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October 7, 2022

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

Attention: Ms. Sara Hardgrave, Acting Commission Secretary

Dear Ms. Hardgrave:

Re: FortisBC Inc. (FBC)

2021 Long-Term Electric Resource Plan (LTERP) and Long-Term Demand-Side Management Plan (LT DSM Plan) (Application) – Project No. 1599244

FBC Reply Argument

FBC respectfully submits for filing its attached Reply Argument in the above noted proceeding.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Registered Parties

BRITISH COLUMBIA UTILITIES COMMISSION

FORTISBC INC.

2021 LONG-TERM ELECTRIC RESOURCE PLAN AND LONG-TERM DEMAND-SIDE MANAGEMENT PLAN

REPLY ARGUMENT

OF

FORTISBC INC.

OCTOBER 7, 2022

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PART ONE: INTRODUCTION AND OVERVIEW

1. FortisBC Inc. (FBC) filed its 2021 Long-Term Electric Resource Plan (LTERP) and Long-Term Demand-Side Management Plan (LT DSM Plan) (together, the Application) on August 4, 2021. As set out in its Final Argument file on August 18, 2022, FBC requests that the British Columbia Utilities Commission (BCUC) accept the LTERP, including the LT DSM Plan, as being in the public interest pursuant to section 44.1(6) of the *Utilities Commission Act* (UCA). In this Reply Argument, FBC responds to the comments of interveners in their final arguments filed on September 4, 8 and 12 of 2022.

2. Seven interveners filed Final Arguments in this proceeding and expressed a broad level of support for acceptance of FBC's LTERP and LT DSM Plan. The following interveners support acceptance of the LTERP and LT DSM Plan as being in the public interest:

- Residential Customer Intervener Association (RCIA) concludes that the 2021 LT DSM Plan and the LTERP are in the public interest.[1]
- British Columbia Public Interest Advocacy Centre representing the British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC and Tenants Resource and Advisory Centre (BCOAPO) concludes that LT DSM Plan and LTERP are in the public interest, subject to comments.[2]
- BC Sustainable Energy Association (BCSEA) supports BCUC acceptance of FBC's 2021 LTERP including the LT DSM Plan.[3]
- Movement of United Professionals (MoveUP) submits that the 2021 LTERP is in the public interest.[4]
- Industrial Consumers Group (ICG) supports FBC's request that the LTERP and LTDSM Plan be accepted as being in the public interest.[5]

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1 RCIA Final Argument, p. 10 and p. 11.

2 BCOAPO Final Argument, para. 4.

3 BCSEA Final Argument, p. 2, para. 9.

4 MoveUP Final Argument, p. 1.

5 ICG Final Argument, p. 2, para. 3.

- Commercial Energy Consumers Association of BC (CEC) supports the FBC LTERP for acceptance by the BCUC with recommendations for improvement of the next LTERP.[6]

3. BC Solar and Storage Industries Association (BCSSIA) is the only intervener not to recommend full acceptance of the LTERP. BCSSIA's submissions in this regard, which relate to FBC's plans and efforts to reduce GHG emissions, are addressed in Part Three, Section A, below.

4. In the remainder of this Reply Submission, FBC addresses the comments of interveners and has organized its submissions, as much as practical, around the same headings found in its Final Submission.

[6] CEC Final Argument, p. 18, para. 117.

PART TWO: FBC'S 2021 LT DSM PLAN IS IN THE PUBLIC INTEREST

5. In this part, FBC responds to comments from interveners on its LT DSM Plan, and has organized is response around the following points:

- DSM participation is voluntary.
- CEC's recommendations for DSM scenario analysis is best addressed through consultation on the next LTERP.
- FBC should continue to focus on supporting EV charging, rather than DSM incentives for EVs themselves.
- FBC will consider detailed planning factors in its future DSM expenditure plans.
- Majority of DSM savings from kraft pulp and paper sector will not reduce FBC's load.
- FBC will consider its use of definitions of average costs.
- FBC reports on program evaluations in its DSM Annual Reports.

A. DSM PARTICIPATION IS VOLUNTARY

6. RCIA characterizes FBC as "struggling to achieve its DSM program targets"[7] and states that "FBC has not been achieving target energy savings in recent programs and FBC's reasoning that "DSM participation is voluntary" indicates that FBC may not have adequate plans for rectifying FBC's underperformance."[8] FBC submits that RCIA's characterization of FBC's performance is misleading. RCIA bases its characterization on the following statement from FBC's Application, as quoted in FBC's Final Argument:[9]

> The Med, High and Max DSM scenarios were not chosen for the following reasons:
>
> …
>
> - They present higher risks of insufficient customer participation. DSM participation is voluntary and FBC cannot have assurance that customer participation will be sufficient to meet the higher scenarios. The fact that

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7 RCIA Final Argument, p. 10.

8 RCIA Final Submission, p. 9.

9 Exhibit B-1, LT DSM Plan, p. 17; FBC Final Argument, p. 9.

> FBC had below-target energy savings in recent program results indicates that it may not be readily feasible to achieve higher levels of DSM.

7. The point of the above is that it must be recognized that customer participation in FBC's DSM programs is voluntary, meaning that the level of participation is ultimately outside of FBC's control. For this reason, FBC cannot have assurance that customer participation will be sufficient to meet FBC's established DSM targets. While FBC has had below-target energy savings, there is no evidence that FBC's programs are "struggling".[10] Between 2019 and 2021, FBC has achieved 84 percent of DSM targets. FBC is forecasting to achieve 86 percent of DSM targets between 2019-2022, and savings have grown steadily year over year.

B. CEC RECOMMENDATIONS FOR DSM SCENARIOS BEST ADDRESSED THROUGH CONSULTATION ON NEXT LTERP

8. CEC recommends that the BCUC direct FBC in its next LTERP to review the potential to devise alternatives which have other dimensions than incentives for its DSM options and frame them with respect to their upside potential for cost-effective savings versus the uncertainties and the risk for achieving the results.[11] FBC considers that its current approach to analyzing DSM levels is reasonable and any potential changes can be explored as part of FBC's consultation on the next LTERP.

9. First, FBC's approach of analyzing DSM scenarios based on incenting ever larger proportions of the DSM measures' incremental costs is reasonable. A fundamental principle of DSM strategies is that the primary mechanism for increasing participation in a program is by increasing the incentive offered. The higher the incentive, the more attractive a project will be for the customer's economic decision making, thereby increasing the number of customers willing to participate. While there are other mechanisms that may impact participation (e.g., increasing marketing spend or reducing application barriers), few are as impactful as increasing the incentive.[12] For this reason, using incentive level as the basis for DSM scenarios is a reasonable and efficient approach for resource planning purposes.

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[10] FBC explains variances from its accepted DSM Plans in its DSM Annual Reports.

[11] CEC Final Argument, p. 11.

[12] Exhibit B-2, BCUC IR1 25.2.

10. Second, FBC will consider alternative approaches to analyzing DSM scenarios, but submits that how such scenarios should be framed should be left to FBC to explore in consultation with stakeholders. Specifically, CEC's suggestion that DSM levels be framed with respect to their upside potential for cost-effective savings versus the uncertainties and the risk for achieving the results has not been explored in this proceeding and its meaning and feasibility are not clear. Amongst other considerations, any method for developing DSM scenarios needs to consider the limitation of DSM modeling in predicting customer behaviour compared to the current practice. Rather than prescribing how scenarios should be developed, FBC submits that this is an exercise better left to the consultation on and development of the next LTERP.

C. FBC SHOULD CONTINUE TO FOCUS ON SUPPORTING EV CHARGING, RATHER THAN DSM INCENTIVES FOR EVs THEMSELVES

11. The CEC recommends that the BCUC direct FBC for its next LTERP not to overlook the potential for DSM savings in regard to electric vehicles.[13] FBC submits that it is more reasonable for it to continue its efforts in the area of EV charging, and that, at this time, it is not well positioned to encourage efficiency in EVs themselves. At this time, many EV buyers are still replacing vehicles with internal combustion engines and there are environmental benefits regardless of minor variations in electric vehicle efficiency. FBC considers it is better to manage customer charging behavior to influence capacity requirements, rather then energy requirements, as how fast and when the EV battery is charged is the greatest opportunity for utilities to manage EV adoption. Prior to considering a DSM program targeting more efficient EVs, FBC would need a better understanding of the vehicle being replaced (if any), the baseline and efficient EV energy consumption, the incremental purchase costs between baseline and more efficient EVs, and consideration of whether incentives would change customer purchasing decisions between a baseline and more efficient EV. [14] Given these considerations, FBC submits that the reasonable course of action is for FBC to continue to focus on EV charging and removing barriers to the transition to EVs. If future studies identify energy efficiency opportunities for EVs themselves, FBC will consider those measures for future programs.

