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June 17, 2019

B.C. Sustainable Energy Association
c/o William J. Andrews, Barrister & Solicitor
1958 Parkside Lane
North Vancouver, B.C.
V7G 1X5

Attention: Mr. William J. Andrews

Dear Mr. Andrews:

Re: FortisBC Energy Inc. and FortisBC Inc. (collectively FortisBC)

Project No. 1598996

**Application for Approval of a Multi-Year Rate Plan for 2020 through 2024
(Application)**

**Response to the B.C. Sustainable Energy Association and Sierra Club of British
Columbia (BCSEA) Information Request (IR) No. 1**

On March 11, 2019, FortisBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-64-19 setting out the Regulatory Timetable for the review of the Application, FortisBC respectfully submits the attached response to BCSEA IR No. 1.

If further information is required, please contact the undersigned.

Sincerely,

**FORTISBC ENERGY INC.
FORTISBC INC.**

Original signed:

Doug Slater

Attachments

cc (email only): Commission Secretary
Registered Parties

FortisBC Energy Inc. (FEI) and FortisBC Inc. (FBC) (collectively FortisBC) Application for Approval of a Multi-Year Rate Plan for 2020 through 2024 (the Application)	Submission Date: June 17, 2019
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1 **A. DSM and MRP**

2 **1.0 Topic: DSM and MRP**

3 **Reference: 2013 proceeding regarding the FortisBC Energy Inc. 2014-2018 PBR**
4 **Application, Exhibit B-11, FEU Response to BCUC IR 1.213**

5 In BCUC IR 1.213 in the 2013 proceeding regarding the FortisBC 2014-2018 PBR
6 Application, FEU was asked why it had not proposed a performance based incentive
7 mechanism for EEC as part of its PBR Application. FEU's response included the
8 following statements:

9 "The Companies have not proposed a performance-based incentive mechanism
10 for EEC activity in this proceeding because (1) we believe that the previously—
11 approved mechanism is working well in that there are no dis-incentives to the
12 FEU pursuing EEC activity under the current mechanism and (2) the financial
13 treatment previously approved and currently applied to the FEU's EEC activity is
14 the same as the financial treatment applied by the electric utilities in British
15 Columbia, with the exception of the amortization period...

16 "FEU's general understanding of the DSM incentive mechanisms in other
17 jurisdictions is that they have been designed to overcome the general
18 disincentive for utilities to pursue DSM because DSM activities in those
19 jurisdictions are not treated on an equal footing with supply side activities, and
20 DSM in those jurisdictions will reduce the use of utility product and utility returns.
21 The financial treatment for DSM activity approved and adopted in BC for the FEU
22 and for the electric utilities effectively addresses the disincentive to DSM
23 expenditure found in other jurisdictions. This approved treatment is consistent
24 with the requirements of section 60(1)(b)(ii) of the UCA, whereas the
25 performance measures listed above are not. The FEU believe the current
26 approach in BC is appropriate and does not need to be changed." [pdf p.547-
27 548]

28 1.1 Please confirm, or otherwise explain, that FortisBC has not proposed a
29 performance based incentive mechanism for EEC as part of its current MRP
30 application.

31
32 **Response:**

33 Confirmed. FortisBC has not proposed a performance based incentive mechanism for DSM
34 (EEC) in the MRPs because the previously approved capitalized expenses mechanism
35 continues to work well, and because DSM is approved through separate proceedings where it
36 would be more appropriate to consider incentive mechanisms.



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1.2 Why has FortisBC not proposed a performance based incentive mechanism for EEC as part of its current MRP application?

Response:

Please refer to the response to BCSEA IR 1.1.1.

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1 **2.0 Topic: PBR and DSM**

2 **Reference: 2013 proceeding regarding the FortisBC Energy Inc. 2014-2018 PBR**
3 **Application, Exhibit B-12, FEU Response to BCSEA IR 1.33; Exhibit**
4 **B-7, FBC Response to BCUC-IR1 1.24.1**

5 During the 2013 FortisBC PBR proceeding, BCSEA-SCBC asked FortisBC to confirm
6 that DSM expenditures are not subject to the proposed Performance Base Ratemaking
7 structure. See Exhibit B-12, FBC-BCSEA-IR1-Response, IR 33. In response, FBC
8 stated:

9 “DSM program costs are not subject to the formula determination for O&M and
10 capital expenditures....”

11 All direct DSM program costs are recorded in the rate base deferral account and
12 are therefore not determined in accordance with the PBR formula. However the
13 DSM program is supported by corporate functions including Executive, Human
14 Resources, Finance and Accounting, and Regulatory Affairs for which the
15 associated labour time is included in Base O&M Expense and determined
16 according to the PBR formula.

17 In addition, DSM-related capital expenditures (IT capital) are included in Base
18 Capital and subject to the PBR formula.”

19 2.1 Please identify and discuss the ways in which FortisBC’s DSM expenditures are
20 affected, or not, by the proposed MRP framework. Include:

21 2.1.1 DSM program costs and the formula determination for O&M and capital
22 expenditures,
23
24

25 **Response:**

26 As is the case in the Current PBR Plans, FortisBC’s DSM program costs are not affected by the
27 proposed MRP framework. DSM program costs are approved through a separate process and
28 are recorded in a rate base deferral account. DSM program costs are not determined by the
29 index-based O&M mechanism. The DSM programs will continue to be supported by corporate
30 functions including Human Resources, Finance and Accounting, and Regulatory Affairs for
31 example, for which the associated labour costs are included in Base O&M, which is subject to
32 the indexing mechanism, and by corporate IT systems that are included in forecast capital.

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36 2.1.2 Corporate functions in support of the DSM portfolio,



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Response:

Please refer to the response to BCSEA IR 1.2.1.1.

2.1.3 DSM-related capital expenditures (IT capital), Base Capital and the MRP formula,

Response:

Please refer to the response to BCSEA IR 1.2.1.1.

2.1.4 DSM expenditures and Targeted Incentives.

Response:

Please refer to the response to BCSEA IR 1.2.1.1.

In the 2014-2018 PBR proceeding, FEI and FBC were asked why they chose a revenue cap rather than a price cap for their respective PBR plans for both O&M and capital. FBC said:

“...This [2014 PBR] proposal recognizes that a revenue cap provides symmetrical risk sharing related to volumes where FBC promotes DSM and other factors cause variations in sales.

Therefore in order for FBC to have an opportunity to earn its allowed return on and of its investments it is essential that the Company’s PBR plan is designed in a way that the risk of use rate decreases is mitigated. The revenue cap will provide a framework for incenting the utilities to seek additional productivity gains while protecting them from exogenous demand variation risks.” [Exhibit B-7, FBC-BCUC-IR1-Response, IR 1.24.1, pdf p.56.]



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1 2.2 Does this explanation apply to why FortisBC proposes a revenue formula rather
2 than a price cap in the current Application?

3

4 **Response:**

5 Yes. The mitigation of the demand variation risk is the main reason for not recommending a
6 price cap formula. FortisBC’s experience with the hybrid revenue cap approach is another
7 reason. As stated on page 21 of the BCUC’s 2014 FEI PBR decision (Order G-138-14), the
8 proposed formula approach to O&M and FEI’s Growth capital is consistent with the approach
9 taken in previous MRPs and, as such, has a “track record”.

10

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1 **3.0 Topic: MRP, Flow-throughs and DSM**

2 **Reference: Application, Exhibit B-1, Table A1-1: Summary of Proposed MRPs**

3 Regarding the element “Forecast O&M and Capital,” FortisBC states:

4 “Certain O&M and capital items do not fit well within formula because, for
5 example, they are tied to parts of the business that are changing in response to
6 government policy. These costs will be forecast each year in the annual review
7 and variances will be captured in the Flow-through deferral account.”

8 3.1 Please provide examples of O&M and capital items that will be captured in the
9 Flow-through deferral account and excluded from the formula because they are
10 tied to parts of the business that are changing in response to government policy.
11 Does this include DSM spending?

12
13 **Response:**

14 The preamble from the Application is not referencing DSM spending. DSM spending and its
15 accounting treatment are determined through a separate regulatory process. Please refer to the
16 response to BCSEA IR 1.2.1.1.

17 The preamble refers to initiatives such as Natural Gas for Transportation (NGT) and Renewable
18 Natural Gas (RNG) O&M and capital items from FEI’s Current PBR Plan, which are forecast
19 annually with variances captured in the Flow-through deferral account. FortisBC also expects
20 that investment in Electric Vehicles (EV) will fit in this category. The Application also notes that
21 the Companies may bring other initiatives forward should they arise over the term of the MRPs.
22 These initiatives will be discussed and determined through the Annual Reviews. Please also
23 refer to Section C4.4 of the Application for further detail on those items that are proposed to be
24 forecast annually.

25



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1 **B. Policy Context**

2 **4.0 Topic: Clean Growth Pathway to 2050**

3 **Reference: Appendices, Exhibit B-1-1, Appendix A5**

4 4.1 Does FortisBC anticipate being legally required to achieve GHG emissions
5 reductions under B.C.'s legislated GHG framework and the CleanBC policy?
6

7 **Response:**

8 It is reasonable to assume that certain legislative mandates will be necessary to achieve the
9 Province's climate objectives as described in CleanBC. However, the Province has not yet
10 announced a timeline nor a process for doing so.

11

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1 **C. “X Factor”**

2 **5.0 Topic: X Factor**

3 **Reference: Application Appendices, Exhibit B-1-1, Appendix C4-1, Makholm,**
4 **Jeff D. The rise and decline of the X factor in performance-based**
5 **electricity Regulation. 2018, pdf p.408; Appendix C4-2, Jurisdictional**
6 **Comparison, s.8.3.2 X-Factor Determination, Figure A:C4-2-1: Lowry**
7 **Study, Natural Gas Industry Productivity Growth Trend, p.26, pdf**
8 **p.443**

9 FortisBC cites the Makholm article in support of FortisBC’s proposals to eliminate the X
10 factor in the proposed 2020-2024 MRP framework and to adopt certain targeted
11 incentives aimed at environmental and customer-service objectives.

12 5.1 The Makholm article addresses the electricity area. Please comment on the
13 extent to which Dr. Makholm’s analysis and conclusions are applicable to the
14 natural gas area. Please address the Lowry study in this context.

15
16 **Response:**

17 For the discussions regarding the applicability of Dr. Makholm’s analysis in the above
18 mentioned paper to the natural gas distribution industry, please refer to the responses to BCUC
19 IRs 1.13.4, 1.13.5, 1.17.5 and 1.18.1.

20 Dr. Lowry’s studies for natural gas distributors provide similar results (although he may or may
21 not agree with Dr. Makholm’s conclusion outlined in the published paper). To the best of
22 FortisBC’s knowledge, the most recent natural gas related productivity growth study conducted
23 by Dr. Lowry in Canada relates to his work on behalf of the Ontario Energy Board in the Union
24 Gas and Enbridge Gas Distribution revenue requirement proceedings. As explained in Section
25 4.3.2 of Appendix C4-2 in the Application, Dr. Lowry’s Total Factor Productivity growth study for
26 the 1999 to 2016 period resulted in an average negative productivity of -0.23 percent (with
27 negative or zero productivity numbers in 12 out of 18 years studied). This is in line with Dr.
28 Makholm’s results of negative productivity growth values in recent 10 to 15 years. In other
29 research, Dr. Lowry has also reported on the alternative incentive frameworks adopted by
30 various North American jurisdictions such as New York (as explained in response to BCUC IR
31 1.18.1, although the initial examples in these jurisdictions were limited to electric utilities as
32 natural gas utilities are slowly catching up and filing new applications under similar incentive
33 frameworks).

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1 5.2 The Makhholm article emphasizes that the history of unstable total productivity
2 factor (TPF) results for US electricity distributors is a problem for determining a
3 satisfactory “X” in an RPI minus X regime for regulating electricity distribution
4 prices. In FortisBC’s view, does the Lowry study support a conclusion that a
5 similar problem exists in the natural gas distribution area?
6

7 **Response:**

8 Please refer to the response to the BCSEA IR 1.5.1.
9

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1 **6.0 Topic: RPI minus X**

2 **Reference: Application Appendices, Exhibit B-1-1, Appendix C4-1, Makholm,**
3 **Jeff D. The rise and decline of the X factor in performance-based**
4 **electricity Regulation. 2018, at p.40 pdf p.411**

5 In the context of unstable TPF results being a problem for RPI minus X, Dr. Makholm
6 discusses whether a jurisdiction with an RPI minus X framework should switch to a mix
7 of output measures (e.g., numbers of customers, line miles, peak usage, etc.) in addition
8 to kWh. He concludes that this would “probably not” work. He states:

9 “The obvious question prompted by Figs. 1 [unstable, declining and at times
10 negative TFP for US electricity distributors] and 2 [steady rapid increase in AMI
11 investments by US electric utilities (not associated with increased kWh)] is
12 whether the measurement of TFP growth—comparing the growth of physical
13 inputs compared to physical outputs—should switch away from traditional output
14 measures (such as kWh) to a mix of output measures (e.g., numbers of
15 customers, line miles, peak usage, etc.) in addition to kWh. Any jurisdiction using
16 the *X factor* for energy distributors in the future must take into account such a
17 trend—either by choosing a different measure of output or a different period.

