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July 7, 2022

Residential Consumer Intervener Association
c/o Midgard Consulting Inc.
Suite 828 – 1130 W Pender Street
Vancouver, B.C.
V6E 4A4

Attention: Mr. Peter Helland, Director

Dear Mr. Helland:

Re: FortisBC Inc. (FBC)

2021 Long-Term Electric Resource Plan (LTERP) and Long-Term Demand-Side Management Plan (LT DSM Plan) (Application) – Project No. 159924
Response to the Residential Consumer Intervener Association (RCIA) Information Request (IR) No. 3 on Rebuttal Evidence

On August 4, 2021, FBC filed the Application referenced above. In accordance with the regulatory timetable established in British Columbia Utilities Commission Order G-130-22 for the review of the Application, FBC respectfully submits the attached response to RCIA IR No. 3 on Rebuttal Evidence.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC INC.

Original signed:

Diane Roy

Attachments

cc (email only): Commission Secretary
Registered Parties



FortisBC Inc. (FBC or the Company) 2021 Long-Term Electric Resource Plan (LTERP) and Long-Term Demand-Side Management Plan (LT DSM Plan) (Application)	Submission Date: July 7, 2022
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1 **CHAPTER 2: FBC’S DEFINITIONS OF RESILIENCY AND RELIABILITY**

2 **1.0 Reference Exhibit B-21, Page 3, Question 4**

3 **How does FBC define resiliency?**

4 **The rebuttal evidence states:**

5 *“FBC’s definition of resiliency is the same as the definition provided by FortisBC Energy*
6 *Inc. (FEI) in its Tilbury LNG Storage Expansion Project Certificate of Public Convenience*
7 *and Necessity (CPCN) Application (TLSE Application), currently under review by the*
8 *British Columbia Utilities Commission (BCUC). In Section 3.2.1.3 of the TLSE Application,*
9 *FEI states the following:*

10 *Resiliency refers to the ability to prevent, withstand, and recover from system*
11 *failures or unforeseen events. Resiliency is directly linked to the concept of*
12 *reliability in the sense that a system cannot be resilient without first having reliable*
13 *components. However, resiliency also encompasses concepts such as preparing*
14 *for, operating through, and recovering from significant disruptions, no matter the*
15 *cause.”*

16 1.1. Please explain the differences between this definition of resiliency versus the
17 resiliency definitions provided in the Midgard Consulting Inc. (“Midgard”)
18 evidence¹, specifically the US Department of Energy (“DoE”) definition of
19 resilience: “[t]he ability of a power system and its components to withstand and
20 adapt to disruptions and rapidly recover from them”.

21
22 **Response:**

23 Generally speaking, FBC’s definition of resiliency is similar to the US Department of Energy (DOE)
24 definition. Both definitions include the concepts of withstanding and recovering from disruptions.
25 FBC’s definition includes preventing system failures or unforeseen events, which is not included
26 in the DOE definition. While the DOE version includes adapting to disruptions, FBC’s version
27 does not include this term, although it does refer to “operating through” disruptions, which is a
28 similar concept.

29

¹ Exhibit C8-6, Section 1, p. 6.



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1 **2.0 Reference Exhibit B-21, Page 3, Question 5**

2 **How does resiliency differ from reliability?**

3 **The rebuttal evidence states:**

4 *“FBC defines reliability consistent with FEI’s definition in Section 3.2.1.2 of the TLSE*
5 *Application, which is as follows:*

6 *Reliability refers to designing and operating a system to ensure it meets the*
7 *expected customer demand at all times, and is a combination of two concepts:*
8 *adequacy and security. Adequacy refers to the ability to ensure a sufficient supply*
9 *of energy, whereas security refers to the ability to consistently deliver that supply*
10 *to customers.”*

11 2.1. Please confirm that the definition provided by FBC in its response was not filed by
12 FBC in the LTERP proceeding but was rather filed by a separate utility in a
13 separate proceeding.

14 2.1.1. If confirmed, please explain why FBC intends that previous evidentiary
15 filings by FEI, or any other separate utilities, should be treated as
16 equivalent to FBC evidence in current FBC proceedings.

17 2.1.2. If not confirmed, please explain how FBC proposes that evidence
18 previously filed by other utilities in other proceedings should be treated in
19 current FBC proceedings.

20
21 **Response:**

22 FBC’s Rebuttal Evidence explains that FBC’s definition of reliability is the same as FEI’s definition
23 of reliability in FEI’s TLSE Application, and provides that definition as quoted in the preamble
24 above. FBC’s Rebuttal Evidence, including its definition of reliability, is FBC’s evidence and is on
25 the record in this proceeding.