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[13] CEC Final Argument, p. 13, para. 83.

[14] Exhibit B-13, CEC IR2 79.1.1.

D. MAJORITY OF DSM SAVINGS FROM KRAFT PULP AND PAPER SECTOR WILL NOT RESULT IN REDUCED LOAD TO FBC

12. ICG takes issue with FBC's exclusion of kraft pulp and paper facilities that self-generate, asserting that FBC is not applying the TRC test as it is not recognizing the societal benefit of DSM incentives.[15] FBC does not agree with this characterization. FBC has one kraft pulp and paper customer that primarily self-generates its electricity.[16] As the customer primarily self-generates its electricity, the majority of any DSM savings would not result in reduced load to FBC.[17] In short, regardless of any TRC result, FBC did not consider that it should be recovering from customers the costs of additional incentives to a customer that will not result in a reduction to FBC's load beyond what is currently available.[18] This approach is consistent with the BCUC's determination in Letter L-13-18, dated June 25, 2018, in which the BCUC rejected a complaint of Zellstoff Celgar Limited Partnership, concluding:

> The Panel finds that while the Lighting Project may promote the efficient use of electricity within Celgar, there appears to be no discernible impact on FBC's load.
>
> The Panel finds that, in order for projects to be aligned with the objective of RS90, the end use efficiency has to contribute to reducing the demand for the utility's energy services. The BCUC is not persuaded that the Lighting Project aligns with the Tariff.

E. FUTURE EXPENDITURE PLANS WILL CONSIDER DETAILED PLANNING FACTORS

13. ICG requests that future DSM expenditures planning consider the differences between BC Hydro and FBC incentive levels.[19] The differences in incentive levels between the two utilities has not been explored in this proceeding, and is not a factor that is relevant to FBC's LT DSM Plan. FBC submits that this is a consideration that can be raised in FBC's future DSM expenditure plans, where FBC engages in a more detailed level of DSM planning.

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15 ICG Final Argument, pp. 3-4.

16 Exhibit B-14, ICG IR2 4.2.

17 Exhibit B-14, ICG IR2 4.3.

18 Contrary to ICG's submission, not offering incentives for self-generation is not the same as "actively discouraged" the development of self-generation

19 ICG Final Argument, p. 3.

F. FBC WILL CONSIDER ITS USE OF AVERAGE COSTS DEFINITIONS IN FUTURE LTERPS

14. BCOAPO states that "FBC should use a standard definition of average cost throughout its Application and, preferably, one that is consistent with past BCUC Decisions."[20] FBC acknowledges that it used both levelized and non-levelized cost approaches, but that neither are inconsistent with past BCUC Decisions. Nonetheless, FBC will consider this as feedback for future LTERPs.

G. FBC REPORTS ON DSM PROGRAM EVALUATIONS IN ITS DSM ANNUAL REPORTS

15. The CEC recommends that the BCUC direct that FBC provide regular annual reporting on the customer savings as it has done in response to CEC questions and that FBC increase the statistical validity and range of customer satisfaction information associated with improving customer affordability.[21] FBC files annual reports to the BCUC on its DSM programs, which in FBC's view have been well received and provide the information requested by the BCUC. As such, FBC is not aware of any need to add information to those annual reports. Regarding the particular information that CEC has requested, FBC indicated that it does not monitor bill savings and customer satisfaction of all program participants, but conducts analyses as part of DSM program evaluations.[22] This means that this information is not monitored and available for all programs each year, but would only be available for particular programs as evaluations are conducted from time to time. For this reason, FBC does not consider that the information is particularly well suited for an annual report in the manner suggested by the CEC. FBC also notes that it already reports on its DSM evaluations in its DSM Annual Reports and additional information on those evaluations is available to the BCUC upon request.

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[20] BCOAPO Final Argument, para. 99.

[21] CEC Final Argument, p. 12.

[22] Exhibit B-13, CEC IR1 62.1.

PART THREE: FBC'S 2021 LTERP IS IN THE PUBLIC INTEREST

16. In this part, FBC responds to the comments from interveners on its 2021 LTERP, and are organized around the following points:

- FBC's efforts and plans to reduce GHGs are reasonable and appropriate.
- FBC's assessment of the planning environment has included a reasonable level of information on FBC's support for the GHG reduction efforts of FortisBC Energy Inc. (FEI).
- FBC's Reference Case load forecast is reasonable for long-term planning purposes.
- FBC's load scenarios have been reasonably developed and FBC will consult on the development of the load scenarios for the next LTERP.
- FBC's resource options and portfolio analysis were complete and FBC's Action Plan includes continuing to monitor for new resource developments.
- Capacity self-sufficiency after 2030 is reasonable and prudent.
- FBC's plan to manage the impact of EVs on peak load is reasonable and conducting a pilot program is the prudent next step.
- FBC is taking appropriate actions to manage the potential for unplanned increases in load.
- FBC's transition to clean market purchases is in the public interest.
- FBC's preferred portfolio is in the public interest.
- FBC is proactively addressing resiliency, but will need more resources to take a more systematic approach to resiliency in its next LTERP.
- The BCUC's *Resource Planning Guidelines* provide flexibility for utilities to adapt to changing circumstances.

A. FBC EFFORTS AND PLANS TO REDUCE GHGS ARE REASONABLE AND APPROPRIATE

17. BCSSIA takes the position that the BCUC should reject a portion of the 2021 LTERP, and that it should be resubmitted "to include some significant initiatives aimed at achieving the

Government's objectives with regard to reducing GHG emissions…"[23] FBC submits that its efforts and plans to reduce GHG emissions are reasonable and appropriate at this time, and that BCSSIA has not identified a basis for rejecting any particular part of the LTERP.

18. First, for context, FBC's emissions represent only about 0.082 percent of total provincial emissions, reflecting the fact that FBC's resources are already very clean.[24] This, combined with FBC's relatively small size, means that FBC's ability to achieve GHG reductions is relatively small compared to FortisBC Energy Inc. (FEI). Thus, most of the 30 percent reduction in GHG emissions stemming from FortisBC's 30BY30 target is expected to be achieved by FEI, rather than FBC.[25]

19. Second, FBC's most significant contribution to GHG reductions is in the transportation sector. FBC is helping its customers reduce their transportation GHG emissions by providing them with EV charging infrastructure and incentives to charge EVs at home, their place of business, or through FBC's EV charging station network, all of which are supplied by FBC's clean electricity.[26] These initiatives and programs are expected to reduce GHG emissions in BC by 0.04 million tonnes CO2e annually by 2030.[27]

20. Third, FBC is planning to decrease the GHG emissions from its portfolio by transitioning to clean market purchases,[28] and FBC's preferred portfolio is composed of only clean or renewable resources.[29]

21. Finally, with respect to electrification outside of the transportation sector, FBC is administering the provincial government's CleanBC fuel-switching incentives for its customers and the municipal electricity customers of Summerland, Penticton, Grand Forks and Nelson

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[23] BCSSIA Final Argument, pp. 9-10.

[24] Exhibit B-1, LTERP, p. 11.

[25] Exhibit B-1, LTERP, p. 32; Exhibit B-3, BCSSIA IR1 10.2.2. E.g., as FBC's resources are already very clean, FBC's energy efficiency measures do not result in emissions reductions in the same way that FEI's do.

[26] Exhibit B-1, LTERP, pp. 32 and 40 to 41.

[27] Exhibit B-3, BCSSIA IR1 10.2.2.

[28] See paragraphs 86 to 92 of FBC's Final Argument.

[29] See paragraphs 78 to 85 of FBC's Final Argument.

Hydro. Further, FBC is currently undertaking an electrification study, which will inform any incentives or special rates that could be offered outside of FBC's DSM programs.[30]

22. In response to BCSEA's comments that it would like to see the GHG reduction benefits of an electrification program,[31] FBC expects that its next LTERP will be informed by the results of its electrification study noted above.

23. FBC submits that its efforts and actions to reduce GHG emissions as outlined above are reasonable and appropriate at this time.