18 What do we do with such an unstable *X factor* for electricity distributors? Can we
19 adjust for the changing nature of the electricity distribution business while still
20 computing a reliable *X factor* that promotes lengthened regulatory lag? Can
21 economists use econometric models to discern the source of non-output-
22 producing costs, or use novel measures of distributors’ output, to create a
23 reliable *X factor*? My own answer to these question is: probably not—at least not
24 with the spirit of U.S. Supreme Court Justice Louis Brandeis (the main architect
25 of the way we regulate) looking over our shoulders....” [underline added]

26 6.1 In considering what to do, going forward, with the X factor in the 2020-2024 MRP
27 framework, did FortisBC examine new approaches to estimating an X factor for
28 FEI and FBC specifically, as an alternative to dropping the X factor altogether? If
29 so, please describe the results and file any reports of the analysis. If not, why
30 not? Was the concept of a modified X factor rejected at the level of analysis
31 applied in the Makholm article?

32
33 **Response:**

34 Please refer to the responses to BCUC IRs 1.13.2 and 1.17.5.

35

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1 **D. Targeted Incentives**

2 **7.0 Topic: Conceptual Basis for Targeted Incentives**

3 **Reference: Application, Exhibit B-1, p.B-47, pdf p.96; Application, Exhibit B-1,**
4 **Table A1-1: Summary of Proposed MRPs**

5 In support of its proposed Targeted Incentives approach, FortisBC cites Dr. Makhholm as
6 follows:

7 “The public policy imperatives of green, customer-responsive, and load-leveled
8 power delivery require more than simply incentivizing competitive cost-reducing
9 behavior (that drives the theory supporting RPI minus X). Those new policy
10 imperatives reflect as a desire to change what modern electric utilities do. Two
11 types of incentive regulation are widely apparent for electricity distributors today:
12 (1) capitalizing expenses (or earning returns on expenses); and (2) earning
13 returns on targeted outcomes.” [pdf p.96, underline added]

14 In Table A1-1, FortisBC states:

15 “The Proposed MRPs include targeted incentives to align interests in achieving
16 climate objectives while also investing in the future of the business through
17 traditional and non-traditional load growth opportunities to the benefit of
18 ratepayers and the utilities. FortisBC is proposing an annual financial incentive in
19 the form of additional basis points added to the Companies’ allowed ROE, based
20 on the Companies’ level of success in attaining the overall composite scorecard
21 target.” [pdf p.23, underline added]

22 7.1 Can it be said that the conceptual basis for the X factor in RPI minus X is quite
23 different than the conceptual basis for the proposed Targeted Incentives? If the X
24 factor is intended to drive efficiencies by depriving the utility of revenue notionally
25 associated with inefficient spending (that would not occur in a hypothetical
26 competitive market), what is the theoretical basis for the appropriate size of the
27 Targeted Incentives?
28

29 **Response:**

30 In general terms, the conceptual basis for performance incentives in ratemaking is to provide
31 incentive to utilities to achieve certain objectives including increased efficiency, reduced costs
32 and enhanced performance. In the case of FortisBC’s proposed MRPs, traditional incentives
33 (including index-based O&M where the implied X factor is zero) are designed to achieve cost
34 efficiencies in O&M and capital spending. Whereas targeted incentives seek to enhance
35 performance in areas where success will benefit customers by advancing the adoption of
36 cleaner, lower emissions energy solutions and contributing to the realization of energy and



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1 emissions goals, increasing customer engagement and managing rate increases through
2 growth in system throughput.

3 Please refer to the response to BCUC IR 1.96.7 for a discussion of the basis for the appropriate
4 size of the targeted incentives. Please also refer to the response to BCUC IR 1.6.3 for an
5 explanation of the role of the X-factor.

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9 7.2 Does the use of the Companies' allowed ROE to determine the size (in basis
10 points) of targeted incentives earned by meeting the specified targets imply that
11 the targeted incentives share the risk/reward basis for determining the allowed
12 ROE?

13
14

Response:

15 No, please refer to the responses to BCUC IRs 1.96.1 and 1.96.2 for a discussion of why
16 FortisBC proposed an incentive reward in the form of a return on equity (ROE) adder and why
17 the proposed ROE adder and the allowed ROE are two separate concepts.

18
19

20
21 7.3 Is the Companies' revenue from earnings sharing mechanisms taken into
22 account in determining whether the Companies have received more, or less, than
23 their allowed ROE? Does FortisBC anticipate that revenue from targeted
24 incentives would be taken into account in determining whether the Companies
25 have received more, or less, than their allowed ROE?

26
27

Response:

28 FortisBC interprets the question as asking if the Companies consider the earnings sharing
29 mechanism and targeted incentives when they compare their achieved return on equity (ROE)
30 with allowed ROE.

31 The achieved ROE calculation, which is after sharing, will be increased by targeted incentives
32 that are achieved, and will be reduced by any earnings that are shared with customers, since
33 that amount represents what the shareholder receives. For clarity, the targeted incentives are
34 not subject to the earnings sharing mechanism, but will be included in the comparison of
35 allowed and achieved ROE (after sharing) once the amounts are known.



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7.4 Please explain further how the targeted incentives in the proposed MRPs align interests between the Companies and the ratepayers. Does alignment of interests refer to financial interests or interests in reducing GHG emissions (or both)? Is it FortisBC's view that customers have a responsibility to contribute financially to the utilities' GHG-reduction efforts?

Response:

The targeted incentives in the proposed MRPs align both the financial interests of the Companies and customers, and their interests in reducing greenhouse gas (GHG) emissions. The costs of reducing GHG emissions are recovered in rates and both FortisBC and customers are aligned in benefiting from these reductions.

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1 **8.0 Topic: Capitalized Expenses**

2 **Reference: Application Appendices, Exhibit B-1-1, Appendix C4-1, Makholm,**
3 **Jeff D. The rise and decline of the X factor in performance-based**
4 **electricity Regulation. 2018, at p.43 pdf p.414; Appendix C4-2,**
5 **Jurisdictional Comparison, s.6. Performance Incentive Frameworks**
6 **in U.S., p.34, pdf p.451**

7 Both the Makholm article and FortisBC’s Jurisdiction Comparison refer to “capitalized
8 expenses” as a type of incentive mechanism aimed at GHG emission reduction and non-
9 traditional utility solutions.

10 Dr. Makholm states:

11 “Two types of incentive regulation are widely apparent for electricity distributors
12 today: (1) capitalizing expenses (or earning returns on expenses); and (2)
13 earning returns on targeted outcomes.” [p.43 pdf p.414, cited by FortisBC at p.B-
14 47, pdf p.96 of the Application]

15 FortisBC’s Jurisdiction Comparison compares capitalization of expenditures for
16 operational expenditure-intensive initiatives aligned with government policy, such as
17 distributed energy resources and non-wire alternatives to traditional infrastructure
18 investment, to the capitalization of DSM expenditures for FEI and FBC. [pdf p.451]

19 The Jurisdiction Comparison describes Con Edison’s Brooklyn Queens Demand
20 Management (BQDM) project as example of a ‘non-wires alternative’ project designed to
21 defer significant capital investments in which the New York Public Service Commission
22 approved several unique financial incentives including the capitalization of all related
23 expenditures, a reduced amortization period, and a 100 bps premium over the
24 authorized return tied to achieving certain out-come based performance metrics. [p.39,
25 pdf p.456.]

26 8.1 In developing the 2020-2024 MRP, why did FortisBC choose ‘targeted incentives’
27 over ‘capitalized expenses’ as the proposed approach to foster achievement of
28 environmental and customer-service objectives?
29

30 **Response:**

31 FortisBC is not opposed to incentive mechanisms involving capitalized expenses and
32 considered these incentive mechanisms for the proposed MRPs. FortisBC’s DSM expenditures
33 are an example of such a mechanism. Besides DSM expenditures, these opportunities were
34 confined to specific circumstances. Accordingly, FortisBC selected its proposed suite of
35 targeted incentives to expand its focus on the challenges and opportunities in its external

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1 operating environment by addressing emerging and strategic areas appropriate and in the
2 public interest. As such, no specific analysis of capitalized expenses was undertaken.

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6 8.2 To what extent did FortisBC examine 'capitalized expenses' as an incentive
7 mechanism? Please provide the results.

8

9 **Response:**

10 Please refer to the response to BCSEA IR 1.8.1.

11

12

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14 8.3 In FortisBC's view, would an incentive mechanism involving 'capitalized
15 expenses' be a feasible alternative to the proposed Targeted Incentives?

16

17 **Response:**

18 Please refer to the response to BCSEA IR 1.8.1.

19

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1 **9.0 Topic: Targeted Incentives, Reward-Only**

2 **Reference: Application, Exhibit B-1, p.C-158, pdf p.293**

3 “Targeted incentives are proposed as reward-only incentives. This design feature
4 encourages FortisBC to expend effort towards achieving the targets within its O&M and
5 capital funding constraints. Otherwise, a penalty for failing to achieve a targeted
6 incentive could amount to a double penalty where the utility expends resources in pursuit
7 of the incentive, but does not achieve it. As stated by the Western Interstate Energy
8 Board, organizing targeted incentives as reward-only “encourages utilities to be more
9 innovative, and may result in more collaborative and less adversarial processes”.
10 [underline added, footnote omitted]

11 9.1 Is it part of the Targeted Incentives concept that FortisBC would endeavor to
12 meet the Targets without any spending beyond the O&M and capital funding
13 constraints established by the MRP?

14
15 **Response:**

16 Confirmed. although FortisBC notes that some O&M and capital is forecast annually and flowed
17 through to customers including its Investments in a Clean Growth Future. Please refer to the
18 response to BCUC IR 1.96.9 and Section C4.4.2 of the Application.

19
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21
22 9.2 To clarify, where the utility expends resources in pursuit of the incentive, but
23 does not achieve it, the expenditures are within the revenue requirement and
24 recovered by the utility through rates. Is that correct?

25
26 **Response:**

27 Not confirmed. Since variances in index-based O&M and forecasted capital flow through to the
28 earnings sharing mechanism and are shared equally with customers, a portion of the costs
29 incurred in pursuit of targeted incentives flows through to shareholders. For those items that are
30 forecast annually, the statement is correct.

31
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33
34 9.3 Please explain the mechanism would cause a double penalty. In addition to the
35 hypothetical penalty for failing to meet the target, what is the second penalty?



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1 [This question is aimed at understanding the argument, not necessarily
2 advocating for a positive-negative incentive approach.]

3
4 **Response:**

5 A double penalty for failing to achieve a target would occur where:

- 6 • There is a penalty for the shareholder for failing to achieve the target; and
- 7 • A portion of the costs incurred in pursuit of the target flows through the earnings sharing
8 mechanism to shareholders.

9

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1 **10.0 Topic: Targeted Incentives**

2 **Reference: Application, Exhibit B-1, Table C8-1: Targeted Incentives for the**
3 **Proposed MRP**

4 Table C8-1: Targeted Incentives for the Proposed MRP shows the Proposed Incentive in
5 equivalent basis points of ROE, for each proposed Target, and for FEI or FBC as
6 applicable.

7 Tables C8-2 to C8-9 show the Targets by year from 2020 to 2024 for FEI or FBC or
8 both.

9 10.1 Please add columns to Table C8-1 showing the estimated dollar value of 5 BPS
10 and 10 BPS for each of FEI and FBC.

11 **Response:**

12 Please refer to the response to BCUC IR 1.96.7. The dollar amounts, which depend on equity
13 thickness and actual rate base, are approximated below:

14

Item	Applicable to	Opportunity	Proposed Incentive (equivalent basis points)	Proposed Incentive (approximate \$ in millions)
Growth in Renewable Gas	FEI	Incentive to exceed forecast renewable gas volumes	10 BPS	\$1.730
Growth in Natural Gas Transportation	FEI	Incentive to exceed load growth forecast for transportation customers	10 BPS	\$1.730
GHG Emissions Reduction (Customer)	FEI	Incentive to exceed natural gas conversion activity targets	5 BPS	\$0.865
GHG Emissions Reduction (Internal)	FEI	Incentive to reduce internal GHG emissions below targeted levels	5 BPS	\$0.865
Customer Engagement	FEI	Incentive to increase the adoption of digital service channels	5 BPS	\$0.865
Customer Engagement	FBC	Incentive to increase the adoption of digital service channels	5 BPS	\$0.268
Growth in Electric Vehicle Transportation	FBC	Incentive to support the deployment of EV Charging infrastructure (subject to EV Inquiry)	5 BPS	\$0.268

15



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Item	Applicable to	Opportunity	Proposed Incentive (equivalent basis points)	Proposed Incentive (approximate \$ in millions)
Power Supply Incentive	FBC	Incentive to optimize power purchases	PSI calculated separately	PSI calculated separately

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10.2 For each of Tables C8-2 to C8-9 please add rows or columns showing the approximate dollar value (to the utility) of achieving the Target for each year and the total.

Response:

FortisBC has not prepared a projection of rate base for FEI or FBC; however, to be responsive to the question, the following assumptions have been made:

- An initial rate base of \$4,497 million for FEI and \$1,342 million for FBC;
- Annual rate base growth of 2 percent; and
- Equity thickness of 38.5 percent for FEI and 40 percent for FBC.

Under these assumptions, the dollar value, in millions, of achieving each target in Tables C8-2 to C8-9 is illustrated in the table below. Please note that the incentive amount grows at the same rate as rate base, all else being equal.

Item	Applicable to	2020	2021	2022	2023	2024	2020-2024 Total
Growth in RNG	FEI	\$1.730	\$1.765	\$1.800	\$1.836	\$1.873	\$9.004
Growth in NGT	FEI	\$1.730	\$1.765	\$1.800	\$1.836	\$1.873	\$9.004
GHG Emissions Reduction (Customer)	FEI	\$0.865	\$0.882	\$0.900	\$0.918	\$0.936	\$4.501
GHG Emissions Reduction (Internal)	FEI	\$0.865	\$0.882	\$0.900	\$0.918	\$0.936	\$4.501
Customer Engagement	FEI	\$0.865	\$0.882	\$0.900	\$0.918	\$0.936	\$4.501
FEI Total	FEI	\$6.055	\$6.176	\$6.300	\$6.426	\$6.554	\$31.511
Customer Engagement	FBC	\$0.268	\$0.274	\$0.279	\$0.285	\$0.291	\$1.397
Growth in EV Transportation	FBC	\$0.268	\$0.274	\$0.279	\$0.285	\$0.291	\$1.397
FBC Total	FBC	\$0.536	\$0.548	\$0.558	\$0.570	\$0.582	\$2.794



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10.3 For clarity, please explain how the Accounting Treatment Of Incentives (section 8.4) would work for years 2023 and 2024.

