Industrial Customers Group ("ICG")
Information Request No. 2

FortisBC Inc. ("FBC")
Application for a Certificate of Public Convenience and Necessity for the Kelowna Bulk Transformer Addition Project – Project No. 1599088

1.0 Reference: Exhibit B-2, BCUC IR 1.4.4

"The hour for each peak (excluding self-generating customers and wheeling losses) in January, February, November, December, as well as June, July and August for each year in the period 2000-2019 is recorded."

1.1 Please explain how the effect of self-generating customers was excluded from the recorded peaks?

1.2 Please provide a table which shows the amount of self-generation excluded from each of the monthly peaks for each of the identified months from 2015 to 2019.

1.3 Why are wheeling losses excluded from the monthly peak loads, and for which elements on the FBC system are such wheeling losses excluded?

1.4 Please provide a table which shows the amount of wheeling losses, by element if possible, excluded from each of the monthly peaks for each of the identified months from 2015 to 2019.

2.0 Reference: Exhibit B-2, BCUC IR 1.4.4; Exhibit B-5, ICG IR 1.1.9 and ICG IR 1.5.2

"The substation load data is based on the annual "1 in 20" load forecast and distributed among Kelowna substations as described in the response to BCUC IR1 4.4." (ICG IR 1.5.2)

"Forecast net energy growth rates are used to escalate the peaks into future years…" (BCUC IR 1.4.4)

"FBC does not forecast energy requirements at the area level…" (ICG IR 1.1.9)

2.1 Please explain the use of net energy growth rates used to calculate the peaks into future years, and the comment that FBC does not forecast energy requirements at the area level?

2.2 Please explain the different growth rates of the Kelowna area summer peak demand forecast as compared to the Kelowna area winter peak demand forecast?

2.3 Please identify and explain the growth rates for each substation summer peak

demand forecast provided in response to ICG IR 1.5.2?

2.4 Please identify and explain the growth rates for each substation winter peak demand forecast provided in response to ICG IR 1.5.2?

3.0 Reference: Exhibit B-2, BCUC IR 1.4.4.1

"If FBC acquired resources to meet the 1-in-20 forecast level, it would result in FBC entering into contacts or procuring resources that would not be fully utilized and add costs to customer rates."

3.1 Does FBC consider a one year deferral of the KBTA project, provided that it also resulted in a corresponding delay to an increase in customer rates, to be meaningful to customers, as long as the forecast summer peak was served in 2022?

4.0 Reference: Exhibit B-2, BCUC IR 1.4.9 and BCUC IR 1.4.10

"Please refer to Attachment 4.10 for fully functioning Excel spreadsheets containing historical load data for each of the three transformers for summer and winter periods from 2015 to 2019. Dates and times of the peak load on each transformer are provided at the top of each column. Peak values are highlighted in yellow."

4.1 Attachment 4.10 appears to capture 15 minute interval peaks. Is the updated table 3-4 provided in the response to BCUC IR 1.4.9 based on 15 minute intervals, one hour averages, or some other period?

5.0 Reference: Exhibit B-2, BCUC IR 1.5.1

"To date, FBC has not identified a significant impact on load that is attributable to the COVID-19 pandemic. Energy consumption since mid-March of 2020 is less than 1 percent different from the most recent three year average for the same period after adjusting for weather and load growth. FBC does not believe these changes would result in a materially different peak forecast and therefore has not updated the peak forecast."

5.1 Has the Conference Board of Canada provided updated GDP growth rates for 2020 and 2021 to reflect the effects of the COVID-19 pandemic? If so, please provide these values compared to the pre-pandemic forecasts.

6.0 Reference: Exhibit B-2, BCUC IR 1.7.3

"FBC's equipment is not dynamically rated, that is, ratings are not adjusted for temperatures different from 40 degrees in summer and 0 degrees in winter."

6.1 Given that the "warmest average daily temperature recorded in the prior 20 years was 27.5C recorded July 30, 2018" (BCUC IR 1.4.5) is it possible to calculate dynamic emergency ratings for the LEE and DGB transformers at

the lower summer ambient temperature, and thereby defer the need for the KBTA project?

6.2 If possible, please calculate the emergency rating for the LEE and DGB transformers at an average daily ambient of 27.5C.

6.3 Please provide the loadings of the LEE and DGB transformers at the actual power factors (as derived from the past summer peak power factors) of the substation loads during the summer peak and identify when and for what period the remaining LEE transformer would be overloaded for a failure of a LEE transformer.

7.0 Reference: Exhibit B-2, BCUC IR 1.7.5

7.1 Please discuss the consequences of reconfiguring the system by opening Line 58L at LEE in order to reduce the loading on the remaining LEE transformer for a failure of a LEE transformer during the summer peak in 2022.

8.0 Reference: Exhibit B-2, BCUC IR 1.12.2

LEE T4, 2017: "Load tap changer beyond its life expectancy and leaking into the main tank. All three units were replaced."

8.1 Please provide a cost breakdown of the LEE T4 tap changer replacement and the "before" and "after" project reports, including condition assessments.

8.2 Please provide the dissolved gas analysis for LEE T4 for the five years preceding the tap changer replacement up to the most recent.