B. FBC'S ASSESSMENT OF THE PLANNING ENVIRONMENT INCLUDED A REASONABLE LEVEL OF INFORMATION ON ITS SUPPORT FOR THE GHG REDUCTION EFFORTS OF FEI

24. CEC suggests that the potential for FBC to be contributing to the solutions for FEI in transition to a clean gas system from a fossil fuel natural gas system is noticeably absent from the planning environment, as is the robustness of the resiliency for both the FEI and FBC systems.[32] In reply, FBC recognizes the importance of FEI's GHG reduction efforts and FBC has included an appropriate level of information on FBC's contribution to those efforts. Specifically, FBC discusses its contribution to the solutions for FEI in section 2.2.6 of the LTERP, which includes the following:

> Investing in renewable gases to decarbonize the gas supply. FBC provides indirect support for FEI's initiatives to decarbonize the gas network. For example, FBC plans to provide electricity for the REN Energy International Corporation (REN) renewable natural gas project being developed in Fruitvale, BC and has included its estimated electricity requirements in its Reference Case load forecast. FBC has also included the potential for increased electricity requirements on its system relating to hydrogen production and carbon capture and storage in its load scenarios (discussed in Section 4).

25. FEI already has an RNG production facility at the Glenmore Landfill in Kelowna, which is within FBC's service territory. Both FEI and FBC are actively building strong partnerships with

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30 Exhibit B-3, BCSSIA IR1 10.2.4.

31 BCSEA Final Argument, para. 143, p. 35.

32 CEC Final Argument, p. 4, paras. 22-23.

Indigenous communities and local governments in FBC's service territory to identify further project opportunities.[33]

26. FBC did not explicitly consider the topic of the robustness of the resiliency for both the FEI and FBC systems. However, FBC considers that its support for FEI's efforts to decarbonize the gas supply support the ongoing viability of the gas system, which in turn supports maintaining both gas and electric systems in the province.

C. FBC'S REFERENCE CASE LOAD FORECAST IS REASONABLE

(a) FBC's Reference Case Forecast Is the Appropriate Reference Point for FBC's Long-Term Resource Planning

27. BCSSIA's view is that FBC should have adopted an average of its Deep Electrification and Diversified Energy Pathway for its Reference Case, and should be planning to put the infrastructure in place to meet this higher load driven by government GHG reduction targets.[34] Contrary to BCSSIA's view, FBC submits that its Reference Case is the most reasonable forecast on which to base its planning as it is rooted in historical trends, highly certain loads and elements that have been enacted into legislation, such as EV sales targets.[35] In contrast, the various load scenarios depend on trends developing that are not yet apparent in the historical data, such as increasing rates of distributed generation, and the emergence of large new loads, such as through substantial growth in data centre and cannabis cultivation loads, hydrogen production and carbon capture and storage.[36] The uncertainty of future load scenarios is also reflected in the wide range of scenarios provided by stakeholders.[37]

28. FBC notes that BCSSIA's preference for FBC to adopt a higher load forecast as its Reference Case is not shared by other interveners. Other interveners who commented on the Reference Case are of the view that FBC's Reference Case is reasonable or too high:

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[33] Exhibit B-8, RCIA IR1 12.2.

[34] BCSSIA Final Argument, p. 17.

[35] Exhibit B-1, LTERP, p. 82.

[36] Exhibit B-1, LTERP, pp. 98-99.

[37] Exhibit B-1, LTERP, p. 110.

- "BCOAPO finds [FBC's Reference Load Forecast] is reasonable for purposes of the 2021 LTERP."[38]
- "CEC finds the reference case forecast to be potentially overly optimistic…"[39]
- "ICG submits the Reference Case load forecast should be lower…"[40]

29. CEC's concern with the Reference Case is that it "is substantially based on individual ownership of vehicles and does not account for any autonomous delivery and transportation future with significant efficiencies nor for technical improvement in vehicle energy use. Nor does the forecast consider potential technical changes in vehicle charging such as with magnetic field induction charging in high use roadways and highways or localized renewable solar energy charging."[41] In reply, as discussed in Section 3.5 of the LTERP, the Reference Case includes an EV charging load forecast based on the light-duty EV sales targets in the *Zero-Emissions Vehicles Act*, which is enacted legislation and therefore reasonably included in the Reference Case. Innovations like autonomous delivery and charging through magnetic field induction are not commonplace and not yet available in FBC service area, and their potential impact on FBC's load is also unknown.[42]

30. Nonetheless, FBC recognizes the uncertainty in the Reference Case forecast and therefore developed annual energy and winter capacity uncertainty bands around the forecast.[43] FBC also thoroughly analyzed various future load scenarios.[44] Given the potential for a higher load forecast to develop, FBC is taking the appropriate actions to manage the potential for unplanned increases in load, as discussed on pages 26 to 37 of its Final Argument. FBC submits that this approach is reasonable and should be accepted.

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38 BCOAPO Final Argument, para. 60.

39 CEC Final Argument, para. 29.

40 ICG Final Argument, para. 2. FBC notes that ICG does not articulate the reasons for its view and therefore FBC has not provided any reply.

41 CEC Final Argument, para. 29.

42 Exhibit B-9, CEC IR1 9.1 and 9.2.

43 Exhibit B-1, LTERP, pp. 91-92.

44 Exhibit B-1, LTERP, section 4.

(b) FBC Will Incorporate the Impact of 2021 Heat Dome on Future Peak Demand Forecasts

31. BCOAPO invites FBC to respond to this question: "will or how will the 2021 heat event inform FBC's summer peak demand forecast in the current LTERP filing for generation purposes?"[45] FBC has not updated the current 2021 LTERP peak demand forecast, and it would be inappropriate to do so in reply submissions. However, FBC's future forecasts will include the 2021 heat dome event.[46] As stated in Action Item #12 of the LTERP, if FBC's periodic assessment of the LRB indicates the need for new resources sooner than contemplated in this LTERP or if FBC's access to market energy changes such that it is no longer reliable or cost effective, FBC would likely submit a LTERP or supplemental update filing sooner than five years from the submission of this LTERP in order to meet the LTERP objectives in the interests of its customers.[47]

(c) Summer Peaks Based on Long-Term Climate Change Projections Can Be Addressed Through Load Scenarios

32. CEC recommends that BCUC direct FBC to provide in its future LTERPs a forecast of summer peak potentials based on climate change projections and that FBC's long term plans take into account the potential for these peaks to exceed winter peaks.[48] While FBC appreciates the concern with respect to the impact of climate change, long-term forecasts based on climate change projections should be dealt with through load scenarios, rather than through the load forecast. FBC's load forecasts are based on BCUC-approved methods and include the impacts of weather events from previous years. As noted above, FBC is including the impacts of the 2021 heat dome in its load forecasts going forward. The June 2021 heat event produced a system summer peak demand of 764 MW, while the December 2021 system winter peak demand was 777 MW, both of which were record breaking for FBC. FBC's inclusion of the June 2021 heat event in all system peak forecasts, including the 1 in 20 forecast, is a reasonable foundation for the load forecast. The impacts of more uncertain longer-term climate change projections are more appropriately considered through load scenarios.

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45 BCOAPO Final Argument, p. 17.

46 Exhibit B-26, BCUC Panel IR2.1.1.

47 Exhibit B-1, LTERP, p. 217.

48 CEC Final Argument, p. 4.

33. Furthermore, as discussed in FBC's rebuttal evidence, in light of the shorter-term extreme and unpredictable weather events that have occurred in the recent past, FBC considers that it should expand its approach to more systematically considering resiliency in its next LTERP. This could include enhancing the LTERP portfolio analysis through the development of shorter-term "extreme" or "surprise" events, such as summer heat domes, and evaluating various resource portfolios against these to assess, or stress-test, the portfolios' resiliency. FBC recommends exploring this approach further and bringing forward recommendations as part of the development of its next LTERP.[49] This is a topic that FBC can explore in its consultation on and development of the next LTERP.

(d) There are Many Factors that Influence Residential UPC

34. CEC states that it does not find the FBC assumptions with respect to UPC for residential customers to be particularly convincing and recommends that the BCUC direct FBC to develop a more robust understanding of the UPC declines for the next FBC LTERP.[50] FBC submits that the BCUC should not make such a direction. The historical residential UPC is influenced by many factors including DSM programs, customer behaviour changes, housing types, building codes, and the COVID-19 pandemic, among others. While FBC can estimate the impact of its own DSM programs,[51] FBC is simply unable to identify what specific attributes may have caused decreases or increases in the residential UPC with any certainty.[52] Furthermore, understanding historical declines will not resolve the unknown future impacts from factors such as electrification and increased working from home.[53] In the next LTERP, FBC will have more years of actual data to inform its forecast, which FBC submits will be more informative than any efforts to unravel the multiple causes of historical declines in UPC.

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49 Exhibit B-21, p.11.