Response:

The incentives (with the exception of the PSI) are calculated and included in rates two years after the targets are made. Therefore, the 2023 and 2024 incentives, should they be earned, will be included in rates in 2025 and 2026, respectively.

First, the incentive will not be calculated until it is known whether the target was met. The Companies want to be certain that the targets are met before any incentives are calculated. The measure of whether 2023 targets were met will not be known until the 2023 actuals are compiled, which typically takes place between January and March in the subsequent year (2024 in this case). Since at the time that 2023 actual results are known, rates for 2024 would have already been set, the next chance to include the 2023 earned incentive in rates would be in the application for 2025 rates. The same procedure would take place for 2024 incentives earned.

The PSI is proposed to be recorded as part of FBC’s Power Supply variances, as described in Section 4.3 of the Application.

10.4 Please explain how FortisBC determined that 5 BPS or 10 BPS is a suitable size of annual incentive.

Response:

Please refer to the response to BCUC IR 1.96.7.

10.5 Please explain how FortisBC determined that certain Targets (i.e., RG and NGT) would have an incentive of 10 BPS whereas other Targets (i.e., GHG-customer, GHG-internal, Customer Engagement and PSI) would have an incentive of 5 BPS.



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1

2 **Response:**

3 Please refer to the response to BCUC IR 1.96.7.

4

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- 1 **11.0 Topic: Targeted Incentives, Growth in Renewable Gas**
2 **Reference: Application, Exhibit B-1, s.8.3.1, Growth in Renewable Gas (FEI)**

Table C8-2: Annual Renewable Gas Volume Target (PJs)

	2020	2021	2022	2023	2024	MRP Target
RG Target	1.0	1.5	2.0	4.0	6.0	14.5

- 3
4 “FEI will need to sharpen its focus on fully developing innovative RG technology,
5 securing RG supply, and increasing the amount of feedstock available to manufacture
6 RG.” [p.C-160, pdf p.295]

- 7 11.1 Are the Annual Renewable Gas Volume Targets realistically achievable?
8

9 **Response:**

10 Please refer to the response to BCUC IR 1.97.3.
11
12

- 13
14 11.2 Please confirm, or otherwise explain, that the MRP Target of 14.5 PJ is a
15 cumulative total rather than an annual figure.
16

17 **Response:**

18 Confirmed. In this instance, the MRP target of 14.5 PJs represents the sum of the 2020-2024
19 annual targets.
20
21

- 22
23 11.3 Is FortisBC’s ramp-up of Renewable Gas limited by competition for fibre supply
24 with BC Hydro and the sellers of biomass generation to BC Hydro?
25

26 **Response:**

27 No. FEI’s Renewable Natural Gas (RNG) supply opportunities are based primarily on organic-
28 derived RNG, which does include a portion of approximately 50 percent from RNG generated
29 outside of BC. FEI understands that there are some concerns in the industry that electricity
30 generation from wood fibre may not be economical in the future as BC Hydro shifts toward using



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1 its growing hydroelectric generation supply – namely, Site C. This would imply that a significant
2 amount of fibre could be used for RNG generation.

3
4

5

6 11.4 Please explain the statement that “it is expected that RG produced in advance of
7 the implementation of the federal Clean Fuel Standard will offset against
8 mandatory emission reductions and potentially avoid higher cost compliance
9 pathways.”

10

11 **Response:**

12 The Clean Fuel Standard (CFS) will require that regulated entities reduce the carbon intensity of
13 fuels they deliver to consumers. While the draft regulations have not yet been published, we
14 anticipate that the amount of emissions reductions targeted in the gaseous stream of the CFS
15 will be between 5 and 7 Mt across Canada. This translates to roughly a 2 to 3 percent reduction
16 in the carbon intensity (CI) of natural gas delivered by local distribution companies. In order to
17 reduce the carbon intensity, renewable gases will likely play an important role. In discussions
18 with Environment and Climate Change Canada (ECCC), FEI understands that all renewable gas
19 production will be considered as eligible to reduce the carbon intensity of gas regardless of the
20 year it was introduced. After the CFS is implemented, FEI anticipates that there will be a more
21 competitive marketplace and therefore higher costs for renewable gases. Acquiring renewable
22 gas before the CFS is implemented should therefore avoid higher cost options to be compliant
23 with the CFS.

24

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- 1 **12.0 Topic: Targeted Incentives, Natural Gas for Transportation**
2 **Reference: Application, Exhibit B-1, s.8.3.2, Growth in Natural Gas for**
3 **Transportation (FEI)**

Table C8-3: Annual Natural Gas for Transportation Consumption Targets (PJ's)

	2020	2021	2022	2023	2024	MRP Target
NGT Target	3.0	4.0	5.0	6.0	7.0	25.0

- 4
5 “NGT customers benefit directly from reduced emissions, operating costs, and carbon
6 taxes and all ratepayers benefit from additional carbon credits sales for LNG used for
7 transportation. Over the period between 2015 and 2018, sales of carbon credits
8 generated \$9.75 million in benefit for all ratepayers.” [p.C-161, pdf p.296]

- 9 12.1 Are the Annual Natural Gas for Transportation Consumption Targets realistically
10 achievable?

11
12 **Response:**

13 The NGT targets will be a stretch to achieve during the MRP term due to a number of factors.
14 In many cases, growing NGT volumes involves convincing customers to switch from diesel, an
15 energy source they have experience with, to natural gas as their transportation fuel for their
16 fleets. This requires the customer to gain enough confidence to move from the petroleum fuel
17 that they have always used, in some cases for decades, to a different, gaseous fuel.
18 Accordingly, change management requirements for an NGT customer to make the switch are
19 significant, and the sales cycles are long.

20 Additionally, oil prices continue to be lower than historical cost curves. This reduces the savings
21 associated with switching to NGT, making the business case more challenging. At the same
22 time, there is increased competition from battery-electric technology in the transportation and
23 freight sector as commercially available battery-electric medium and heavy-duty vehicles are
24 expected to hit the market before 2024.

25 Finally, the Greenhouse Gas Reduction (Clean Energy) Regulation, which enables customer
26 vehicle capital incentives, education and training, codes and standards development, and
27 maintenance facility upgrades, etc., is set to expire in 2022 and its future is unknown.

28 Given all of these factors, increasing volumes of NGT and achieving these targets will be
29 challenging.

30 Please also refer to the responses to BCUC IRs 1.98.1 and 1.98.2 for discussion about how the
31 NGT targets were set and the projected demand.



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1
2 12.2 Does FortisBC expect the revenue from the sales of carbon credits for LNG used
3 transportation to continue to be available through the 2020-2024 period?

4
5 **Response:**

6 FortisBC cannot predict whether or not the sales of carbon credits for LNG used for
7 transportation will continue to be available for the benefit of ratepayers over the 2020 – 2024
8 period. The Government of Canada is currently developing Canada’s Clean Fuel Standard, and
9 the parameters for that program are unknown and may differ from the parameters defined by
10 British Columbia’s Low Carbon and Renewable Fuel Requirement Regulation, which is the
11 provincial regulation that currently support the sales of carbon credits referenced above.

12

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1 **13.0 Topic: Targeted Incentives, GHG Emissions Reductions -- Customer**
 2 **Reference: Application, Exhibit B-1, s.8.3.3, GHG Emissions Reductions –**
 3 **Customer (FEI), p.C-162, pdf p.297**

Table C8-5: Natural Gas Conversion Target

	2020	2021	2022	2023	2024	MRP Target
Conversion Target	2,700	2,700	2,700	2,700	2,700	13,500

4
 5 “The target for the annual number of natural gas conversions is 2,700 per year which
 6 reflects an increase over the five-year average. The five-year average includes record
 7 levels of gross customer additions and conversion activity, which is expected to ease in
 8 2019 and through the Proposed MRP period making the achievement of 2,700
 9 conversions increasingly difficult.”

10 13.1 Is the Annual Natural Gas Conversion Target of 2,700/year realistically
 11 achievable?

12
 13 **Response:**

14 The annual natural gas conversion target of 2,700 customers will be a stretch to achieve during
 15 the MRP term. The operating environment for FEI continues to become more complex with
 16 multiple factors making the adoption of natural gas increasingly challenging.

17 For example, competing programs in the market will have an impact on customer conversions
 18 through the MRP term. Recently the province launched its EfficiencyBC program which includes
 19 incentives also targeting the conversion market. The program includes incentives for residents
 20 to convert their home heating appliance to an air source heat pump. Further, the provincial
 21 incentive program is being topped up by a number of municipalities to generate greater interest
 22 and deliver a more lucrative program offering for homeowners.

23 FEI’s challenging operating environment is discussed in more detail in response to BCUC IR
 24 1.1.1 and 1.13.11.1.

25

1 **14.0 Topic: Targeted Incentives, GHG Annual Emissions Intensity Reduction**
2 **Target**

3 **Reference: Application, Exhibit B-1, p. C-150; section 8.3.4, GHG Emissions**
4 **Reductions – Internal (FEI), p.C-162**

5 FortisBC’s proposed GHG Annual Emissions Intensity Reduction Target for FEI’s
6 internal GHG emissions is based on GHG Emissions Intensity for 2013 to 2017 shown in
7 Table C8-6 below.

Table C8-6: GHG Emissions Intensity (2013 to 2017)¹³³

Year	GHG Emissions from Operations (tCO ₂ e*)	Actual Energy Demand (PJ) ¹³⁴	Emissions Intensity (tCO ₂ e/PJ)
2013	141,947	200	711
2014	140,507	195	721
2015	120,997	186	651
2016	126,613	197	643
2017	142,534	221	645

* tonnes of CO₂e

8
9 14.1 Please confirm, or otherwise explain, that Table C8-6 shows four annual declines
10 in GHG Emissions Intensity of an average of about 16.5 tCO₂e/PJ.
11

12 **Response:**

13 As shown in the table in the preamble, FEI achieved reductions in GHG Emissions Intensity in
14 the 2015 and 2016 calendar years. Overall, the GHG Emissions Intensity was reduced on
15 average by 16.5 tCO₂e/PJ over the period of 2013 through 2017.

16 The most significant factor in the decrease in Emissions Intensity as observed in Table C8-6 is
17 attributed to improvements in the quantitation of GHG emissions from FEI assets. This includes
18 leak detection surveys, emission factor development for residential, commercial and industrial
19 meter sets, and system improvements on the quantitation of leaks from distribution pipelines.
20 Non-quantitation improvements such as asset maintenance and upgrades, reduction in third
21 party line hits due to public safety programs (including Call Before You Dig and BC One Call),
22 and FEI’s Conservation and Energy Management program, all contribute to the year over year
23 variations in Emissions Intensity.

24 The improvements in the quantitation of emissions have been applied and no further
25 incremental reduction in Emissions Intensity is anticipated related to quantitation. Please also
26 refer to BCSEA IR 1.14.10 for further discussion about the determination of the proposed
27 Emissions Intensity targets.

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14.2 To what factors does FortisBC attribute the decline in annual GHG Emissions Intensity between 2013 and 2017? Please differentiate the factors that are within FEI’s control and those that are not.

Response:

Please refer to the response to BCSEA IR 1.14.1.

14.3 For each of the factors contributing to the decline in annual GHG Emissions Intensity between 2013 and 2017 please discuss whether and to what extent the factor will contribute to a decline in annual GHG Emissions Intensity during the 2020 to 2024 period. Please identify the factors that FortisBC anticipates will tend to be particularly affected by FortisBC’s response to the proposed GHG Emissions Intensity Target.

Response:

Please refer to the response to BCSEA IR 1.14.1.

“FEI proposes to reduce GHG emissions intensity by 10 tCO₂e/PJ per year over the Proposed MRP term starting from the 2017-2019 average... Emissions Intensity Reduction Target is calculated as the 2017-2019 average less the applicable cumulative annual reduction.” [p.C-163]

Table C8-7: Annual Emissions Intensity Reduction Target (tCO₂e/PJ)

	2020	2021	2022	2023	2024	MRP Target
Emissions Intensity Reduction Target ¹⁶⁵	10	20	30	40	50	>30 avg.

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1 “Achieving an emissions intensity below the annual targets would justify a “successful”
2 rating for this component of the scorecard. Achievement of the MRP Target will add any
3 missed annual targets to the 2024 incentive calculation.”

4 14.4 Are the Annual Emissions Intensity Reduction Targets realistically achievable?
5

6 **Response:**

7 The annual Emissions Intensity Reduction Targets are challenging, but realistic in their
8 achievability. Meeting these targets will require a balanced approach, taking into account
9 capital expenditures and system upgrades for end of life equipment. While FEI’s emissions
10 have decreased by 15 percent between 2009 and 2017, a portion of this amount was due to
11 improvements in quantitation. The remainder stemmed from emissions reductions that, in
12 general, targeted the easiest emissions reduction opportunities. FEI is proposing a reduction of
13 approximately 8 percent over the MRP period which, when considering the absence of
14 quantitation impacts and the fact that fewer emissions reduction opportunities exist, represents
15 a stretch target that will be challenging to achieve. Please refer to the response to BCSEA
16 1.14.10 for further detail on how the targets were set.