26



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1 **CHAPTER 4: SCENARIO PLANNING**

2 **3.0 Reference Exhibit B-21, Page 8 & 9, Question 12**

3 **Midgard states: “In Midgard’s opinion, FortisBC’s alternative**
4 **resource portfolios could be more compellingly evaluated against**
5 **these resiliency elements by using a structured scenario planning**
6 **approach, thereby testing the resiliency of each portfolio against**
7 **plausible futures that feature significant discontinuities with the**
8 **status quo assumptions upon which the LTERP forecasts are**
9 **based.” Does FBC agree that the scenario planning is the**
10 **appropriate way to plan for resiliency?**

11 **The rebuttal evidence states:**

12 *“FBC does not agree that scenario planning is the appropriate way to plan for resiliency.*
13 *As discussed in the response to Question 11 above, the LTERP scenario planning is*
14 *based on assessing the impacts of load drivers, not captured in any significant way in*
15 *historical trends, on various resource portfolios over the 20-year planning horizon. The*
16 *load drivers typically have the impact of increasing or decreasing the load requirements*
17 *over the entire planning horizon and so are continuous and long lasting in nature. In order*
18 *to incorporate resiliency in its portfolio analysis, FBC recommends that the various*
19 *resource portfolios should be evaluated, or stress tested, against various resiliency*
20 *metrics, such as those related to the more discrete short-term and low-probability*
21 *“surprise” or “extreme” events. For example, how one portfolio compares to another*
22 *portfolio in terms of resiliency to a specific potential flooding or wildfire event.”*

23 3.1. Please reconcile the statement that “*FBC does not agree that scenario planning is*
24 *the appropriate way to plan for resiliency”*, with the statement “*the LTERP scenario*
25 *planning is based on assessing the impacts of load drivers, not captured in any*
26 *significant way in historical trends, on various resource portfolios over the 20-year*
27 *planning horizon”* which contributes to resiliency planning for resource portfolios.

28 **Response:**

30 FBC’s LTERP scenario planning contributes to resiliency planning for resource portfolios at a high
31 level (e.g., how various resource portfolios perform in meeting the long-term load requirements of
32 a load scenario with significant growth in hydrogen production). FBC’s scenario planning was not
33 meant to function as a way to plan for resiliency in terms of shorter-term and temporary disruptive
34 events, as described in RCIA’s Evidence. FBC’s portfolio analysis did assess, at a high level,
35 various portfolios against two metrics related to resiliency: geographic diversity and operational
36 flexibility. As discussed in its Rebuttal Evidence (page 11), FBC suggests enhancing the LTERP
37 portfolio analysis through the development of “extreme” or “surprise” events and evaluating
38 various resource portfolios against these to assess, or stress test, the various portfolios’
39 resiliency.



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3.2. Please confirm that FBC takes issue with the specific scenario planning methodology proposed in the Midgard evidence, rather than taking issue with the use of scenario planning in resource portfolio selection.

Response:

FBC takes issue with the use of long-term load scenario planning for the purposes of assessing a portfolio's resiliency to short-term disruptive events. As discussed in its Rebuttal Evidence (page 9), the LTERP scenario planning is based on assessing the impacts of load drivers, that are not captured in any significant way in historical trends, on various resource portfolios over the 20-year planning horizon. The load drivers typically have the impact of increasing or decreasing the load requirements over the entire planning horizon and so are continuous and long lasting in nature. Load scenario planning is a useful method for determining which resources may be required to meet various load scenarios over the planning horizon and is consistent with the BCUC Resource Planning Guidelines.

3.3. Was the scenario planning approach used by FBC in the LTERP not intended to test resiliency? Please elaborate.

Response:

Please refer to the response to RCIA IR3 3.1.

3.4. Please confirm that FBC agrees that resource portfolios should be "*evaluated, or stress tested, against various resiliency metrics*".

3.4.1. If confirmed, please also confirm that FBC's disagreement with Midgard's proposed resiliency evaluation methodology specifically pertains to the appropriate event severity and return period used to test for resiliency.

3.4.1.1. If not confirmed, please elaborate on FBC's disagreement.



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1 **Response:**

2 FBC confirms that, as discussed in its Rebuttal Evidence (page 11), it recommends that the
3 various resource portfolios should be evaluated, or stress tested, against various resiliency
4 metrics, and that FBC should explore this approach further and bring forward recommendations
5 as part of the development of its next LTERP.

6 FBC's disagreement with Midgard's proposed resiliency evaluation methodology does not
7 specifically pertain to the appropriate event severity and return period used to test for resiliency.
8 Rather, as discussed in response to RCIA IR3 3.2, FBC takes issue with the use of long-term
9 load scenario planning for the purposes of assessing a portfolio's resiliency to short-term
10 disruptive events.