50 CEC Final Argument, p. 6.

51 Exhibit B-17, BCOAPO IR2 58.1, 58.2, and 58.4.

52 Exhibit B-13, CEC IR2 71.1.

53 Exhibit B-13, CEC IR2 71.2.

(e) Resolution of Apparent Inconsistency Regarding Impact of DSM on Residential UPC

35. BCOAPO invites FBC to address an apparent inconsistency regarding the impact of DSM on residential UPC.[54] The apparent inconsistency arises because BCOAPO is comparing the cumulative DSM UPC impacts over 10 years (-0.89 MWh) with the year-over-year change from the regression model (-0.24 MWh per year). The regression model is based on historical data which includes savings from DSM programs and other savings where FBC does not have programs (e.g. LED TVs). For a proper comparison, the -0.24 MWh annual UPC change has to be summed up cumulatively over 10 years (2011 to 2020). The total impact in the 10th year that is comparable to the -0.89 MWh is -2.4 MWh (10 years x -0.24 MWh). The -2.4 MWh is the total cumulative savings over 10 years, 0.89 MWh of which is attributable to FBC DSM programs. Therefore, BCOAPO's suggestion that the historical residential UPC would have increased annually without DSM is not correct.[55]

D. FBC'S LOAD SCENARIOS HAVE BEEN REASONABLY DEVELOPED AND FBC WILL CONSULT ON THE DEVELOPMENT OF THE LOAD SCENARIOS FOR THE NEXT LTERP

(a) Carbon Tax Does Not Change FBC's Load Scenarios

36. BCSSIA claims that FBC has not given full consideration to a carbon tax of $170 per tonne in it load scenarios.[56] This is misleading. FBC considered a range of carbon taxes scenarios, including increases to $170 per tonne.[57] However, FBC did not include carbon tax as a driver of future loads because its load scenarios are cause agnostic. As stated on page 101 of the LTERP:

> - **The scenarios presented are cause-agnostic.** For example, the scenario results quantify what the impact might be of a substantial increase in the penetration of roof-top solar photovoltaic (PV) distributed generation and energy storage. Determining what might drive such increased uptake in PV and storage is beyond the scope of the analysis.

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54 BCOAPO Final Argument, p. 11.

55 Exhibit B-17, BCOAPO IR2 58.1, 58.2, and 58.4.

56 BCSSIA Final Argument, p. 17.

57 Exhibit B-1, p. 74-75.

37. While a carbon tax increasing to $170 per tonne would be a driver of change, such as driving increased preference for hydrogen and RNG over natural gas, those potential changes are captured within the broad range of load scenarios analyzed in section 4 of the LTERP.

38. Furthermore, the higher carbon taxes do not materially impact FBC's proposed preferred portfolios or the level of FBC's load forecast. Portfolios that contain RNG SCGT peaking units are assumed to have an insignificant amount of indirect scope 3 emissions, zero direct emissions and are only used to meet peak capacity requirements. Therefore, higher carbon taxes do not materially influence FBC's proposed preferred portfolios.[58] As discussed in Appendix F, the BAU forecast is based on a time series method which captures intrinsic historical load drivers. The Reference Case load forecast builds on the BAU forecast by including electric vehicle charging load and new industrial loads with high confidence of materializing. Therefore, changes in the carbon tax and its impacts on future fuel switching will be reflected over time in the future BAU load forecasts.[59]

(b) FBC Will Consult on the Development of Scenarios for Future LTERPs

39. The CEC makes a number of recommendations for directions from the BCUC to FBC regarding its load scenarios. FBC submits that many of the matters that CEC identifies are more appropriate addressed through consultation on FBC's next LTERP. Specifically:

- CEC recommends that the BCUC direct FBC for its next LTERP to undertake more explicit scenario considerations of environmental, technological, business and cultural changes that may drive greater potential ranges in the summary scenario forecasts.[60]

- The CEC recommends that the BCUC direct FBC to prepare more robust analysis on the efficiency and conservation options, technology developments and regulatory pricing options as they may relate to long-term energy and capacity requirements in its approach to its next LTERP.[61]

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[58] Exhibit C4-4, BCSSIA IR2 16.7.2.

[59] Exhibit C4-4, BCSSIA IR2 16.7.3.

[60] CEC Final Argument, p. 6.

[61] CEC Final Argument, p. 8.

- CEC recommends that the BCUC direct FBC in its future LTERPs consider a wider climate temperature range for the future based on IPCC higher end projections, particularly given that it is well known that the northern hemisphere is warming faster than the equatorial regions and that the average temperature evidence has supported this.[62]

40. CEC's views on these matters have not been materially explored in this proceeding, are not exactly clear to FBC, and appear to be getting into the finer details of resource planning. Rather than a direction from the BCUC on matters that may be ambiguous, FBC submits that these are items that FBC could explore with the CEC and interveners as part of its consultation on and development of its next LTERP. FBC's Action Plan item #10 is to Continue Stakeholder, Indigenous Community and Customer Engagement, as follows:[63]

> As part of the development of its next LTERP and LT DSM Plan, FBC expects that it would continue its engagement with customers, Indigenous communities and stakeholders to ensure their energy and conservation priorities are understood and feedback is gathered as part of the development of the next LTERP. As discussed in Section 12, FBC is committed to developing and maintaining relationships with stakeholders, customers, local and Indigenous communities within whose territories FBC works and operates.

E. FBC'S EVALUATED THE APPROPRIATE RESOURCES AND FBC'S ACTION PLAN INCLUDES MONITORING FOR NEW RESOURCE DEVELOPMENTS

(a) FBC has Reasonably Assessed Distributed Generation and Will Continue to Monitor for Developments

41. CEC recommends that the BCUC direct FBC to incorporate in its next LTERP a more fulsome assessment of the potential for the distributed generation to have an impact on long term planning.[64] FBC submits that no direction is needed as it has reasonably assessed distributed generation in the LTERP and its Action Plan already includes monitoring for resource developments.

42. FBC discusses distributed generation in detail in Section 2.3.4 of the LTERP. In Section 4, FBC explores load scenarios that include various levels of residential rooftop solar penetration,

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62 CEC Final Argument, p. 8.

63 Exhibit B-1, LTERP, p. 216.

64 CEC Final Argument, p. 7.

combined with battery storage, to determine potential impacts on the FBC system in terms of annual energy load and peak demand. FBC included a load scenario with significant amounts of distributed generation:[65]

> Scenario 5 – Distributed Energy Future: This scenario imagines a future world in which highly favourable contracts with distributed energy (rooftop solar) producers (i.e., the consumers and businesses associated with the residential and commercial integrated photovoltaic solar and storage load drivers) would result in a steep increase in electricity rates due to FBC's fixed operating costs being distributed across lower energy sales volumes.

43. Section 6.4.1 discusses, at a high level, potential impacts of higher levels of distributed generation on FBC's distribution system. Section 10.7 discusses FBC's treatment of distributed generation as a load-reducing driver rather than as a supply-side resource option.

44. Furthermore, FEI has received recommendations from Guidehouse on distributed generation (see Section 4.1.5), and FBC has stated that it is continuing to monitor developments in distributed energy storage and will consider the role of distributed energy resources in optimizing system benefits for customers in its future planning.[66] Further, FBC's Action item #9 is to continue to monitor developments regarding potential future resource options. Therefore, FBC submits that no direction is required on this topic.

(b) FBC Evaluated Commercially Available Battery Options and Will Continue to Monitor for Developments

45. CEC recommends that the BCUC direct FBC to examine a wider range of battery options than lithium-ion batteries in its next LTERP or before making battery purchases to ensure that its LTERP planning is more robust than that contained in this LTERP.[67] The CEC also similarly recommends that the Commission direct FBC to have a much more robust discussion of battery technologies in its next LTERP in order to refine the merits of the alternatives FBC should be considering as providing the best public interest results.[68]

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65 Exhibit B-1, LTERP, p. 102.

66 Exhibit B-1, LTERP, p. 47; Exhibit B-9, CEC IR 1.9.3.

67 CEC Final Argument, p. 14, para. 93.

68 CEC Final Argument, p. 9.

46. In the 2021 LTERP FBC has considered battery options that are appropriate for FBC,[69] and FBC will continue to consider the battery options that are appropriate for FBC in its next LTERP. As indicated in FBC's Action item #9, FBC will continue to monitor developments regarding potential future resource options. As such, FBC submits that no direction is needed on this topic.

47. FBC also notes that CEC's recommendation is based on its understanding of lithium-ion batteries and the emerging technology of molten salt batteries,[70] which is not on the record in the proceeding and should be given no weight. As such, FBC submits that the CEC has not established the foundation for any direction from the BCUC on this topic.