17
18

19

20 14.5 What information or expectations does FortisBC have about the Annual GHG
21 Emissions Intensity for 2018 and 2019? Does FortisBC expect the figures to be
22 higher, or lower, than for 2017?
23

24 **Response:**

25 Annual GHG Emissions intensity for 2018 and 2019 is not available at this time. As such, it is
26 not possible to estimate the 2017-2019 average. Because FEI’s 2018 Emissions Intensity
27 requires external GHG emissions reporting and verification it will not be available until July
28 2019, and the 2019 Emissions Intensity will be available in July of 2020. It is unclear at this time
29 how these values will trend relative to the 2017 Emissions Intensity.

30
31

32

33 14.6 What is FortisBC’s rationale for selecting the 2017-2019 average as the
34 baseline? Why not the average of 2018 and 2019? Why not the 2019 figure?
35

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1 **Response:**

2 A three-year average was selected in order to even out variations that may result from
 3 unseasonable weather or demand-related conditions. Further, FortisBC proposed reductions
 4 targets which are relative to the 2017-2019 average to ensure a prescribed reduction is
 5 achieved from this starting benchmark.

6
7

8
9 14.7 Please explain the following sentence: “Emissions Intensity Reduction Target is
 10 calculated as the 2017-2019 average less the applicable cumulative annual
 11 reduction.” [underline added] Does this mean that the Target for a given year is
 12 the 2017-2019 average intensity minus the specified reduction for that year only,
 13 or minus the cumulative total target reductions up to and including that year?

14
15 **Response:**

16 For greater clarity, please refer to the example below where it is assumed that the actual 2017-
 17 2019 average referenced in the preamble is 600 tCO₂e/PJ. The cumulative annual reduction in
 18 Table C8-7 is subtracted from the 2017-2019 average in each case to form the annual
 19 emissions intensity target as well as the MRP Target.

	2020	2021	2022	2023	2024	MRP Target
Emissions Intensity Target	600 – 10 = 590	600 – 20 = 580	600 – 30 = 570	600 – 40 = 560	600 – 50 = 550	600 – 30 = 570 avg.

20
21

22
23 14.7.1 For example, is the Target GHG Emissions Intensity for 2024 the 2017-
 24 2019 average intensity figure minus 50 tCO₂e/PJ, or minus 150
 25 tCO₂e/PJ?

26
27 **Response:**

28 Please refer to the response to BCSEA IR 1.14.7.

29
30
31

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1 14.8 If each Annual GHG Intensity Reduction Target was met in the years 2020 to
 2 2024, by what percentage would the baseline Annual GHG Intensity be reduced?
 3

4 **Response:**

5 Please refer to the response to BCSEA IR 1.14.7. Using that hypothetical example:

- 6 • the average GHG reduction over the MRP term would equate to 30 tCO₂e/PJ or 5
 7 percent; and
- 8 • the reduction in the baseline annual GHG intensity would be 50 tCO₂e/PJ or 8.3 percent.
 9

10

11

12 14.9 Please explain the “greater than” and “average” terms in the “MRP Target.”
 13

14 **Response:**

15 Please refer to the hypothetical example below where the 2017–2019 average has been
 16 assumed to be 600 tCO₂e/PJ. To achieve the MRP target, FEI must reduce the emissions
 17 intensity by greater than 30 tCO₂e/PJ over the MRP period as calculated by a simple average of
 18 2020 – 2024 results.

19 As illustrated in the hypothetical example below, FEI achieved an average emissions intensity of
 20 564 tCO₂e/PJ over the MRP period which represents a reduction greater than the MRP target of
 21 570 tCO₂e/PJ (i.e., a reduction of 36 tCO₂e/PJ versus a target of 30 tCO₂e/PJ).

	2020	2021	2022	2023	2024	MRP Target
Emissions Intensity Target	590	580	570	560	550	570 avg.
Actual Results	580	570	565	565	540	564 avg.
Achieved?	Yes	Yes	Yes	No	Yes	Yes

22

23

24

25 14.10 How did FEI arrive at 10 tCo2e/PJ as the target for incremental Annual GHG
 26 Emissions Intensity Reduction for 2020 to 2024? Please address both the
 27 methodology and the numbers. Is the target derived from a ‘bottom up’
 28 assessment of measures FEI could take to reduce its annual GHG emissions? Is
 29 it based on the average annual GHG intensity reductions for 2013-2017?
 30

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1 **Response:**

2 At a high level, the annual emissions intensity reduction target is based on emissions intensity
3 reduction observed from 2013 to 2017 and considered that, generally speaking, the easiest
4 reductions are implemented first making further reductions increasingly challenging. Emissions
5 were reduced by 16.5 tCO₂e/PJ over the period of 2013 through 2017. As discussed in the
6 response to BCSEA 1.14.1, a portion of these reductions were attributable to quantitation
7 improvements. These improvements are complete and are not expected to further impact
8 emissions reductions.

9 Accordingly, FortisBC considered the following factors in determining the target:

- 10 • FEI's experience, including a 15 percent reduction in emissions between 2009 and 2017;
- 11 • FEI reduced the emissions Intensity by approximately 16.5 tCO₂e/PJ per year between
12 2013 through 2017, which includes the impact of quantitation improvements. Please
13 refer to the response to BCSEA 1.14.1;
- 14 • The remaining non-quantitation reductions were mainly accomplished by addressing the
15 easiest emissions reduction opportunities first (i.e., high reduction per unit cost). Please
16 refer to the response to BCSEA 1.14.1; and
- 17 • Policy direction and legislative requirements regarding GHG emissions.

18

19 The target represents a reduction of approximately 8 percent over the MRP period. FEI
20 considers this a stretch target that will be challenging and require focus to achieve.

21 The rationale for the size of the incentive is discussed in detail in the response to BCUC IR
22 1.96.7.

23
24

25

26 14.11 How do the proposed Annual GHG Intensity Reduction Targets for 2020-2024
27 relate to FEI's role in contributing toward meeting BC's legislated GHG reduction
28 objectives?

29

30 **Response:**

31 The proposed annual emissions intensity reduction target is based on FEI's reportable sources
32 of emissions from FEI's operations, divided by natural gas demand from customers. FEI's
33 targeted reductions will contribute to meeting BC's legislated GHG emission objectives (i.e., 40
34 percent below 2007 levels by 2030, 60 percent by 2040, and 80 percent by 2050).

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1
2

3 14.12 Please describe the approach FortisBC took to determining the stringency of the
4 targets. Presumably, neither ‘business as usual’ nor ‘impossible’ were the
5 reference points. What language does FortisBC use to describe the desired
6 degree of stringency? Does this involve consideration of the size of the monetary
7 incentive?

8
9 **Response:**

10 Please refer to the response to BCSEA IR 1.14.10.

11
12

13
14 14.13 How do FEI’s operations GHG emissions intensity results compare to those of
15 other natural gas distribution utilities? If the data is available, please provide a
16 comparison of FEI’s GHG intensity figures with figures for other natural gas
17 distribution utilities.

18
19 **Response:**

20 In the Application, please refer to Appendix C2-1 FEI Benchmarking Study conducted by
21 Concentric (pp. 34-35) for information and discussion about the GHG emissions metrics
22 included as part of the Benchmarking Study. Included are two metrics, GHG Emissions per
23 Customer and GHG Emissions per TJ, comparing natural gas distribution utilities’ performance,
24 including FEI.

25 The comparison of total GHG emissions for various organizations at a company aggregate level
26 has limited benefit as factors that are independent of organizational performance are not
27 accounted for. This includes items such as asset type, population density, geography, and
28 demand (for the per customer metric), all of which have a significant impact. For example,
29 comparison of the GHG emissions of FEI to the equivalent Alberta gas distribution system is
30 flawed given the proximity of the Alberta system to gas processing plants as well as the unique
31 geography associated with parts of the FEI system such as Vancouver Island.

32 According to the results of FEI’s Benchmarking Study, FEI outperformed the Canadian peer
33 group median from a GHG emissions per customer basis for the period of 2012 through
34 2016. From a throughput perspective, FEI GHG’s emission per unit of energy delivered was
35 higher than the median for the same Canadian peer group.

36

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1 **15.0 Topic: Targeted Incentives, Digital Channel Use**
 2 **Reference: Application, Exhibit B-1, s.8.3.5, Customer Engagement (FEI/FBC),**
 3 **p.C-163, pdf p.298**

Table C8-9: Digital Channel Use Target

	2020	2021	2022	2023	2024	MRP Total
FEI	40%	44%	48%	52%	56%	>48% avg.
FBC	27%	28%	29%	30%	31%	>29% avg.

4
 5 FortisBC says that customer expectations are changing, including an increased
 6 expectation for digital communication channels, defined as email, mobile app and on-line
 7 account services.

8 15.1 Are the Annual Digital Channel Use Targets realistically achievable?
 9

10 **Response:**

11 The annual digital channel use targets will be challenging to meet; however, they are
 12 realistically achievable. Meeting these targets each year will require innovative approaches to
 13 the promotion of these channels, consideration of improvements necessary to enhance their
 14 ease of use and a seamless integration of all channels such that customers have the ability to
 15 choose the most effective and convenient channel for their needs.

16
 17

18
 19 15.2 What evidence does FortisBC have that customer demand for the availability of
 20 digital communication channels exceeds the existing and future business as
 21 usual availability of digital communication channels?
 22

23 **Response:**

24 FortisBC believes that the trend towards the growing demand for digital communication
 25 channels will continue.

26 FortisBC conducts market research on a regular basis to gain insight into the changing
 27 preferences of customers as well as trends in customer behavior and industry best practices
 28 and approaches. Research from 2018 indicates that customers in younger age groups (less
 29 than 35) have a stronger preference for digital channel use as compared to customers in other



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1 age groups.¹ Over time, as this group of customers become a larger component of the
2 customer base, FortisBC expects that the preference and expectations for digital channels will
3 also increase overall, which should result in an increase in the use of digital channels relative to
4 other channels.

5 Aside from this trend, there is also an opportunity to enhance the experience of customers that
6 have not adopted or are less comfortable with digital channel use. Efforts to continue to
7 enhance digital offerings to meet the needs of this group of customers will also drive demand for
8 the type and availability of digital communication channels that will exceed the current
9 expectations of business as usual.

10 Please also refer to the response to BCUC IR 1.3.1 for further discussion of customer
11 expectations related to digital communication.

12
13

14

15 15.3 Table C8-8 indicates that in 2018, for example, 36% of FEI customer interactions
16 were digital and 26% of FBC customer interactions were digital. What evidence
17 does FortisBC have that customers in 2018 were dissatisfied that 64% of FEI
18 customer interactions and 74% of FBC customer interactions were not through
19 digital channels?

20

21 **Response:**

22 Table C8-8 reflects the percentage of digital channel interactions as compared to total customer
23 interactions and does not provide information on satisfaction associated with the channel used.
24 While increased adoption provides some insight into customer satisfaction, FortisBC has not
25 directly measured satisfaction with these specific channels. However, as provided in
26 Appendices C5-1 and C5-2, the Customer Satisfaction Index (CSI) results experienced
27 throughout the Current PBR Plan term indicate that the large majority of customers were highly
28 satisfied with the service provided by the Companies, which would include experiences in all
29 channels.

30 As discussed in the response to BCUC IR 1.3.1, metrics, market research, customer
31 engagement activities and general industry research indicate that customer expectations have
32 been evolving and will continue to change. The Companies are pursuing increased adoption of
33 digital channels to enhance the customer experience, increase customer engagement and meet
34 the changing expectations of our customers. Further, and generally speaking, the Companies
35 prefer a proactive approach to supporting customer expectations. Rather than wait for a

¹ Sentis Research “Customer Contact Channel Preferences Study”.



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- 1 situation where customers are dissatisfied with the options available, the Companies aim to
- 2 have the solutions available that fit the needs of our customers when they reach out to us.

3

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1 **16.0 Topic: Targeted Incentives, Electric Vehicle Charging Infrastructure**

2 **Reference: Application, Exhibit B-1, s.8.3.6, Growth in Electric Vehicle**
3 **Transportation (FBC), p.C-164, pdf p.299**

4 FortisBC provides no proposed Targets for EV Charging Infrastructure Deployment. It
5 explains:

6 “Since FBC’s role in supporting EV charging infrastructure in the province is
7 among the issues that will be determined in the EV Charging Inquiry, FBC
8 proposes to determine the appropriate targets following the conclusion of the
9 Inquiry. Appropriate targets could range from direct investment by FBC to
10 supporting third party investment in charging infrastructure.”

11 16.1 Does FortisBC anticipate bringing a proposal for Incentive Targets for EV
12 Charging Infrastructure Deployment to the 2019 Annual Review for 2020 Rates?

13
14 **Response:**

15 Provided that the EV Charging Inquiry is concluded in sufficient time, which will provide clarity
16 on FBC’s role in supporting EV charging infrastructure, FBC anticipates bringing a proposal
17 forward as an evidentiary update.

