
110 Ex. B-1, Application, p. 52.

81. Detail of the cost estimate is included in Part 6 of the Application, with Part 6.2 summarizing the details of pre-approval costs, construction costs, net removal costs, Project contingency, the Allowance for Funds Used During Construction, and price escalation.

82. With respect to O&M expense, the Project is expected to reduce gross O&M expenditures by approximately $28,000 annually, beginning in 2024, on account of reduced maintenance associated with the retirement of certain 13 kV station equipment and fewer 138 kV breakers.[111]

83. Under FBC's recently approved 2020-2024 Multi-Year Rate Plan, CPCN projects are recorded on a cost of service basis, with actual costs recorded in rate base in the year subsequent to being placed in service.[112] With respect to the Project, the majority of assets will enter rate base in 2023. The levelized 40 year rate impact of the KBTA Project is projected to be 0.39 percent, or approximately $0.45 per MWh. The average annual bill impact for an average residential customer (using 11,000 MWh) at the 40 year levelized rate would be approximately $4.96.[113]

PART 7 - CONSULTATION

84. Public consultation and communication are integral components of FBC's project development process. With respect to the KBTA Project, FBC has engaged directly with the local community (including through the TRCA), Indigenous communities and local government.[114]

85. FBC's consultation activities with these groups are described in detail in Part 7 of the Application, and include sending notification letters with information regarding the Project, offering to meet with impacted parties, developing a webpage describing the Project, and hosting a virtual Town Hall information session to provide information on the Project. Since the time of filing the Application, FBC has provided updates on further consultation that has occurred, through responses to IRs.[115] For example, the Company has continued to communicate with an Indigenous community, discussing scheduling a meeting with respect

[111] Ex. B-1, Application, p. 54.
[112] FBC's MRP was approved by BCUC Decision G-166-20. See also Ex. B-4, FBC Response to CEC IR1 19.1.
[113] Ex. B-1, Application, p. 55. See Ex. B-10, FBC Response to CEC IR2 24.1 for the estimated average bill impacts for customers in FBC's small and larger commercial classes.
[114] Ex. B-1, Application, p. 57.
[115] See Ex. B-2, FBC Response to BCUC IR1 31 and 32 series and Ex. B-7, FBC Response to BCUC IR2 44.1.

to the Project.[116] FBC will continue to inform and engage with Indigenous communities as the Project progresses, and will remain open and available for future discussions.[117]

86. FBC has tracked any issues or concerns raised, and the information provided by FBC in response to any concerns has generally been well received. Given that the vast majority of residents in the area of LEE live in the nearby Tower Ranch community (approximately 280 out of 285 residential and commercial customers), the Company was able to work with the TRCA's President to reach a very high percentage of area residents.[118] FBC's virtual Town Hall on April 22, 2020 was attended by approximately twelve residents. At this meeting, FBC committed to coordinating a process with a focus group, to be set up by the Board of Directors of the TRCA, to continue discussions during the Application process and construction. FBC understands that there are some concerns with respect to the aesthetics and visibility of the LEE station. FBC expects that the removal of an existing white storage facility as part of the Project will significantly reduce the visible impact of the station, and the Company also intends to provide visual screening at the road level. FBC is willing to consider other options brought forward by the TRCA community, where practical, provided they do not impact the safety, reliability or security of FBC's facilities, or require ongoing maintenance by FBC.[119]

87. The Company has also received some questions with respect to noise following the completion of the Project. FBC has not received any questions or complaints from stakeholders, Indigenous communities, or area residents with respect to noise associated with the existing station.[120] As the addition of a third transformer will reducing loading on the existing transformers at LEE, FBC expects that the Project will actual reduce noise levels. In any event, FBC will conduct field diagnostic noise measurements shortly after the third LEE transformer is in service and, if needed, will consider whether additional noise mitigation measures are necessary.[121]

88. The Company will continue to work with customers, stakeholders and Indigenous communities to address any outstanding items as the Project progresses.[122]

116 Ex. B-7, FBC Response to BCUC IR2 44.1.1.
117 Ex. B-2, FBC Response to BUC IR1 33.6.
118 Ex. B-2, FBC Response to BCUC IR1 32.2 and 32.3.
119 Ex. B-6, FBC Response to TRCA IR1 1.
120 Ex. B-2, FBC Response to BCUC IR1 22.3.
121 Ex. B-2, FBC Response to BCUC IR1 22.2 and Ex. B-7, FBC Response to BCUC IR2 39.1 and 39.2.
122 Ex. B-1, Application, p. 62.

PART 8 - CONCLUSION

89. In all the circumstances, FBC requests that the approvals sought in the Application be granted, namely that FBC be granted a CPCN with respect to the KBTA Project.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.

Counsel for FBC:

______[*original signed by*]________

Erica Miller

Dated: September 3, 2020