48. CEC's recommendation is also based on a misreading of an FBC IR response. CEC states that FBC's assumption about battery costs for capacity is stable over a 20-year horizon, but that utility scale battery costs for emerging battery technology are expected to drop significantly in the future.[71] In fact, in response to CEC IR1 5.3, FBC shows that it expects declining capacity costs for battery storage:

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[69] Exhibit B-1, Appendix K, Section 3.2.3; Exhibit B-9, CEC IR1 44.2.

[70] CEC Final Argument, p. 14, para. 92.

[71] CEC Final Argument, p. 9.

The following table shows the unit capacity cost (UCC) values from Table 10-2 of the Application for the three requested resources over the planning horizon (in 2020$ per kW-year).

Year	Battery Storage	Distributed Battery Storage	RNG SCGT
2020	267	226	131 to 148
2021	259	218	129 to 147
2022	251	211	129 to 147
2023	243	204	129 to 146
2024	235	196	130 to 147
2025	227	189	131 to 148
2026	223	185	131 to 148
2027	219	182	130 to 148
2028	215	178	130 to 148
2029	211	174	130 to 147
2030	207	171	129 to 147
2031	205	170	129 to 147
2032	204	168	130 to 148
2033	203	167	130 to 148
2034	202	166	130 to 148
2035	200	165	130 to 148
2036	199	164	131 to 148
2037	198	163	130 to 148
2038	196	161	130 to 148
2039	195	160	130 to 148
2040	194	159	131 to 148

49. FBC therefore submits that a direction is not required regarding battery options.

(c) FBC Evaluated Purchases from Self-Generators and Will Continue to Monitor for Developments

50. ICG submits that the LTERP is inconsistent with BC's energy objectives because it does not consider self-generation as a resource option and does not include any plans to support self-generation development.[72] In fact, FBC did consider self-generation as a resource option. Section 10.8 of the LTERP states:

> 10.8 *Purchases from Self-Generators*

[72] ICG Final Argument, p. 11.

> Electricity purchases from self-generating customers may be a supply option for FBC in the future. Self-generating customers, for the purposes of this LTERP, refers to larger, industrial customers that can provide electricity to FBC as opposed to smaller, residential or commercial customers that could provide distributed generation to FBC. Self-generation supply, in addition to benefitting the self-generator, can also have the following benefits for FBC and its customers:
>
> - self-sufficiency and less reliance on market supply;
> - reduction of transmission losses depending on location on the FBC system; and
> - improved reliability depending on location.
>
> When assessing the value of self-generation supply, in addition to these benefits, FBC must consider other relevant criteria in terms of its supply requirements and its LTERP objectives, as it does with other supply-side resource options. These criteria include the energy and capacity profile (i.e. when the electricity is provided to FBC during each month of the year), adherence to provincial energy and environmental policy, and cost effectiveness. The energy and capacity profile of the self-generation supply needs to meet FBC's customer load requirements, providing energy throughout the year and capacity during peak demand periods. Any self-generation must be consistent with BC's energy and environmental policies, such as meeting clean or renewable generation requirements. In terms of cost, long-term self-generation supply would need to meet FBC's LRMC requirements, as discussed in Section 11, to be considered cost effective. If the self-generation supply is short term in nature, then FBC would compare the cost to its short-term resource options, such as market supply or PPA.

51. Ultimately, self-generation from larger, industrial customers may or may not be a reliable source of supply depending on the characteristics of the generation and the nature of the agreement that FBC would have in place with the self-generator. For example, the industrial self-generation that FBC currently receives is delivered on a net-of-load, *ad hoc* basis over which FBC has no control with respect to timing or amount. Were FBC able to structure these purchases such that the power could be called upon when and in the amount required, it would become a better fit for long-term planning.[73]

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[73] Exhibit B-4, BCOAPO IR1 45.1.

52. As indicated in FBC's Action item #9, FBC will continue to monitor developments regarding potential future resource options. This will include potential opportunities from self-generators. FBC submits that this is a reasonable and appropriate approach.

(d) FBC Evaluated Geothermal Resources and Will Continue to Monitor for Developments

53. The CEC recommends that the BCUC direct FBC to consider potential geothermal technologies for their potential to change the presumptions with respect to energy options that are 100% renewable, 100% scalable, 100% dispatchable and 100% flexible for full loading uses.[74] FBC again submits that no direction is required.

54. FBC evaluated geothermal as a resource option as indicated on pages 165 to 169 of the LTERP[75] and discussed in detail in the Resource Options Report.[76] However, based on FBC's portfolio analysis, geothermal was not included in the preferred portfolios based on the LTERP objectives and the energy and capacity resource-gaps. As indicated in FBC's Action item #9, FBC will continue to monitor developments regarding potential future resource options. This will include potential opportunities for geothermal. Thus, FBC submits that no direction is required on this topic.

(e) FBC Evaluated a Range of RNG SCGT Profiles Suitable for its Resource-Balance Gaps, and Will Do So Again in its Next LTERP

55. CEC recommends that the BCUC direct FBC to explore a greater range of SCGT RNG profiles in its next LTERP.[77] FBC explained the range of RNG SCGT profiles it considered, as follows:[78]

> FBC limited the size of a gas peaking plant to a maximum of 100 MW, which represents between 13 to 14 percent of FBC's current peak load, but included two 100 MW units as resource options in addition to a 50 MW unit to give the optimization routine a combination of possible sizes. Alternatively, FBC could have included a larger 200 MW RNG SCGT unit, but on a practical operational basis, unit

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74 CEC Final Argument, p. 15, para. 101.

75 See, e.g., Tables 10-1, 10-2 and 10-3.

76 Exhibit B-1, Appendix K, section 3.1.2.

77 CEC Final Argument, p. 14, para. 97.

78 Exhibit B-9, CEC IR1 45.1.

> outages would represent 25 to 29 percent of the resources available to meet current peak load and would therefore create some reliability risk. There is also a reasonable limit to the amount of peaking resources that can be included in the portfolio as the deeper the peaking resources become in the resource stack the more often they are required to run.

56. Consistent with the 2021 LTERP, in its next LTERP, FBC will consider the range of RNG SCGT profiles that are suitable for its resource-balance gaps. As indicated in FBC's Action item #9, FBC will continue to monitor developments regarding potential future resource options. FBC also submits that this is a topic that can be better explored in its consultation on and development of the next LTERP. As indicated in FBC's Action Plan item #10, FBC will continue stakeholder, Indigenous community and customer engagement for its next LTERP.[79] As such, FBC submits that no direction is required.

(f) FBC Evaluated a Broad Mix of Renewable Resources

57. BCSSIA states it "is not aware of any evidence on the hearing record where the topic of a broader mix of renewable generation is discussed in any detail" and submits that this "oversight" should be addressed in the next resource plan.[80] In reply, FBC in fact considered a broad mix of renewable generation, as indicated by the Resource Options Report, which contains an extensive discussion of supply-side resource options.[81] Amongst other analysis, FBC evaluated portfolios which include only clean or renewable resources against ones that are not clean and renewable, as presented in Figure 11-3 of the LTERP.[82] Furthermore, FBC's preferred portfolios themselves include a broad mix of renewable resources, including solar and wind resources, as shown in Figure 11-7, reproduced below.[83]

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79 Exhibit B-1, LTERP, p. 216.