18

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1 **17.0 Topic: FBC Power Supply Incentive**

2 **Reference: Application, Exhibit B-1, s.8.3.7, Power Supply Incentive (FBC)**

3 FortisBC proposes the Power Supply Incentive in order to motivate FBC to utilize
4 “opportunities to reduce power purchase expense (PPE) by accessing the wholesale
5 electricity markets and displacing its higher cost contractual power purchases with
6 cheaper market purchases, and selling surplus capacity through active portfolio
7 optimization.” [p.C-165, pdf p.300]

8 17.1 Has FBC done an analysis of the implications of the Power Supply Incentive for
9 the carbon intensity of FBC’s power supply? If so, please provide the results. If
10 not, why not?
11

12 **Response:**

13 No, FBC has not done an analysis of the implications of the Power Supply Incentive for carbon
14 intensity. FBC’s carbon intensity of power supply remains relatively low and market purchases
15 from the US are typically clean resources. In the US Pacific Northwest, hydro represented 61
16 percent of actual generation between October 2017 and September 2018, with other
17 renewables accounting for 11 percent. Natural gas, coal and nuclear represented 15 percent, 9
18 percent and 4 percent respectively.²

19
20

21

22 17.2 What is the estimated carbon intensity of power from FBC’s own supply
23 resources? What is the estimated carbon intensity of power from the wholesale
24 market, (a) on average and (b) at the times when incremental purchases are
25 expected due to the PSI?
26

27 **Response:**

28 FBC’s average carbon intensity across the supply side portfolio, including market activity, was
29 approximately 0.02 tonnes of CO₂e per MWh in 2018. FBC’s total carbon intensity is a mix of
30 FBC owned and contracted resources, BC Hydro PPA, and Market.

31 FBC owned generation, long term contracted resources (e.g., Brilliant Power Purchase
32 Agreement), purchases from the Brilliant Expansion and Independent Power Producer
33 generation are considered 100 percent clean/renewable, and therefore have a carbon intensity

² Energy Information Administration (EIA). Electricity Data Browser URL: <http://www.eia.gov/electricity/>.

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1 of zero (0) tonnes of CO₂e per MWh. FBC considers BC Hydro PPA energy as 98 percent
2 clean/renewable³. Please refer to BC Hydro's GHG reporting for related carbon intensities⁴.

3 FBC's carbon intensity of power from the wholesale market in 2018 was calculated and audited
4 to be 0.19 tonnes of CO₂e per MWh on average. Under the Capacity and Energy Purchase
5 and Sale Agreement between FBC and Powerex, FBC must purchase all wholesale market
6 energy exclusively from Powerex. Powerex does not warrant that market energy is generated
7 from any particular source or kind of generation or has any particular emissions factor attributed
8 to it. Powerex is required to deliver a market mix that is not substantially different to what
9 Powerex delivers to BC Hydro⁵.

10 Given the nature of PSI activity⁶, it is not possible to determine the carbon intensity specific to
11 any potential incremental purchases. Therefore, FBC assumes the carbon intensity from
12 incremental market purchases due to the PSI will be consistent with market historic averages
13 and market purchases delivered by Powerex to BC Hydro.

14

³ BC Hydro 2017 Carbon Neutral Action Report. May 2018
https://www.bchydro.com/toolbar/about/sustainability/climate_action/greenhouse_gases.html.

⁴ BC Hydro. Greenhouse Gases
https://www.bchydro.com/toolbar/about/sustainability/climate_action/greenhouse_gases.html.

⁵ Capacity and Energy Purchase and Sale Agreement dated February 17, 2015. Section 6.4.

⁶ FEI-FBC 2020-2024 MRP. Response to BCUC IR 1.102.1.1

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1 **E. Annual Sustainability Report**

2 **18.0 Topic: Annual Sustainability Report, Context and Role**

3 **Reference: Application, Exhibit B-1, p.C-150, pdf p.285**

4 In the context of explaining its proposal to discontinue providing informational reporting
5 of annual total GHG emissions as part of the Annual Review process, FortisBC says it
6 has “recently published a new Sustainability Report which will be published annually,
7 and includes GHG emissions information.” [pdf p.285, underline added]

8 In a footnote, FortisBC says “For a copy of 2017 FortisBC Sustainability report, refer to
9 <https://www.fortisbc.com/about-us/sustainability>.”

10 18.1 Please explain why FortisBC did not file the 2017 Sustainability Report with the
11 Application.
12

13 **Response:**

14 As indicated in the Application on page C-150, as an alternative to including the 2017
15 Sustainability Report as part of the Application, FortisBC provided a link to its website,
16 www.fortisbc.com where interveners and the public can obtain a copy of the 2017 Sustainability
17 Report. FEI has provided a copy of the 2017 Sustainability Report in Attachment 18.1.
18
19

20
21

22

21 18.2 The 2017 Sustainability Report has no publication date. However, the document
22 properties indicate that it was finalized in November 2018. Please outline the
23 document preparation and publication cycle for the 2018 Sustainability Report
24 and for future Sustainability Reports.
25

26

26 **Response:**

27 FortisBC will publish its Corporate Sustainability Report in July each year following external
28 GHG emissions reporting and verification.
29
30

31

32

33

32 18.3 Would it be possible to have the Sustainability Report for the previous calendar
33 year, say 2018, available for the Annual Review in the current year, say 2019?
34



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1 **Response:**

2 FortisBC's Corporate Sustainability Report will be published annually in July. Assuming the
3 Annual Review remains in the months of July and August under the new multi-year rate plan,
4 the report will be available by the time FortisBC files its Annual Review materials.

5
6

7

8 18.4 Please file the 2017 FortisBC Sustainability Report.

9

10 **Response:**

11 Please refer to the response to BCSEA IR 1.18.1.

12
13

14

15 18.5 Please file the 2018 FortisBC Sustainability Report if it is available. If it is not
16 available, please indicate when it will be publicly available, and please file it with
17 an evidentiary update if one occurs.

18

19 **Response:**

20 The 2018 Corporate Sustainability Report will be publicly available late July 2019. It will be filed
21 with an evidentiary update.

22
23

24

25 18.6 With reference to the "Performance Summary" section of the 2017 Sustainability
26 Report, is there an accompanying document that provides the full performance
27 results? Does FortisBC intend to provide full performance results (in addition to a
28 summary) along with future versions of the Sustainability Report?

29

30 **Response:**

31 The 2017 Sustainability Report includes a subset of business performance indicators that are
32 representative of sustainability performance. There is no accompanying document providing full
33 business performance results.



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1 As we continue FortisBC’s sustainability reporting, performance indicators will be assessed and
2 evaluated for reporting on an annual basis.

3

4

5

6

The 2017 Sustainability Report states:

7

“As we advance our sustainability program, we’ll track our ongoing performance
8 against these indicators and strive for continuous improvement. In future years,
9 this report will contain historical data to enable us to show trends.” [p.24]

8

9

10 18.7 Will the 2018 Sustainability Reports contain historical data to show trends? If not,
11 when will the historical data to show trends be included?

12

13 **Response:**

14 FortisBC will publish sustainability performance indicator values annually using 2017 as the
15 baseline year for historical performance. The 2018 report will include 2018 and 2017
16 performance indicator values.

17

18

19

20 18.8 The 2017 Sustainability Report is described as inaugural on the FortisBC
21 website, and the Application says a Sustainability Report will be published
22 annually. What are FortisBC’s plans for the future format, content and role of the
23 annual Sustainability Report?

24

25 **Response:**

26 FortisBC has consolidated its Corporate Report and Sustainability Report for the 2018 reporting
27 year. The future format of the Corporate Sustainability Report will be consistent with the 2018
28 reporting format—an online PDF document will be available via the FortisBC.com website.

29 The Corporate Sustainability Report informs internal and external stakeholders on FortisBC’s
30 economic, social, and environmental performance. The report provides transparency, reports
31 progress towards meeting business goals and communicates and reports on the Companies’
32 sustainability performance.

33

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1 **19.0 Topic: Annual Sustainability Report, Global Reporting Initiative**

2 **Reference: 2017 Sustainability Report**

3 FortisBC says on page 11 of the 2017 Sustainability Report that “All metrics included in
4 this report are aligned with the GRI’s standards for sustainability reporting.”

5 On pages 26-29 of the 2017 Sustainability Report there is a Concordance table relating
6 the Indicators in the Report to the corresponding metrics set out by the Global Reporting
7 Initiative (GRI), the United Nations Sustainable Development Goals, and the Task Force
8 on Climate Related Financial Disclosures. The Report states:

9 “This concordance table defines and cross-references what frameworks and
10 other standards FortisBC is in accordance with as well as how those metrics can
11 be benchmarked with other organizations. It also provides a format to share this
12 information easily with readers.

13 GRI provides requirements for an organization that wants to claim its sustainability report
14 has been prepared in accordance with the GRI Standards (either Core or
15 Comprehensive option): “GRI 101: FOUNDATION 2016,” page 17, available from GRI
16 Resource Downloads Center at [https://www.globalreporting.org/standards/resource-
17 download-center](https://www.globalreporting.org/standards/resource-download-center).

18 GRI also maintains a publicly available online registry of reports, published materials and
19 self-declared claims by “reporting organizations” registered with GRI at
20 <https://www.globalreporting.org/reportregistration/verifiedreports>.

21 19.1 Does FortisBC intend to register as a “reporting organization” with GRI? If so,
22 when? If not, why not?

23
24 **Response:**

25 FortisBC’s Corporate Sustainability Report aligns, where possible, with the Global Reporting
26 Initiative standards (GRI). FortisBC is not a reporting organization to the GRI at this time.
27 FortisBC will evaluate GRI reporting as an option on an annual basis going forward, giving due
28 consideration to the cost versus the benefit of the additional reporting requirements for our
29 customers and stakeholders alike.

30
31

32
33 19.2 More generally, does FortisBC have any plans to make its Sustainability Report
34 available in a forum that facilitates benchmarking with other utilities?
35



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1 **Response:**

2 FortisBC is a member of the EXCEL Partnership that supports annual sustainability report
3 benchmarking with participating members. In addition, FortisBC is a member of the Canadian
4 Electricity Association's (CEA) Sustainable Electricity Committee and participates in the CEA's
5 annual sustainability reporting efforts.

6

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1 **F. Annual Review**

2 **20.0 Topic: Annual Review**

3 **Reference: Application, Exhibit B-1, s.1.7, Annual Review, p.C-13; s.7.2.4, GHG**
4 **Emissions; s. 8.3.4, GHG Emissions Reductions – Internal (FEI), p.C-**
5 **162**

6 FortisBC proposes to discontinue providing informational reporting of annual total GHG
7 emissions as part of the Annual Review process. Instead, FortisBC proposes (a)
8 Targeted Incentives including GHG emissions reductions, and (b) an annual
9 Sustainability Report.

10 The information that FortisBC proposes to provide at the Annual Review includes
11 Targeted Incentive results but does not include the annual Sustainability Report. [p.C-13,
12 pdf p.148]

13 The 2017 Sustainability Report states on page 24:

14 “For 2017, we identified our performance across 40 indicators in our four
15 sustainability pillars. These indicators show an overall performance we can be
16 proud of as well as a road map for continued focus.”

17 20.1 Does FortisBC agree that the annual Sustainability Report on FortisBC’s
18 performance on some 40 indicators of sustainability would provide useful
19 information at the Annual Review within the proposed MRP framework? If not,
20 why not?
21

22 **Response:**

23 No. The purpose of the Annual Review is to set rates for the following year. As part of the
24 Annual Review process, FortisBC will continue to report on a balanced set of SQIs (including
25 GHG emissions for FEI) that are designed to show that cost reductions under the MRP are not
26 being made at the expense of reasonable level of service. In addition, the new reporting and
27 review requirements for Targeted Incentives and the Innovation Fund already focus on those
28 aspects of FortisBC’s transition to a lower carbon future that are components of the rate setting
29 framework. The Corporate Sustainability Report, however, covers a wider variety of issues
30 which are not relevant to the Annual Review process.

31
32

33

34 20.2 Does FortisBC have any objection to a requirement it provide the annual
35 Sustainability Report for consideration at the Annual Review under the MRP?



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1

2 **Response:**

3 Please refer to the response to BCSEA IR 1.20.1.

4

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1 **G. Clean Growth Innovation Fund**

2 **21.0 Topic: Clean Growth Innovation Fund – Rationale and Mandate**

3 **Reference: Application, Exhibit B-1, Section 6. FortisBC Clean Growth**
4 **Innovation Fund, pdf 263; Section 6.5.1, Purpose, Objectives,**
5 **Guiding Principles, pdf 277; Section 1.2.2, CleanBC Plan, p. B-4 & B-**
6 **5 (pdf pp. 53 – 54); Exhibit B-1-1, Appendix A5, Clean Growth**
7 **Pathway to 2050, pdf 24 & 25**

8 FortisBC states in Section 6 and Appendix A5:

9 “We believe that FortisBC has an important role to play in helping British
10 Columbians move to a low carbon, renewable energy future. We see ourselves
11 as an energy delivery company that has climate and economic solutions in the
12 buildings, transportation [and industrial] sectors.” [pdf 263 and Exhibit B-1-1,
13 Appendix A5, Clean Growth Pathway to 2050, pdf 24]

14 FortisBC states in Appendix A5, Clean Growth Pathway to 2050:

15 [The Clean Growth Pathway to 2050] “presents FortisBC’s pathway to align with
16 the provincial government’s goal to significantly reduce greenhouse gas
17 emissions while supporting economic growth and maintaining affordability and
18 customer choice. Our approach combines several strategies that together outline
19 a clear pathway to significant emissions reductions and signal a paradigm shift in
20 the way we relate to energy.” [pdf p. 25]

21 FortisBC states:

22 “The purpose of the [Clean Energy Innovation] Fund is to ensure there are
23 opportunities for FortisBC to participate and thrive in an evolving climate policy
24 context by continuing to utilize its natural gas and electric delivery systems. The
25 Fund’s main objective is to accelerate the pace of clean energy innovation to
26 achieve performance breakthroughs and cost reductions to provide widely
27 affordable, safe and reliable clean growth solutions for our customers (per
28 Canada’s commitment to Mission Innovation).” [pdf 277]

29 FortisBC states:

30 “At the provincial level, the B.C. government is committed to meeting the
31 province’s climate goals and has introduced legislated GHG reduction targets of
32 40 percent below 2007 levels by 2030, 60 percent by 2040, and 80 percent by
33 2050. To achieve these targets, the provincial government released the CleanBC
34 plan (CleanBC) late in 2018, which outlines the priority areas for GHG reduction

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1 and the actions it will take. The provincial government is also increasing the
2 economy-wide carbon tax to drive emissions reductions.” ... [pdf 54]

3 On pages B-4 and B-5 of the application, FortisBC recites several initiatives of the
4 CleanBC plan with large implications for Fortis’s planning, operations and business
5 model, including among other things a 15% renewable gas target for all BC. In the same
6 pages, FortisBC describes possible implications and opportunities for these policy
7 measures for itself, including for example:

- 8 • “... CleanBC points to the important role of FortisBC’s low carbon transportation
9 offerings, which will need additional funding to sustain and grow the programs.”
- 10 • [CleanBC’s 15% renewable gas target for BC] “... makes the gas system a
11 central component of the provincial strategy to reduce GHG emissions in
12 buildings.”
- 13 • “To meet [the province’s plans for hydrogen injection and fuel cell development],
14 FEI will need to escalate its investment in RNG and hydrogen infrastructure
15 along with research and development (R&D), piloting, and demonstration.
16 Additional regulatory support, education and engagement of gas system
17 stakeholders ... will also be essential.”
- 18 • [CleanBC initiatives to electrify buildings and shift from natural gas appliances to
19 electric heat pumps] “provide impetus for FEI to explore opportunities to bring
20 innovative solutions to buildings such as renewable gas (RG), natural gas heat
21 pumps and advanced metering infrastructure (AMI) ...”