11



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1 **CHAPTER 5: EVALUATION OF THE PORTFOLIOS**

2 **4.0 Reference Exhibit B-21, Page 10, Question 13**

3 **Midgard describes three methods of evaluating portfolios: portfolio**
4 **theory, risk mitigation and structured decision making. Does FBC**
5 **endorse any of these techniques? How does FBC evaluate its**
6 **portfolios?**

7 **The rebuttal evidence states:**

8 *“Risk mitigation involves assessing the risk of scenarios through risk matrices, where*
9 *event risks for a scenario are calculated as the product of the probability that the event*
10 *will materialize multiplied by the consequence of that event. When a risk score indicates*
11 *that the risk is unacceptable, it is generally expected that mitigations are required to*
12 *change the risk so that it moves into either the acceptable or manageable categories.*
13 *Different mitigations may result in different residual risks and have different costs. FBC*
14 *has not used this method in its resource planning as it considers this a more complex*
15 *exercise than is required for high-level long-term resource planning. Furthermore, it is not*
16 *clear to FBC how it would assign probabilities to “extreme” and “surprise” events that are*
17 *outside of the historic experience of the utility. For example, prior to the heat dome event*
18 *in June 2021, FBC would not have predicted such extreme temperatures and loads as*
19 *likely to occur, especially in June. If the assignment of probabilities and consequences of*
20 *such events are highly subjective, the value of this method becomes questionable.”*

21 4.1. Please confirm that it is FBC’s assertion that in cases where “the assignment of
22 probabilities and consequences” in risk analysis is unavoidably highly subjective,
23 “the value of th[e] method becomes questionable.” Please elaborate.
24

25 **Response:**

26 Not confirmed. FBC did not characterize the cases where the assignments of probabilities and
27 consequences is highly subjective as being unavoidably so. FBC stated that if the assignment of
28 probabilities and consequences of such events are highly subjective, the value of this method
29 becomes questionable. For example, if the likelihood of recurrence of similar peak weather
30 events observed over the summer of 2021 are so low (as discussed in the response to CEC IR1
31 21.2) that it results in an immaterial risk score (as defined in the risk mitigation method to
32 evaluating resiliency in FBC’s Rebuttal Evidence on page 10), this could suggest that no
33 mitigations are required to change the risk. As such, a better approach would be to stress test
34 various portfolios against disruptive “extreme” or “surprise” events that could possibly occur and
35 impact FBC and its customers.

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1 4.2. Please confirm that the statement “[i]f the assignment of probabilities and
2 consequences of such events are highly subjective, the value of this method
3 becomes questionable.” applies to cybersecurity planning. Please elaborate.
4

5 **Response:**

6 Not confirmed. FBC takes a risk-based approach to cybersecurity and has implemented a
7 Corporate Security Risk Management Program. The program uses risk to continually adjust
8 cybersecurity initiatives to mitigate areas of highest risk.

9 The likelihood of cybersecurity attacks on FBC’s systems are not highly subjective and are
10 occurring on a regular basis, which is why FBC has enhanced and continues to improve its
11 controls through its Corporate Security Risk Management Program to manage this risk and its
12 consequences.

13



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1 **5.0 Reference Exhibit B-21, Page 10, Question 13**

2 **Midgard describes three methods of evaluating portfolios: portfolio**
3 **theory, risk mitigation and structured decision making. Does FBC**
4 **endorse any of these techniques? How does FBC evaluate its**
5 **portfolios?**

6 **The rebuttal evidence states:**

7 *“Structured decision making is an approach for organized analysis of resource*
8 *management decisions. It involves defining objectives, establishing evaluation criteria,*
9 *developing alternatives and evaluating trade-offs so that a decision can be made. FBC*
10 *has used this approach in its LTERP, developing several alternate portfolios and*
11 *evaluating them based on several different attributes, relating to the objectives, and*
12 *alternate load scenarios so that a preferred portfolio can be determined. FBC considers*
13 *this approach to be appropriate for long-term resource planning as it enables the*
14 *assessment of different portfolios against various attributes that relate to the planning*
15 *objectives and alternate load scenarios. This method is also consistent with the BCUC*
16 *Resource Planning Guidelines, which include the development of multiple resource*
17 *portfolios and evaluation and selection of resource portfolios.”*

18 5.1. Is FBC asserting that structured decision-making is not applicable for incorporating
19 resiliency analysis results into resource portfolio selection? Please elaborate.

20
21 **Response:**

22 No. FBC is asserting that structured decision-making is applicable as FBC considers this
23 approach to be appropriate for long-term resource planning as it enables the assessment of
24 different portfolios against various attributes that relate to the planning objectives and alternate
25 load scenarios. FBC’s approach could be enhanced to include stress testing portfolios against
26 “extreme” or “surprise” events as part of the resource portfolio selection process.