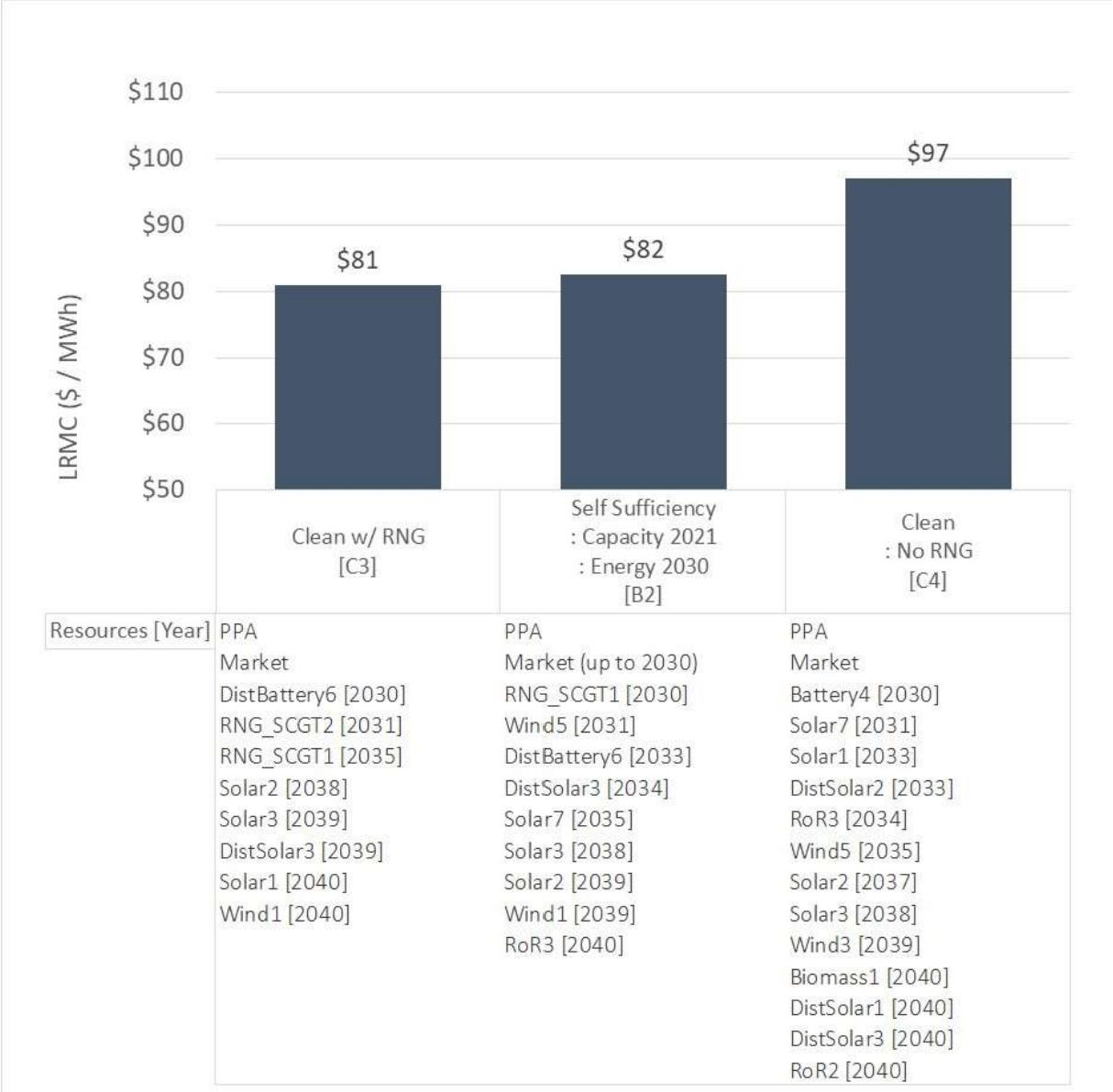
80 BCSSIA Final Argument, p. 25.

81 Exhibit B-1, Appendix K.

82 Exhibit B-1, LTERP, p. 183.

83 Exhibit B-1, LTERP, p. 190.

Figure 11-7: Portfolios Considered for Preferred Portfolios



(g) FBC Will Carry out Commercial Negotiations with BC Hydro Regarding Renewal of the PPA

58. CEC recommends that the BCUC direct both FBC and BC Hydro to (1) assess and determine the public interests in the PPA renewal to the point of finding an appropriate balance and (2) devise a negotiation process that can reliably be carried out to determine appropriate

amendments to the existing PPA and or substantially greater efficiency in developing a renewed PPA to meet the public interest.[84] FBC submits that such a direction would not be appropriate.

59. First, CEC's recommendation appears to be based on its mistaken understanding of the time to negotiate a PPA, which the CEC describes as "inordinately long and tortuous."[85] FBC explained that it plans to begin review of the PPA in 2023, 10 years prior to expiration, to determine if negotiations should begin with BC Hydro to renew the PPA. FBC did not say that negotiations take 10 years.[86]

60. Second, both FBC and BC Hydro each have their own interests, both as utilities and from the perspective of their customers, and are sophisticated parties that can and will negotiate the terms of any PPA renewal on their own.

61. Third, BC Hydro is not the applicant in this proceeding and has no opportunity to respond to the CEC's recommendation made only now in argument. As such, it would raise procedural fairness issues for BC Hydro to receive a direction from the BCUC on this matter arising from FBC's LTERP.

62. Fourth, CEC's recommendations have not been explored in any detail in this proceeding and FBC submits that the BCUC does not have an adequate evidentiary foundation to issue any direction in the nature that CEC recommends.

63. Finally, FBC submits that the BCUC's regulatory oversight and consideration of the public interest is appropriately engaged at the stage of reviewing and approving any PPA renewal after it is filed with the BCUC pursuant to section 71 of the *Utilities Commission Act*. In addition to jurisdictional concerns, FBC submits that the BCUC should not become involved in the actual commercial negotiation, as this would compromise the independence and objectivity needed for the BCUC's regulatory oversight role.

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84 CEC Final Argument, p. 9.

85 CEC Final Argument, p. 8.

86 Exhibit B-9, CEC IR1 3.1,

F. FBC'S PORTFOLIO ANALYSIS IS REASONABLE AND COMPLETE

(a) FBC's Portfolio Analysis Is Complete

64. The CEC recommends that the Commission direct FBC in its future LTERP filings to include in its portfolio analysis, as an option, using FBC's best information, approximations and estimates for the portfolios so that there is a better understanding of what the complete comprehensive portfolios might look like, as opposed to leaving out a number of planning issues simply because the utility does not yet have an active program for the issue.[87] For the reasons discussed below, FBC does not consider that such a direction is needed or would be appropriate.

65. First, CEC's recommendation appears to be based on its statement that FBC's portfolio analysis process does not necessarily include potential programs for EV load shifting to off peak load times.[88] However, even though FBC does not yet have a program in place for EV shifting, FBC included in its portfolio analysis estimates for various portfolios under different levels of EV charging shifting to help provide some indication of the level of incremental resources and costs associated with shifting EV charging loads. This was presented in Figure 11-5 of the LTERP, which is reproduced below.

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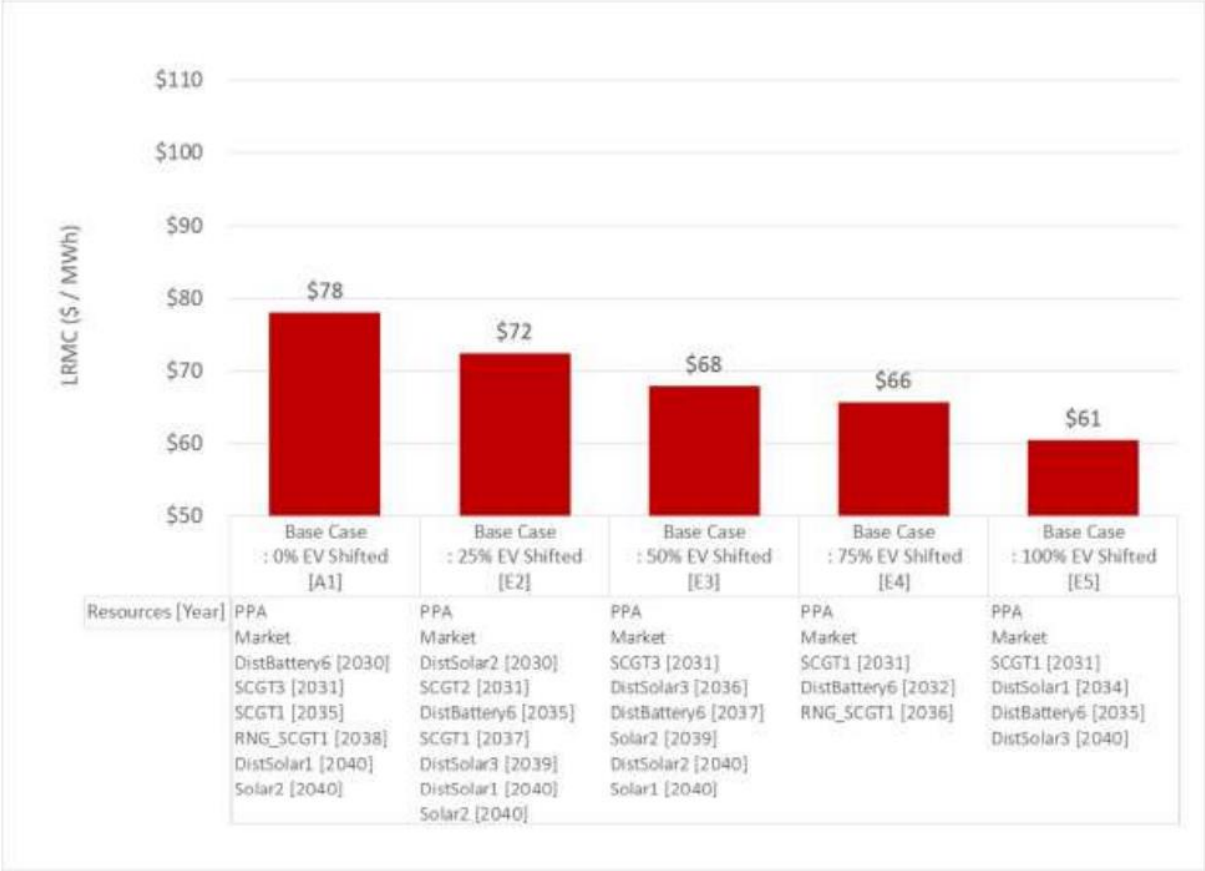
87 CEC Final Argument, pp. 16-17, para. 109.