22 21.1 Does FortisBC consider that its “important role in helping British Columbians
23 move to a low carbon, renewable energy future” aligns with the interests of
24 FortisBC’s shareholders?
25

26 **Response:**

27 Yes.

28
29

30
31 21.2 Does FortisBC consider that its “important role in helping British Columbians
32 move to a low carbon, renewable energy future” aligns with the interests of
33 FortisBC’s ratepayers?
34

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1 **Response:**

2 Yes.

3

4

5

6 21.3 Does FortisBC see its role regarding a low carbon, renewable energy future as
7 being of a permanent nature?

8

9 **Response:**

10 Yes, FortisBC sees its role regarding a low carbon, renewable energy future as being of a
11 permanent nature. FortisBC assets play an important, long-term role in the energy delivery
12 system in BC and FortisBC is committed to fulfilling its role as described in its submission to the
13 Province in our Clean Growth Pathway to 2050 (see Appendix A5 of the Application).

14 The Province also characterizes FortisBC's role as being essential and permanent as
15 evidenced, for example, by the fact that 75 percent of the forecast 2030 GHG reductions in the
16 buildings sector are expected to come from meeting the 15 percent renewable gas target
17 introduced in CleanBC⁷. To introduce 15 percent of renewable gas supply into BC's energy
18 system, and thereby meet BC's Paris accord climate commitments, requires that FortisBC's
19 provincial infrastructure be used over the near and long term.

20

21

22

23 21.4 Has FortisBC discussed its role regarding a low carbon, renewable energy future
24 with the provincial government? If yes, what was discussed, and what were the
25 outcomes?

26

27 **Response:**

28 FortisBC presented its role regarding a low carbon, renewable energy future through its Clean
29 Growth Pathway to 2050 submitted to the provincial government as a part of the CleanBC public
30 consultation process (see Appendix A5 of Application). Below is a list of many of the positive
31 outcomes from CleanBC that align with FortisBC's suggestions:

- 32 • The Province prioritized the transportation and industrial sectors in reducing B.C.'s
33 GHGs. Clean transportation accounts for 6 out of 18.9 GHG Mt, equivalent to 31.8

⁷ Refer to Section B1.2.2.2 of the Application for detail.

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1 percent of the total provincial reductions. Clean industry had the highest reductions at
2 44.4 percent of the total. Specific transportation and industry policy outcomes are listed
3 below:

- 4 ○ Creating a new heavy duty vehicle incentive program;
- 5 ○ Expanding the clean energy vehicle program for medium and heavy duty
6 vehicles;
- 7 ○ Clean up air pollution in the Lower Mainland with a pilot project to test options to
8 switch 1,700 freight trucks to cleaner or zero emission fuel; and
- 9 ○ The creation of the B.C. Clean Transportation Trade Corridors Advisory Council.
- 10 ● Increasing the low carbon fuel standard to 20 percent, including liquid natural gas
11 displacing higher carbon fuels;
- 12 ● Making buildings more efficient and providing related incentives;
- 13 ● 15 percent renewable gas which accounts for 2.4 GHG Mt, or 12.7 percent of the total
14 CleanBC reductions;
- 15 ● Upgrading buildings, including public housing to make it more comfortable and energy
16 efficient;
- 17 ● Reducing emissions from waste; and
- 18 ● The Province signing a Memorandum of Understanding with the Business Council of
19 British Columbia (of which FEI is an active participant), setting out a framework for a joint
20 approach to unlocking BC's full economic potential under the auspices of the CleanBC
21 plan.

22
23

24

25 21.5 If the Commission denies approval of the Clean Growth Innovation Fund funding
26 mechanism, how will FortisBC carry out its role and/or responsibilities to help
27 British Columbians move to a low carbon, renewable energy future?

28

29 **Response:**

30 Regardless of the BCUC's decision, FortisBC will continue to seek innovative ways to fulfil its
31 role and responsibilities to help British Columbians move towards a lower carbon future, as it
32 has for over ten years since the Province's original climate plan was introduced. However, a
33 denial of the Innovation Fund would be a failure to address the essential need to invest to
34 accelerate innovation and adoption of new technologies to meet policy objectives

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1 **22.0 Topic: Clean Energy Innovation Fund, Size of Envelope**

2 **Reference: Application, Exhibit B-1, p.C-120, pdf p.255**

3 FortisBC proposes that the Clean Growth Innovation Fund would receive approximately
4 \$4.9 million per year from FEI customers and approximately \$0.5 million per year from
5 FBC customers.

6 22.1 How did FortisBC determine the proposed size of the Fund's annual revenues?
7

8

8 **Response:**

9 To determine the proposed size of the Innovation Fund, FortisBC performed a bottom up
10 totaling of the internal funding requests it received for innovation activities. Please also refer to
11 the response to BCUC IR 1.70.1.

12

13

14

15 22.2 Will the proposed size of the Fund's annual revenues be sufficient to make a
16 meaningful contribution to FortisBC's role regarding a low carbon, renewable
17 energy future?
18

18

19 **Response:**

20 Yes. The size of the Fund's annual revenues will be sufficient to make a meaningful
21 contribution to the advancement of low carbon, renewable energy. In most cases, FortisBC
22 expects that its funding will be augmented by additional funding from government, non-
23 government organizations, other utilities and/or businesses.

24

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1 **23.0 Topic: Clean Energy Innovation Fund – gaps and innovation activities**

2 **Reference: Application, Exhibit B-1, Section 6.2.1, pdf p. 265; Section 6.4.3 Gaps**
3 **to be Addressed by the Fund, pdf p. 274; Exhibit B-1-1, Appendix C6-**
4 **4, pdf p. 604, et seq.**

5 FortisBC says that the International Energy Agency has identified key innovation gaps in
6 technologies required for achieving a low-carbon transition. FortisBC says that “These
7 technologies require funding to ensure they are developed, tested, optimized to local
8 operating conditions, demonstrated and deployed to work within B.C.’s climate policy
9 context.” [Exhibit B-1, pdf p.265]

10 In Figure C6-4 on pdf p. 274, FortisBC provides a high level description of gaps to be
11 addressed by the Clean Energy Innovation Fund.

12 In Appendix C6-4, pdf. 604, et seq., FortisBC identifies its proposed “Main Innovation
13 Activities” for the Clean Energy Innovation Fund as follows:

- 14 • 1.1 Blending Hydrogen
- 15 • 1.2 Renewable Natural Gas
- 16 • 1.3 Carbon Capture
- 17 • 1.4 Non-DSM Consumer End Use Technologies and Systems
- 18 • 1.5 Natural Gas for Transportation
- 19 • 1.6 Hydrogen for Transportation
- 20 • 1.7 Electric Vehicles (EVs) and Charging Stations
- 21 • 1.8 Dynamic Load Control Research – RD&D Stage
- 22 • 1.9 Return to Base Charging Solutions Pilot – RD&D Stage
- 23 • 1.10 Innovative DCFC Architectures Pilot – RD&D Stage
- 24 • 1.11 Developing Digital Natural Gas Feedstock
- 25 • 1.12 Reducing Fugitive Emissions
- 26 • 1.13 NGIF [Natural Gas Innovation Fund], i.e. collaboration of FEI with other
27 utilities in research and innovation.”

28 23.1 To what extent did FortisBC use the IEA’s Innovation Tracking Framework in
29 developing the Main Innovation Activities for the Clean Energy Innovation Fund?
30 To what extent did FortisBC adjust the IEA’s “key long-term technology
31 innovation gaps” to meet the requirements of the BC context?
32

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1 **Response:**

2 FortisBC developed its “Main Innovation Activities” independently of the IEA’s Innovation
3 Tracking Framework. However, FortisBC has already included, and is considering other,
4 innovation activities that align with the innovation gaps as identified by the IEA including: leak
5 detection and repair of gas systems, monitoring and measuring methane emissions, fuel cells
6 for fuel cell-electric vehicles, carbon capture and storage and hydrogen separation membranes,
7 advancing EV technologies and reducing battery costs, allowing EVs to become a flexibility
8 resource for the grid, integrated storage and renewable energy technologies for buildings,
9 enhanced heat pump flexibility and high performance heat pumps.

10

11

12

13 23.2 Does FortisBC expect to see ‘real-world’ implementation during the term of the
14 2020-2024 MRP of any of the innovations supported by the Clean Energy
15 Innovation Fund?

16

17 **Response:**

18 Some innovations supported by the Innovation Fund will be based on commercially available
19 products and services and therefore ‘real-world’ implementations may happen during the MRP
20 term. The majority of innovative initiatives funded will be pre-commercial, however. Some of
21 these may be commercialized during the MRP term, particularly if they are already at
22 Technology Readiness Level 8-9. However, FortisBC expects the number of these, if any, to be
23 small. Please also refer to the response to BCUC IR 1.70.6.

24

25

26

27 23.3 Does FortisBC anticipate prioritizing the 13 Main Innovation Activities, or funding
28 them equally? If the Main Innovation Activities were to be prioritized, what would
29 be the criteria?

30

31 **Response:**

32 Assuming the Clean Growth Innovation Fund is approved as requested, the prioritization of the
33 activities will be finalized by the governance entities shown in Figure C6-8 in the Application.
34 However, given the challenging nature of the renewable gas goal set out by the CleanBC Plan,
35 Blending Hydrogen and Renewable Natural Gas are likely to be high priorities.



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23.4 Does FortisBC’s explanation of why gas-fired Combined Heat and Power (CHP) is on the Main Innovation Activities list hinge on the assumption that biomethane is the fuel gas?

Response:

FortisBC includes funding for more efficient CHP units as a possible funding activity, regardless of whether they are fueled by biomethane. This is because customers may chose to purchase these type of units due to their low operating costs and therefore, it is advantageous to further efficiency improvements.

FortisBC believes it is important to support the development of efficient gas-fired end-use products because customers will continue to purchase them for a variety of reasons and because the energy delivered by FEI will become increasingly clean.

23.5 Do the measures listed in Appendix C6-4 constitute a comprehensive list of the measures that FortisBC is committed to addressing with the Clean Energy Innovation Fund funding? Or are they examples of measures that FortisBC might change from time to time?

Response:

This list represents the innovative activity areas that FortisBC intends to fund in the next few years. These activity areas are likely to change in priority over time, and it is likely that other areas may be uncovered during the term of the MRPs and as the economy transitions towards lower carbon.

23.6 Regarding “1.2 Renewable Natural Gas” [pdf p. 604], in what timeframe does FortisBC expect R&D supported by the Clean Energy Innovation Fund to result in commercially viable Renewable Natural Gas from waste wood?



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1 **Response:**

2 The timeframe for commercially viable renewable natural gas from wood waste feedstocks is
3 unknown at this time. FortisBC intends to continue to monitor and support relevant technologies
4 through the Innovation Fund in order to accelerate commercialization.

5
6

7

8 23.7 Please explain how support for R&D regarding Renewable Natural Gas by the
9 Clean Energy Innovation Fund interacts with the proposed Targeted Incentive for
10 Renewable Gas sales.

11

12 **Response:**

13 The Clean Energy Innovation Fund has been proposed to accelerate the pace of clean energy
14 innovation, achieve performance breakthroughs and cost reductions, and provide cost effective,
15 safe and reliable energy solutions for customers. To the extent that the Clean Energy Innovation
16 Fund is successful in advancing renewable natural gas technology and innovation, it could have
17 a positive impact on the targeted incentive for contracted Renewable Gas (RG) supply by
18 increasing RG availability and/or by reducing the cost of known RG sources that are not
19 currently financially feasible.

20
21

22

23 23.8 Regarding “1.3 Carbon Capture” [pdf 605], please explain how and by whom this
24 technology might be deployed if it proves to be commercially viable. Would it
25 potentially be scalable to residential or small commercial use?

26

27 **Response:**

28 The technology is designed for use in commercial applications with commercial boilers.
29 Customers who would be good candidates for this technology could include schools, hospitals,
30 hotels, high-rise buildings, and some manufacturing facilities. The company that FEI has been
31 working with has developed prototypes for residential use but it is not ready for wider testing at
32 this time. FEI will continue to monitor this for potential residential deployment at a future date.