27
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29
30 5.2. Does FBC agree that the results of resiliency analysis could be used as an input
31 to structured decision-making for resource portfolio selection?

32 5.2.1. If not, please explain why not.

33

34 **Response:**

35 Please refer to the response to RCIA IR3 5.1.

36



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1 **CHAPTER 6: EVALUATION OF RESILIENCY IN FUTURE LTERPS**

2 **6.0 Reference Exhibit B-21, Page 11, Question 14**

3 **RCIA submits in response to BCUC IR 3.1 that “FBC’s resiliency**
4 **planning deficiency should be identified in the BCUC decision.”**
5 **Does FBC’s treatment of resiliency make the resource plan deficient**
6 **in any way?**

7 **The rebuttal evidence states:**

8 *“There is also no evidence that Midgard’s recommendations are indicative of industry best*
9 *practices or have been implemented anywhere in the utility industry. In response to*
10 *BCSEA IR 3.6, Midgard was not able to identify any utilities in North America that practice*
11 *resiliency evaluation in their long-term planning as described by Midgard. Midgard also*
12 *clarifies in response to CEC IR1 8.1 that it is not its experience “that most utilities make*
13 *use of resiliency planning to a greater degree than presented by FBC.” Therefore, Midgard*
14 *has not identified any aspect of FBC’s LTERP that is out of step with long- term resource*
15 *planning practices.”*

16 **RCIA Preamble:**

17 *As stated in RCIA’s response to BCSEA IR 3.6², “[m]any North American utilities claim*
18 *to be at least considering resiliency in their long-term planning processes, but Midgard is*
19 *not aware of many that claim to have implemented robust resiliency evaluation*
20 *frameworks.” RCIA assumes that if it were standard utility practice to utilize resiliency*
21 *planning, FBC would comply with those standards.*

22 6.1. Is it FBC’s assertion that industry best practices for resource portfolio selection
23 should not be adapting and evolving in the face of emerging challenges, such as
24 achieving net-zero emissions by 2050³, climate change, increasing global social
25 and political volatility, cyber- terrorism, etc.?

26
27 **Response:**

28 No, this is not FBC’s assertion. The LTERP and its resource portfolio selection should evolve
29 with changes in the external planning environment (i.e., the relevant factors that impact the
30 LTERP, including its objectives and resource portfolios, such as government climate and energy
31 policy and climate change) and the determination of the preferred portfolios should be consistent
32 with the LTERP objectives.

² Exhibit C8-7, RCIA Response to BCSEA IR 3.6, p. 38.

³ The Canadian Net-Zero Emissions Accountability Act enshrines in legislation Canada’s commitment to achieve net-zero emissions by 2050.



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6.1.1. Should FBC be enhancing its resiliency analysis methodology to prepare for these emerging challenges, as opposed to reacting to "change as it happens"? Please discuss.

Response:

As discussed in FBC’s Rebuttal Evidence (pages 6 and 7), FBC is taking a proactive approach to resiliency by developing and implementing plans to ensure its transmission and distribution system and supply portfolio remain resilient in the future and it is not ‘reacting to “change as it happens”’. FBC’s structured decision making approach in the LTERP incorporates resiliency metrics (geographic diversity and operational flexibility) at a high level and FBC expects to enhance this approach by stress testing portfolios against other disruptive events in future LTERPs.



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1 **7.0 Reference Exhibit B-21, Page 11, Question 15**

2 **Is FBC open to taking a different approach to resiliency in future**
3 **LTERPs?**

4 **The rebuttal evidence states:**

5 *“FBC considers that it should expand its approach to more systematically considering*
6 *resiliency in its next LTERP. This could include enhancing the LTERP portfolio analysis*
7 *through the development of “extreme” or “surprise” events and evaluating various*
8 *resource portfolios against these to assess, or stress-test, the portfolios’ resiliency.”*

9 7.1. Please confirm that although “it is not clear to FBC how it would assign probabilities
10 to ‘extreme’ and ‘surprise’ events that are outside of the historic experience of the
11 utility”⁴ this uncertainty does not prevent FBC from “enhancing the LTERP portfolio
12 analysis through the development of ‘extreme’ or ‘surprise’ events and evaluating
13 various resource portfolios against these to assess, or stress-test, the portfolios’
14 resiliency.”

15 7.1.1. If confirmed, please elaborate.

16 7.1.2. If not confirmed, please reconcile the apparent contradiction in these
17 FBC statements.

18
19 **Response:**

20 FBC confirms that it does not view uncertainty with assigning probabilities to “extreme” and
21 “surprise” events and stress testing portfolios against these events as being contradictory
22 because it is not necessary to assign probabilities to these events in order to stress test portfolios
23 against them. Please also refer to the response to RCIA IR3 4.1.

24

⁴ Exhibit B-21, Section 5, Question 13, p. 10.