88 CEC Final Argument, para. 108.

Figure 11-5: Portfolios based on Different Percentages of EV Charging Shifting



66. Second, CEC's comments have not been explored in this proceeding and it is unclear to FBC exactly what they entail and how or if they could be implemented. FBC therefore submits that there is not a reasonable foundation for the direction CEC recommends.

(b) FBC's LRMC Reflects both Capacity and Energy Costs

67. BCOAPO notes that BC Hydro's updated LRMC of energy in BC Hydro's 2021 IRP Application is $65 per MWh (in 2022 dollars), which is considerably less than the $80 used in FBC's Portfolio F3.[89] FBC notes for clarity that its $78 perMWh LRMC reflects both capacity and energy costs, as the incremental costs are being driven by the capacity requirements as opposed

[89] BCOAPO Final Argument, p. 38

to energy.[90] Comparing FBC's $78 perMWh LRMC to BC Hydro's firm energy LRMC is therefore not comparing apples to apples.

G. CAPACITY SELF-SUFFICIENCY AFTER 2030 IS REASONABLE AND PRUDENT

(a) Long-Term Resource Planning Must Occur Even Though Circumstances May Change

68. ICG submits that the BCUC should not now find that capacity self-sufficiency after 2030 is reasonable and prudent as conditions can change before the next LTERP; ICG submits that the Commission Panel should limit findings and directions to those applicable to the period prior to the expected filing date of the next LTERP.[91] At this time, based on the evidence in this LTERP,[92] FBC submits that the BCUC should accept its plan to be capacity self-sufficient after 2030. Relying on the market for capacity on a long-term basis comes with material risk and is not in the interests of customers.[93] ICG sole submission to the contrary is that circumstances may change. FBC submits that ICG's position is fundamentally inconsistent with the purpose of filing a long-term resource plan. As conditions can always change before the next LTERP, by ICG's logic, the BCUC could never accept a long-term plan.

69. FBC's LTERP has a 20-year outlook and requires that some actions take place in the near future to meet the 20-year plan. Specifically, given long lead times for new resources, FBC needs to plan ahead for new resources and may not be able to wait until the next LTERP.[94] As discussed on page 48 of its Final Argument, FBC will include the June 2021 heat dome impacts in its 1 in 20 peak demand forecasts, and this may push up the need for new resources and infrastructure sooner than contemplated in the 2021 LTERP.

70. FBC recognizes, of course, that circumstances may change and that it will need to adapt as needed to those circumstances. The regulatory process provides a way to deal with such changes. Specifically, FBC will need to apply for acceptance of or the granting of a CPCN for any

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90 Exhibit B-1, LTERP, page 178, lines 7-8; Exhibit B-8, RCIA IR1 31.1.

91 ICG Final Argument, p. 7, para. 7.

92 FBC Final Submission, paras. 40-42.

93 Exhibit B-1, LTERP, p. 64.

94 Exhibit B-1, LTERP, p. 215, Action Item #3.

new resource. At that time, the best information available can be considered by the BCUC in making its decision on whether FBC should proceed. If circumstances have changed since acceptance of the 2021 LTERP, that can be considered. Furthermore, FBC will continue to regularly file LTERPs, which will update plans with the most recent information, providing further opportunities for the BCUC to consider FBC's long-term plans. In this way, FBC and the BCUC can continue to adapt to changing circumstances. This should not, however, prevent the utility from being able to prudently proceed with long-term plans.

(b) Fair Impact of Self-Sufficiency

71. BCOAPO submits that a fairer assessment of the impact of self-sufficiency would be to compare the result of Portfolio B2 with that of Portfolio C3 which includes only clean/renewable resources.[95] In reply, FBC in fact did compare Portfolio B2 to Portfolio C3 when discussing the preferred portfolios in section 11.3.8 of the LTERP.[96]

(c) FBC Will Assess Different Approaches to Self-Sufficiency

72. CEC recommends that the BCUC direct FBC to provide a robust analysis of different approaches to defining self-sufficiency.[97] FBC will consider the CEC's comments in this regard and continue to assess the appropriate level of self-sufficiency and capacity resources in future LTERPs.

H. FBC's PLAN TO MANAGE THE IMPACT OF EVS ON PEAK LOAD IS REASONABLE AND CONDUCTING A PILOT PROGRAM IS THE PRUDENT NEXT STEP

73. ICG claims that FBC should use time-of-use (TOU) rates rather than its proposed software-based approach to manage the impact of EVs on peak load.[98] FBC submits that ICG has not substantiated its claim that TOU rates are a superior option, and that FBC should carry out its pilot to test a software approach given the benefits of this approach compared to TOU rates.

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95 BCOAPO Final Argument, para. 119, p. 34.

96 Exhibit B-1, LTERP, Figure 11-7, p. 190.

97 CEC Final Argument, p. 10, para. 69.

98 ICG Final Submission, p. 8.

74. First, ICG's submissions do not address the drawbacks of TOU rates compared to a software approach. FBC lists the cons of TOU rates in Table 2-1 of the LTERP (reproduced on pages 24 to 25 of its Final Argument), which include:

- Utility has no direct control over charging, limiting the effectiveness of peak load shifting and demand response programs.
- Potential for free ridership where some customers are rewarded for existing behaviour, without the benefit to the grid of any new peak-load shifting.
- Difficult to implement without separate meter, resulting in low adoption.
- Cost basis for justifying significantly differentiated time-based rates is limited/insufficient.

75. In contrast, the software-based approach provides FBC with direct control and easier implementation.[99]

76. Second, ICG submits that TOU rates will shift more EV charging load, but offers no evidence or proof of this claim.[100] Contrary to ICG's claims, FBC expects a software-based approach will be able to shift 50 percent of EV charging from peak demand periods, which is a much higher rate than from TOU programs in other jurisdictions.[101]

77. Third,[102] FBC disagrees with ICG's characterization that FBC's concerns regarding TOU rates are only conjecture. For example, it is logical to conclude that customers may not favourably receive a whole-home TOU rate, when the objective is EV-specific. Similarly, the additional costs of a separate meter for EV charging and the added hardware and billing complexity due to two different meters and rates at one premise will likely be an item of concern for customers.[103] These concerns are valid and should be given appropriate weight by the BCUC.

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99 Exhibit B-1, pp. 42-43.

100 ICG Final Argument, p. 8.

101 Exhibit B-1, LTERP, p. 43; Exhibit B-13, CEC IR2 63.1 and 63.2.

102 ICG Final Argument, p. 8.

103 Exhibit B-2, BCUC IR 1.37.1.

78. Finally, FBC submits that the concerns raised by the ICG are appropriately addressed by conducting a pilot project, which is what FBC plans to do. FBC would ultimately only propose a software approach if the software-based pilot is successful. If the pilot is unsuccessful, FBC may consider the other options to meet the objective of shifting EV charging from peak demand periods.[104] FBC therefore submits that it is reasonably proceeding with its approach to managing the impact of EV demand on peak load.

I. FBC IS TAKING APPROPRIATE ACTIONS TO MANAGE THE POTENTIAL FOR UNPLANNED INCREASES IN LOAD

(a) Level of DSM

79. BCOAPO generally views FBC contingency planning as reasonable, but "recommends FBC ensure DSM program adjustments factor into its contingency planning not only in the event of increased load, but also decreased load."[105] Based on the long-term load forecast, FBC considers load decreases over the planning horizon to be unlikely. Nonetheless, if this were to occur, before reducing DSM programs, FBC would need to consider the negative impacts of doing so, such as reputation impacts and limits to FBC's ability to scale up programs in the future.[106] FBC expects that the flexibility of its existing resources, such as market purchases and the PPA, would enable it to ramp down DSM programs over time, if such action was required to manage decreasing loads.[107]

(b) UEC of Future Energy Supply Resources

80. BCSSIA states that it "hopes FBC will consider the significantly lower UEC of actual projects when it procures future energy supply resources."[108] In reply, FBC's resource option information was provided at a level appropriate for long-term planning, and more detailed analysis will accompany any application to the BCUC for a CPCN or acceptance of an energy supply contract.[109]

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[104] Exhibit B-1, LTERP, pp. 43 and. 51; Exhibit B-1, LT DSM Plan, p. 26; Exhibit B-8, RCIA IR1 2.2.2; Exhibit B-13, CEC IR2 13.5; Exhibit B-12, BCSEA IR2 21.1.