33

34

35

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1 23.9 Regarding “1.12 Reducing Fugitive Emissions” [pdf p. 612], please discuss
2 current federal and BC regulatory initiatives, and explain how this innovative
3 activity is not either duplicative of other work or supporting actions by FEI that are
4 or will soon be legally required.
5

6 **Response:**

7 The pursuit of innovation in technology that will reduce fugitive emissions from operations is
8 supportive of achieving any legislated requirements and is not duplicative. Moreover, innovation
9 and the adoption of new technologies is a key aspect of achieving cost effective emissions
10 reductions in meeting legislated targets.

11 FEI’s operational assets are regulated under the BC Oil and Gas Commission (BC OGC), Oil
12 and Gas Activities Act. The BC OGC’s proposed amendments and draft guidelines to the Oil
13 and Gas Activities Act relating to fugitive and vented emissions are currently open for public
14 consultation with an effective date January 1, 2020. The proposed amendments include
15 increased requirements such as fugitive emissions surveys, adoption of optical gas imaging for
16 all leak surveys, increased regulatory reporting, restrictions on venting, and restrictions on
17 pneumatic devices. It is FEI’s understanding that the BC OGC is currently negotiating
18 equivalency between these amendments and the Federal Methane Regulations under the
19 Canadian Environmental Protections Act. Accordingly, the specific details are not yet known.

20 FEI is currently assessing technology that will reduce fugitive emissions from operations. These
21 technologies may support, but are not limited to, the fugitive emissions requirements set by the
22 provincial and federal governments.

23
24

25

26 23.10 Regarding “1.13 Natural Gas Innovation Fund” [pdf p.613], FortisBC says on
27 page C-22 of the Application that if the Clean Energy Innovation Fund is
28 approved then FEI’s 2018 O&M \$0.400 million contribution to the NGIF would be
29 removed and provided by the Clean Energy Innovation Fund. If the Clean Energy
30 Innovation Fund was not approved would FEI continue with an annual
31 contribution to the NGIF from O&M at \$0.400 million?
32

33 **Response:**

34 Please refer to the response to BCUC IR 1.71.1.1.

35

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1 **24.0 Topic: Clean Energy Innovation Fund**

2 **Reference: Application, Exhibit B-1, s.6.5.3, Governance Structure**

3 “The Companies will ensure that the governance structure reflects the guiding principles
4 of the Fund. FortisBC will establish two separate bodies with oversight of the Innovation
5 Fund.

6 First, an Innovation Working Group (the Group) will be responsible for the Identification,
7 Evaluation and Selection, and Execution stages of projects. The Group will be
8 comprised of staff from both the gas (FEI) and electricity (FBC) utilities to provide subject
9 matter expertise from the supply, transmission and distribution and end use areas of
10 FortisBC. The Group will foster collaboration and synergies amongst Innovative
11 Technologies, NGT and RNG, and the Fund.

12 Second, an Executive Steering Committee (the Committee) will be established to
13 provide the strategic direction of the Fund. The Committee will be comprised of senior
14 staff representing both FEI and FBC.

15 Additionally, FortisBC proposes to establish an External Advisory Council made up of
16 stakeholders to provide insight and feedback on the Companies’ innovative initiatives on
17 a periodic basis.” [pdf pp.279-280]

18 24.1 For greater certainty, does FortisBC see the Clean Energy Innovation Fund as
19 funding projects initiated and implemented by FEI and/or FBC, as distinct from
20 funding projects implemented by outside parties? Will project proposals from
21 outside parties be considered?
22

23 **Response:**

24 Yes, project proposals from outside parties will be considered. FortisBC expects to collaborate
25 with outside parties for all initiatives supported by the Innovation Fund. These parties could
26 include any combination of academic institutions, industry organizations, companies, non-
27 governmental and governmental organizations.

28
29

30
31 24.2 What will be the process for allocating funds from the Fund to particular projects?
32

33 **Response:**

34 Please refer to the response to BCUC IR 1.78.2.

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1

2

3

4 24.3 Will the costs of the Innovation Working Group and the Executive Steering
5 Committee be paid for from the Clean Energy Innovation Fund?

6

7 **Response:**

8 Please refer to the response to BCUC IR 1.78.3.

9

10

11

12 24.4 Can the Fund's expenses be meaningful divided into categories such as
13 planning, administration, project delivery, evaluation, and reporting? How will the
14 Fund's expenses be categorized?

15

16 **Response:**

17 FortisBC is planning to track and report the Innovation Fund's expenditures by the following
18 categories:

19 1. Administration of the Innovation Fund

20 2. Innovation Fund initiative expenditures. Although not finalized, FortisBC plans to track
21 and report expenditures incurred by each stage of the project development cycle:

22 • Project Development – Identification Stage

23 • Project Development – Evaluation and Selection Stage

24 • Project Development – Execution Stage

25

26 FortisBC anticipates the reporting needs for the Innovation Fund will evolve over time and will
27 make adjustments as required considering any feedback received or requirements set by the
28 BCUC.

29

30

31

32 24.5 Can the Fund be said to be “new money”? What proportion of the Fund's
33 spending will go to activities that would have been funded from other FortisBC
34 sources if the Fund did not exist? Please provide evidence to show that the

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1 Clean Energy Innovation Fund will not simply free up budget space for FortisBC
2 to allocate elsewhere.

3
4 **Response:**

5 The fund will be “new money” with the exception of the existing NGIF funding of \$400 thousand.
6 As noted in the Application, if FEI is successful in its Innovation Funding request, it will lower its
7 overall O&M request to account for this spending.

8
9

10
11 24.6 How will FortisBC ensure that the Fund’s resources are spent effectively and
12 efficiently?

13
14 **Response:**

15 As stated on page C-143 of the Application, the governance structure (which is shown in Figure
16 C6-8 on page C-145) will “*Coordinate innovation centrally to ensure maximum value.*” “FortisBC
17 will coordinate and manage the different innovation opportunities it is pursuing to achieve value
18 and create synergies between initiatives where possible. Funds collected from customers not
19 invested will be returned to customers at the end of the Proposed MRP terms.”

20 The Working Group will be accountable for deciding which innovative projects will be funded, in
21 compliance with the strategic direction established by the Executive Steering Committee, and
22 considering the feedback provided by the External Advisory Council.

23 FortisBC will establish clear objectives for each initiative supported by the Innovation Fund.
24 Success will be evaluated by looking at the completion of objectives in terms of completing
25 projects on time, on budget and within scope. These results will be reported at the Annual
26 Review during each year of the MRP term.

27 The Working Group will work to ensure cost-effectiveness of expenditures for the overall
28 Innovation Fund portfolio by selecting a suite of projects it believes is mostly likely to result in
29 commercial products and services that will meet the objectives of the Innovation Fund. Due to
30 the time required for commercialization of new products and services to come to fruition, it may
31 be some time until cost-effectiveness is achieved.

32

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1 **25.0 Topic: FEI O&M Incremental Funding**

2 **Reference: Application, Exhibit B-1, s.2.4.2.3, New Funding for Term of**
3 **Proposed MRP, p.C-29, pdf p.164**

4 FortisBC’s proposals for FEI incremental O&M funding include \$2.0 million for “Raising
5 Awareness for Consumers in a Lower Carbon Future,” \$1.2 million for “Connect to Gas,”
6 and \$1.0 million for the “Climate Action Partners” program.

7 25.1 Please confirm, or otherwise explain, that the proposed FEI incremental O&M
8 funding is annual through 2020-2024.

9
10 **Response:**

11 The proposed funding represents one time incremental O&M funding added to FEI’s 2019 Base
12 O&M that will then be escalated by the indexing formula during the term of the proposed MRP.

13
14

15

16 25.2 Is the “Connect to Gas” program exclusively directed at conversion from a higher
17 carbon energy source to natural gas?

18

19 **Response:**

20 As noted in the response to BCUC IR 1.30.3.1, initiatives under the Connect to Gas umbrella
21 encompass a variety of activities that include, but are not limited to, providing incentives for
22 conversion from higher carbon fuel (oil or propane) to natural gas. Connect to Gas also includes
23 broad based marketing and advertising related activities that FEI undertakes to attract and
24 retain its customers, as well as additional incentives to increase the penetration of gas
25 appliances in buildings.

26

27

28

29 25.3 Does the “Raising Awareness for Consumers in a Lower Carbon Future” program
30 amount to a corporate branding initiative?

31

32 **Response:**

33 No. Raising Awareness for Consumers in a Low Carbon Future program communicates a broad
34 public message, similar to the public safety and energy efficiency and conservation messages,
35 that speaks to all the benefits of natural gas as a fuel choice in today’s competitive low carbon



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1 economy – including natural gas for transportation, renewable natural gas, liquefied natural gas,
2 compressed natural gas, as well as for home heating. The program will benefit end-use
3 customers as they become better educated about all the energy products and services that FEI
4 has to offer and ultimately keep rates lower by attracting and retaining customers that are
5 looking for innovative and lower carbon energy solutions.

6
7

8

9 25.4 Does the “Climate Action Partners” program amount to a corporate lobbying
10 program?

11

12 **Response:**

13 No. The Climate Action Partners (CAP) program is a joint energy planning exercise between
14 FortisBC and government entities that seeks to partner with stakeholders to jointly engage in
15 activities that reduce greenhouse gas (GHG) emissions or otherwise assist the province and the
16 program’s partners in meeting GHG emissions targets. To date, the program includes a number
17 of stakeholders, such as local government and other non-government organizations. FortisBC
18 complies with all requirements in the Lobbyists Registration Act and while current Climate
19 Action Partners program activities do not meet the requirements for reporting to the Office of the
20 Registrar of Lobbyists, if at any time such activities should fall under the BC Lobbyists
21 Registration Act, FortisBC will register such activity at that time.

22

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1 **H. Other**

2 **26.0 Topic: Sun Peaks Gas Conversion**

3 **Reference: Application, Exhibit B-1, s.3.3.3, FEI Major Projects, p.C-77, pdf p.212**

4 A “Sun Peaks Gas Conversion” project is listed as an example of a Major Project that
5 may arise in the 2020-2024 period.

6 26.1 Please provide more information about the Sun Peaks Gas Conversion project.

7
8 **Response:**

9 Resort Gas, a company owned by Sun Peaks Resort that currently owns and operates a
10 distribution system for propane supplied by FAES, has requested FEI to evaluate potential
11 options to retrofit the system to operate on natural gas in order to reduce energy commodity
12 rates and carbon emissions as well as increase the security of supply.

13 The Sun Peaks Gas Conversion Project requires the delivery of natural gas to Sun Peaks, the
14 conversion of the existing propane appliances to natural gas for approximately 1,077 customers,
15 the purchase of the Resort Gas distribution assets, and the purchase and
16 disposition/repurposing of FAES’ existing propane tanks and vapourization assets. FEI is
17 currently evaluating three alternatives for bringing gas to the resort. These are:

- 18 1. The construction of an approximately 33km natural gas pipeline to connect the
19 distribution system at Sun Peaks to the existing FEI gas distribution system at Heffley
20 Creek.
- 21 2. A Compressed Natural Gas option where FEI (or a third party) will compress natural gas
22 and deliver it to the Sun Peaks site. This will also require compression tanks at Sun
23 Peaks (similar in purpose to the existing propane tanks).
- 24 3. A liquid natural gas option where LNG will be transported from FEI’s Tilbury facility to
25 Sun Peaks. This option will also require LNG tanks and vapourization at the site.

26
27 At this stage of the project, FEI is evaluating the feasibility of these three solutions to determine
28 the best alternative to meet the needs of the community and FEI. If the project is viable, FEI
29 anticipates submitting a CPCN for the project by Q4 of 2019.

30
31

32

33 26.2 Would the Sun Peaks Gas Conversion project count toward the Conversions
34 Incentive Target?

35



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1 **Response:**

2 FEI has not proposed to count the Sun Peaks Conversion project, if constructed, towards the
3 conversion incentive target.

4

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1 **27.0 Topic: Clean Growth Pathway to 2050**

2 **Reference: Application, Exhibit B-1-1, Appendix A-5, Clean Growth Pathway to**
3 **2050, pdf p.21**

4 FortisBC recommends pursuing a pilot program to convert drayage vehicles from diesel
5 to compressed natural gas. [pdf p.29]

6 27.1 Why does FortisBC not recommend pursuing a pilot program to electrify drayage
7 vehicles, rather than converting them to natural gas?
8

9 **Response:**

10 The Vancouver Fraser Port Authority (VFPA) conducted a Request for Expressions of Interest in
11 early 2019, and is currently evaluating deploying a pilot program to test various technologies for
12 port drayage trucks. The VFPA will be designing a pilot program over the balance of 2019.
13 From discussions, the VFPA intends to roll out the pilot program in the following three phases:

- 14 1. Natural gas – 2019/20
- 15 2. Electric – 2020/21
- 16 3. Hydrogen – 2022 and beyond

17
18 There are no commercially ready Original Manufacturer Equipment (OEM) battery electric
19 vehicles suitable for drayage vehicles at this point in time. It is the intent of FortisBC to explore
20 a pilot program for battery electric drayage trucks once there is commercially ready OEM
21 product available to support such a program. In the meantime, natural gas for transportation
22 can significantly contribute to reducing emissions and improving local air quality.
23

24
25
26 FortisBC discusses its program to convert BC Ferries vessels to LNG as a fuel source.
27 [pdf p.27]

28 27.2 Does FortisBC have any plans to work with BC Ferries to electrify any of its
29 vessels?
30

31 **Response:**

32 To clarify, BC Ferries evaluates technologies and options to choose the type of energy to propel
33 their ferries for new build or retrofit, and FortisBC works with BC Ferries to provide the required
34 energy and build the infrastructure. As of today, BC Ferries has committed to run five ferries on
35 LNG as that technology is commercially and readily available, and FortisBC worked with BC
36 Ferries to provide the LNG and logistics services for these five LNG-powered ferries. In the



FortisBC Energy Inc. (FEI) and FortisBC Inc. (FBC) (collectively FortisBC) Application for Approval of a Multi-Year Rate Plan for 2020 through 2024 (the Application)	Submission Date: June 17, 2019
Response to BC Sustainable Energy Association and Sierra Club BC (BCSEA) Information Request (IR) No. 1	Page 65

1 future, FortisBC may work with BC Ferries to provide the required energy delivery infrastructure
2 for battery-electric ferries should BC Ferries so wish.