9.0 Reference: Exhibit B-2, BCUC IR 1.21.1 and BCUC IR 1.25.1

"…FBC does not have the capacity to complete the design…" (BCUC IR 1.21.1)

"FBC does not have the internal construction resources to complete such a large project." (BCUC IR 1.21.1)

"The cost estimates for Alternative A and Alternative B are defined to an AACE Class 3 level…" (BCUC IR 1.25.1)

"FBC notes, however, that the accuracy range and cost estimate for any given project is still an estimate based on professional judgement and the information available to the Company at the time. FBC believes that all prudently incurred costs associated with safely and reliably completing necessary capital work is legitimately included in rate base." (BCUC IR 1.25.1)

9.1 Please explain the tendering process and schedule for both engineering and construction?

9.2 Please explain how AACE Class 3 estimates are prepared prior to complete design?

9.3 Please explain how FBC could have the capacity to tender the construction contracts, and not have the capacity to complete the design?

9.4 Please comment on whether FBC intends to update project costs and/or scope of work after entering into final engineering and construction contracts? If so, does FBC intend to seek approval for such updates?

9.5 Please comment on whether Commission approval of engineering and construction contracts is appropriate?

9.6 Please confirm that costs not prudently incurred should be excluded from rate base whether incurred by FBC or any contractor or agent of FBC?

9.7 Please confirm that project costs incurred for capital work that has not been approved by the Commission should be excluded from rate base?

10.0 Reference: Exhibit B-2, BCUC IR 1.27.4

"Material costs for the Project are based on AACE Class 3 estimates that rely on current budgetary pricing…"

10.1 Please explain the use of "current budgetary pricing" in AACE Class 3 estimates and provide references to the AACE Class 3 Recommended Practice that refer to the use of "current budgetary pricing'?

10.2 Please identify and explain the AACE Class 3 estimates that rely on current budgetary pricing, and please provide the source of such "current budgetary pricing"?

10.3 Please confirm that the AACE Class 3 estimates, not including contingencies, filed with the Application should determine whether the KBTA project is over or under budget?

11.0 Reference: Exhibit B-1, p. 22, Section 4.2(c) Local Generation; Exhibit B-5, ICG IR 1.1.8

"The installation of firm generation resources, such as a gas turbine, near Kelowna and connected to the 138 kV transmission system could increase the Kelowna area transmission capacity and meet the N-1 transmission planning criteria. However, this option was considered and rejected, due to its high capital cost." (Exhibit B-1, p. 22)

"… since winter peak in the Kelowna area typically occurs after sunset. Accordingly, solar resources is not a feasible alternative to the proposed Project." (ICG IR 1.1.8)

11.1 Please confirm that since winter peak in the entire FBC service area occurs after sunset solar resources located anywhere in the FBC service area are

unlikely to be a feasible generation alternative to any Project designed to meet load growth? If not confirmed, please describe the circumstances when solar resources could be a feasible generation resource?

11.2 Please comment on the technical feasibility of a third party owned solar resource as an alternative to the KBTA Project?

12.0 Reference: Exhibit B-5, ICG IR 1.3.4

"FBC does not believe that there are any other alternatives that are viable."

12.1 Please identify and discuss any meetings or correspondence with BC Hydro to consider alternatives to the KBTA Project?

12.2 In the discussions with BC Hydro, has FBC examined the possibility of reinforcing BC Hydro's West Kelowna system so that it is a source, rather than a load? If not, why not?

12.3 In the discussions with BC Hydro, has FBC suggested operating the FBC Kelowna area system and the BC Hydro West Kelowna system as a "combined system" so that combined system could benefit from a greater N-1 capacity than each system considered separately? If not, why not? Are there benefits that could be realized from such a coordinated approach?

12.4 Please explain why FBC does not believe there are any viable alternatives to the KBTA Project that involve a joint project with BC Hydro?

13.0 Reference: Exhibit B-5, ICG IR 1.5.3

"As noted in the response to BCUC IR1 4.2, FBC has been using a "1 in 20" peak load forecast for planning purposes since at least 2011. The following discussion of the Kelowna 138 kV system was included in FBC's 2014-2018 PBR application, and describes the expectations regarding its timing based on earlier forecasts:"

13.1 Please provide a table which compares the Kelowna area loads on a year-by-year basis from the initial year in the load forecast referenced in FBC's 2014-2018 PBR application with actual and forecast Kelowna area loads to 2025. Please also "weather normalize" the load forecast referenced in FBC's 2014-2018 PBR application so that it may be more readily compared against the actual loads to separate the effects of load growth and weather.

13.2 Please provide any other Kelowna area load forecasts submitted by FBC in any application or proceeding since the FBC 2014-2018 PBR application?

14.0 Reference: Exhibit B-5, ICG IR 1.7.1

"while the Kelowna area load is forecast to first exceed the transformer capacity limit in

summer."

14.1 Please confirm that with this Application FBC is seeking, for the first time, a CPCN where the load "is forecast to first exceed the transformer limit in summer."

15.0 Reference: Exhibit B-5, ICG IR 1.7.2

"Please refer to Figure 1 below for a load duration curve for Kelowna 2019 summer peak loads. The Y-axis shows load in MW and the X-axis shows the total hours in the months of July and August."

15.1 Please provide the number of hours for which the forecast 2022 and 2023 summer peak loads will exceed the N-1 capability of the Kelowna area system.

15.2 Please perform a Loss of Load Probability (LoLP) analysis for the forecast 2022 and 2023 summer peaks.

15.3 Is FBC aware of any utilities that use LoLP analysis in combination with the N-1 criterion in order to schedule system improvements so that investment is balanced with economic impact?