[105] BCOAPO Final Argument, p. 41.

[106] Exhibit B-1, LTERP, p. 152.

[107] Exhibit B-1, Section 11.3.9.1; Exhibit B-2, BCUC IR1 31.3.

[108] BCSSIA Final Argument, p. 23.

[109] Exhibit B-1, LTERP, Appendix K, Resource Options Report, p. 1; and LTERP, p. 215, Action Item #3.

(c) FBC will Prudently Proceed with Contingency Plan for New Resources

81. ICG submits that FBC's efforts to move forward with development plans should be limited to "discussions with developers and/or consultants with expertise in this area so that FBC could obtain more specific information regarding resource options" and such efforts should not include "land acquisition, front-end engineering design, permitting, and stakeholder and indigenous consultation."[110] FBC submits that such an arbitrary restriction would not be a sound planning approach, and that FBC should prudently proceed with development plans given the potential for increases in load. As submitted on pages 33-34 of FBC's Final Argument, FBC must begin the process of preparing to acquire new resources now, as it may take some time to fully define the available resources such that a request for a CPCN could be filed. This is particularly important given the long development timelines of major projects in British Columbia. Given the four-year lead time for an SCGT plant, FBC expects to initiate project development work, including land acquisition, front-end engineering design, permitting, and stakeholder and Indigenous consultation in the near future.

J. TRANSITION TO CLEAN MARKET PURCHASES IS IN THE PUBLIC INTEREST

82. ICG is the only intervener to oppose FBC's transition to clean market purchases. ICG submits that the BCUC should not approve a clean market adder and the clean market adder should be considered after the costs of the clean market adder are filed by FBC.[111]

83. First, FBC does not consider acceptance of the LTERP as approval for clean market purchases. Rather, if the BCUC accepts the LTERP, including Action Plan item #8, then FBC would negotiate an agreement for clean market purchases, which would then be subject to BCUC review and acceptance under section 71 of the UCA.[112] Thus, more refined estimates of the costs of the clean market adder would be available to the BCUC when considering an agreement for clean market purchases.

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[110] ICG Final Argument, p. 6, para. 15.

[111] ICG Final Argument, p. 12, para. 34.

[112] Exhibit B-6, BCSEA IR1 3.3; Exhibit B-27, BCUC Panel IR2 6.1, 6.2 and 6.3.

84. Second, given FBC's plan to rely on market energy over the planning horizon, FBC submits that it is in the public interest that it transitions to clean market purchases. Reducing emissions from the market energy that FBC plans to purchase is consistent with the provincial government's climate targets and CleanBC plan, and the British Columbia energy objectives to reduce emissions.[113] The clean market adder also reflects FBC stakeholders' desires for clean energy in the portfolio, consistent with the fact that only one intervener took issue with the proposal.

K. FBC'S PREFERRED PORTFOLIO IS IN THE PUBLIC INTEREST

85. BCOAPO supports FBC's selection of portfolio C3 as its preferred portfolio, but notes that FBC excluded portfolio A1 which includes an SCGT plan using conventional natural gas. BCOAPO invites "FBC in its Reply to address whether its decision to exclude A1 from its group of preferred portfolios on the basis of environmental considerations is likely to occur in future long-term planning, even where FBC receives stakeholder input that identifies cost-effectiveness and reliability as primary long-term planning priorities."[114] In reply, in future planning, FBC will continue to consider stakeholder feedback and reasonably balance the sometimes competing objectives of FBC's resource planning, which include cost effectiveness and consistency with provincial energy objectives.[115] In this case, when choosing an RNG SCGT plant for its preferred portfolio, FBC took into account that the total cost of including a non-RNG SCGT compared to an RNG SCGT are not significantly different from a portfolio perspective. Although the price of RNG is considerably greater than conventional natural gas, the SCGT plants are capacity-oriented resources intended to serve the energy at the top of the load duration curve representing the peak hours only, meaning that the forecast demand for RNG would be relatively small. Further, the fuel costs of non-RNG SCGT units must include the cost of carbon, which reduces the differential. Other costs, such as the cost of the turbine/generator unit as well as interconnection, operations, and maintenance costs, would be the same.[116]

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[113] See page 52, para. 89 of FBC's Final Argument.

[114] BCOAPO Final Argument, para. 155, p. 41.

[115] Exhibit B-1, LTERP, p. 4.

[116] Exhibit B-2, BCUC IR1 29.1; Exhibit B-17, BCOAPO IR2 90.1; Exhibit B-8, RCIA IR1 29.2 and 29.3.

86. MoveUP submits that an RNG SCGT plant is a high risk strategy, given today's perceptions, policies and social licence.[117] FBC recognized in its LTERP the potential social licensing issues associated with a SCGT plant, even if it uses RNG.[118] However, when considering potential climate change impacts and need for resiliency, as emphasized by MoveUP in its submission, an RNG SCGT plant has the operational characteristics that make it more likely to provide dependable generation during extreme events.[119] The value of an RNG SCGT resource is the dispatchable capacity reliably available during peak hours, meaning that it is better suited to responding to unexpected system events, or when scheduled energy is curtailed. In the event of a cold snap or heat wave, when several hours in a row are peak hours of the month or even year, a SCGT unit is able to run continuously. An SCGT plant can also provide power to localized load centres thereby supporting system transmission in contingency events if sited in a favourable location.[120] These characteristics make an RNG SCGT plant an important component of FBC's preferred portfolio. FBC notes that no intervener opposed the inclusion of an RNG SCGT plant in its preferred portfolio.

L. FBC IS PROACTIVELY ADDRESSING RESILIENCY AND WILL CONSIDER MORE SYSTEMATIC APPROACHES TO EVALUATING RESILIENCY IN ITS NEXT LTERP

87. FBC considers that there is wide support for FBC to take a more systematic approach to evaluating resiliency in its next LTERP.[121] However, ICG does not support FBC incurring the additional costs to do so.[122] FBC notes that carrying out a more systematic approach will require more resources.[123] Therefore, if the BCUC does not support the incurring of additional costs to undertake a more systematic analysis of resiliency, then FBC would expect that to be reflected in the BCUC's Decision on this Application.

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117 MoveUP Final Argument, p. 3

118 Exhibit B-1, LTERP, p. 191.

119 Exhibit B-22, BCUC IR3 65.2.

120 Exhibit B-8, RCIA IR1 29.2.

121 E.g., BCOAPO Final Argument, para. 148; RCIA Final Argument, p. 20; BCSEA Final Argument, p. 3, para. 14.

122 ICG Final Argument, p. 11, para. 30.

123 Exhibit B-21, Rebuttal Evidence, p. 11.

M. RESOURCE PLANNING GUIDELINES PROVIDE UTILITIES WITH FLEXIBILITY TO ADAPT

88. MoveUP recommends that the BCUC conduct a process to update its *Resource Planning Guidelines*.[124] While FBC recognizes that the *Resource Planning Guidelines* may need to be updated at some point, FBC notes that the current guidelines provide ample room for flexibility on the part of utilities to adapt to changing circumstances, such as the impacts of climate change, and this flexibility is something that should continue in the future. FBC also notes that the BCUC is currently reviewing the long-term resource plans of the two largest utilities in this Province, FEI and BC Hydro. FBC respectfully submits that the BCUC may want to consider the results of the review of those resource plans before initiating any process to update the guidelines.

PART FOUR: CONCLUSION

89. FBC appreciates the participation of interveners in this proceeding and their interest in FBC's long-term resource planning process. FBC submits that intervener submissions overall express broad support for acceptance of FBC's Application. FBC submits that the BCUC should accept the 2021 LTERP, including the 2021 LT DSM Plan, as being in the public interest. A Draft Order sought is included in Appendix P2 of the LTERP.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

Dated: October 7, 2022

[original signed by Chris Bystrom]

Christopher R. Bystrom

Counsel for FortisBC Inc.

[124] MoveUP Final Argument, p. 7.