3

4

5

6 FortisBC discusses the possibility of FEI providing LNG bunkering for international
7 marine shipping. FEI also discussed this in its 2017 Long Term Gas Resource Plan.
8 FortisBC states:

9 "Plans are being developed to increase the Tilbury LNG facility's liquefaction
10 capacity up to to three million tonnes per annum, expand LNG storage by
11 another 92,000 cubic metres and provide ship loading facilities to serve these
12 markets." [pdf. p 29]

13 27.3 Does FEI anticipate making an application to the Commission to expand the
14 Tilbury LNG facility within the term of the MRP?

15

16 **Response:**

17 Please refer to the response to BCUC IR 1.62.1.

18

Attachment 18.1



FORTIS BC™

Energy at work

Sustainability Report 2017

Contents

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Front cover: Colton Aston, Energy Solutions Manager, FortisBC visiting a biogas facility



Certain statements contained in this Sustainability Report contain forward-looking information within the meaning of applicable securities laws in Canada (“forward-looking information”). The words “anticipates”, “believes”, “budgets”, “could”, “envision”, “expects”, “forecasts”, “intends”, “may”, “might”, “plans”, “projects”, “should”, “will”, “would” and similar expressions are often intended to identify forward-looking information, although not all forward-looking information contains these identifying words.

The forward-looking information reflects management’s current beliefs and is based on information currently available to FortisBC’s management. The forward-looking information in this report includes, but is not limited to, statements regarding FortisBC’s commitment to continue to deliver safe, reliable energy in a responsible manner to all communities that we serve; FortisBC’s vision that efficiency and conservation will lead to lowered energy requirements and emissions, FortisBC’s plans to reduce GHG emissions, FortisBC’s plans to offer more conservation and efficiency incentives in the future; innovations and investments in biogas supply, carbon capture technology, low carbon vehicles and hydrogen blending into the natural gas system; the development of new markets, FortisBC’s relationship with Indigenous peoples; the diversity of FortisBC’s workforce and FortisBC’s safety practices.

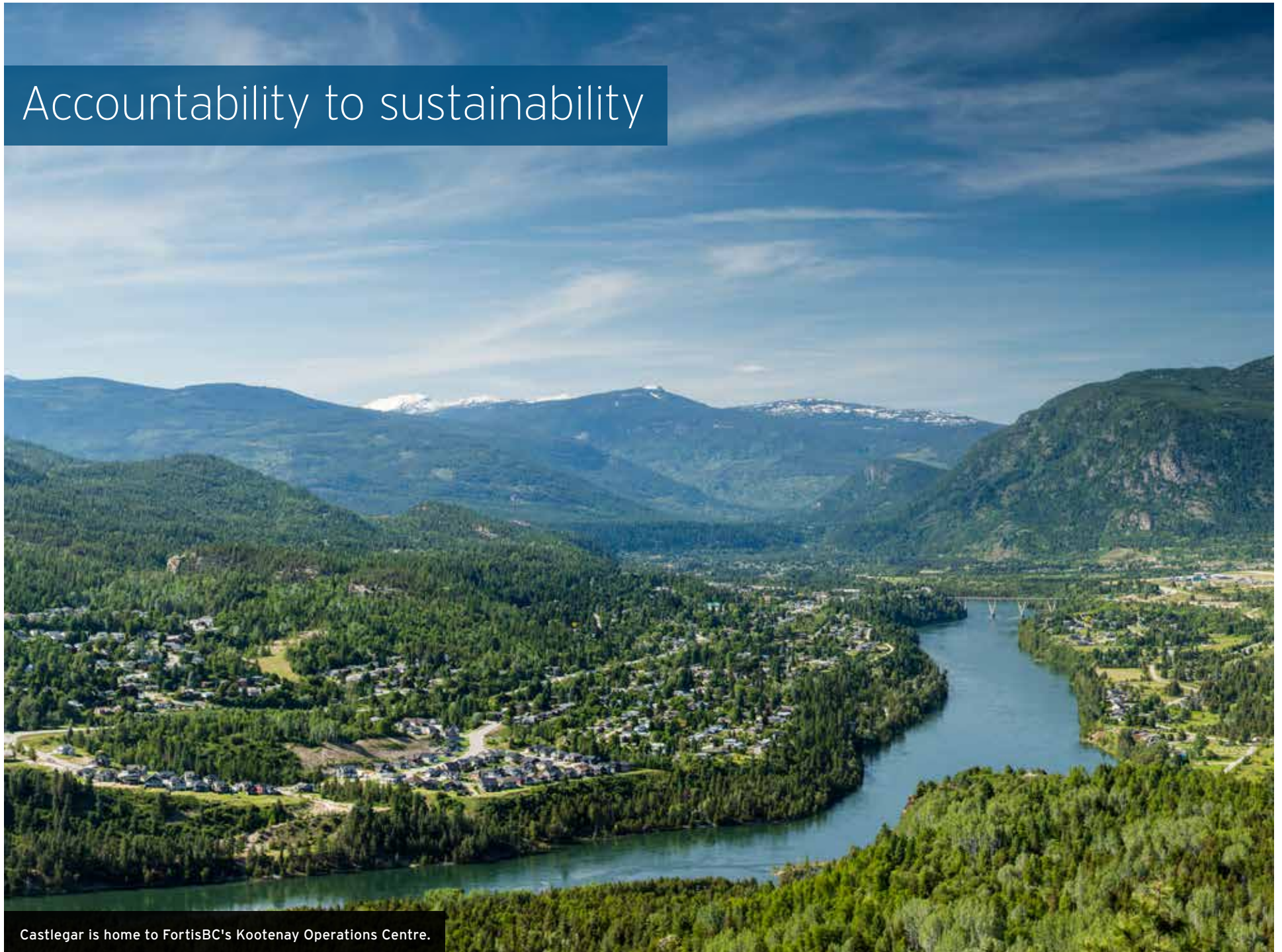
The forecasts and projections that make up the forward-looking information are based on assumptions, which include but are not limited to: receipt of applicable regulatory approvals and requested rate orders; absence of asset breakdown; absence of environmental damage and health

and safety issues; absence of adverse weather conditions and natural disasters; ability to maintain and obtain applicable permits; the ability of FortisBC to attract and retain skilled workforces; continued energy demand; the ability to arrange sufficient and cost-effective financing; no material adverse ratings actions by credit ratings agencies; and the availability of alternative fuel supply.

The forward-looking information is subject to risks, uncertainties and other factors that could cause actual results to differ materially from historical results or results anticipated by the forward-looking information. The factors which could cause results or events to differ from current expectations include, but are not limited to: regulatory approval and rate orders risk; asset breakdown, operation, maintenance and expansion risk; environment, health and safety matters risk; weather and natural disasters risk; permits risk; labour relations risk; human resources risk; information technology infrastructure risk; interest rates risk; impact of changes in economic conditions risk; capital resources and liquidity risk; competitiveness and commodity price risk; and energy supply risk.

All forward-looking information in this report and the information incorporated in this report by reference is qualified in its entirety by this cautionary statement and, except as required by law, FortisBC undertakes no obligation to revise or update any forward-looking information as a result of new information, future events or otherwise after the date of this report.

Accountability to sustainability



Castlegar is home to FortisBC's Kootenay Operations Centre.

Who we are

FortisBC is dedicated to providing the energy our customers need—safely, reliably and at the lowest reasonable cost. More than 2,300 of our employees provide natural gas, electricity and innovative energy solutions to 1.2 million customers in 135 communities throughout British Columbia. FortisBC invests in and maintains local energy infrastructure, offers innovative energy solutions and provides customers with energy conservation incentives and programs. We also own and operate liquified natural gas (LNG) facilities that supply cleaner-burning natural gas for transportation in the on-road and marine sectors, as well as supply LNG for natural gas exports to Asia.

That's energy at work.

As the province's largest energy provider, ensuring that our business is sustainable over the long-term is vitally important to us. For many, sustainability is synonymous with environmental protection and preservation. While this is an important piece of sustainability, it does not stand alone.

For an organization to be sustainable, we must consider everything that enables our operations to succeed over the long-term and ensure we strike the right balance between business, social and environmental factors. We must consider all of the implications of our actions rather than a single outcome.

We believe that, through smart planning and analysis, we can track performance beyond dollars and cents to develop a complete picture of how we are performing across all sectors: Customers, Partners and Communities, Environment and Employees.

Our Sustainability Report reflects that complete picture and our tracking and monitoring of the metrics contained within will help guide many of the decisions we make in years to come. To see how these metrics were put into action in 2017, our [2017 Corporate Report](#) acts as an important companion piece to this document. Our core operations and our environmental and social impact stories are interconnected.

We are a company that is forward thinking: we are preparing today for the energy landscape of tomorrow. FortisBC understands the unique energy needs of British Columbians and knows that decisions we make today will have an impact for decades to come.

FortisBC: the story of sustainability

While this is the inaugural FortisBC Sustainability Report, sustainability has been a part of FortisBC, even before we referred to it as such. FortisBC has always taken a long-term approach to planning and operating. To do this successfully, we need to be concerned with a balance of financial, environmental and social factors and outcomes. Focusing on sustainability ensures that we are pursuing the health and well-being of our customers, our partners and communities, the environment and our employees—today, tomorrow and into the future.

Our commitment to future sustainability is firm, as is our goal of supporting British Columbians in transitioning to a low-carbon economy.

How do we know that sustainability has always been important to FortisBC? Because we can see it reflected in our company's values:

Safety: we put safety first

Safety is always top of mind. Internally, FortisBC's Target Zero program is our commitment to employee safety. Externally, public safety is one of our primary concerns, and we work to educate the public about safety near gas lines and power lines, encourage safe digging practices and support other organizations that promote public safety related to gas and electricity.

Customer centric: we value the customers' business

Every day we work to provide our customers with great service and innovative solutions to their challenges. Because we believe that trust, respect and open communication are the key to strong relationships, we employ a strong team of Community and Indigenous Relations Managers, who work closely with municipalities and Indigenous communities to understand and address their needs.

Collaborative: we work as one company, one team with shared success

FortisBC strives to build internal relationships and support diversity in the workplace, which strengthens our ability to recruit and retain the best talent. Our teams work in collaboration to support successful projects and initiatives that benefit our customers, the communities in which we operate and our employees.

Respectful: we are respectful, honest and ethical

We focus on a safe working environment in which everyone is valued, respected and treated with fairness. We value diversity and inclusion and support that work by providing education for our employees on respect, anti-bullying and cultural competency. We work with municipalities and Indigenous communities to build strong and mutually beneficial relationships.

Progressive: we seek better ways

We research innovative energy solutions so that our customers will continue to have the energy they need safely, reliably and at the lowest reasonable cost. Along with anticipating and innovating for British Columbia's future energy needs, we also work to deliver and improve upon cutting-edge technology that reduces environmental impacts, including Renewable Natural Gas, carbon capture and hydrogen injection.

A message from the President and CEO



Roger Dall'Antonia

At FortisBC, we have established our reputation as a company that provides energy solutions to its customers reliably, safely and at the lowest reasonable cost. We've long been innovators in the energy space, and it's our intention to continue from that spirit of innovation into the future as the energy sector evolves to address affordability and environmental challenges. As B.C.'s leading energy provider, our endeavours are supported by our values as a safety-focused, customer-centric, collaborative, respectful and progressive operation. At the end of the day, by staying true to our values, we position ourselves for continued long-term success.



Using LNG as a marine fuel enables greater sustainability from an economical and environmental perspective by cutting both cost and emissions. Pictured here is an LNG-powered Seaspan ferry—one of two in its fleet.

Sustainability at FortisBC is the lens through which our organization considers long-term financial accountability to its shareholders, customers and employees; ongoing responsibility in the communities in which we operate; and environmental best practices so that future generations will continue to enjoy B.C.'s natural beauty and diversity. In addition, we can play a role beyond the borders of British Columbia and Canada in reducing global greenhouse gas (GHG) emissions.

FortisBC's commitment to being a sustainable organization is embedded into our business. Our customers, community partners, employees and our shareholders expect us to operate responsibly, transparently and with integrity extending beyond British Columbia, now and into the future. And we do so because it's both a smart approach and it's the right approach.

FortisBC began laying the groundwork for a sustainability-reporting structure in 2017. While we may still be in the early days of sustainability tracking and reporting, our commitment to embedding sustainability throughout our operations is evident.

The development and advancement of affordable, reliable and efficient energy for homes and businesses, our commitment to Indigenous partnerships and the growth of our natural gas business in the transportation sector are all evidence of our pursuit of sustainability—and excellence.

The Sustainability Report measures our commitment to our long-term vision for FortisBC. Going forward, we will measure our success with both metrics and important achievements.

We look forward to continued transparency and progressive planning into our future.

A handwritten signature in black ink, appearing to read 'RD'.

Roger Dall'Antonia
President & CEO
FortisBC

History of sustainability

Sustainability has always been a part of the FortisBC story

The continuous operations of FortisBC, including companies amalgamated over the years, account for more than a century of sustainability. This history of sustainability becomes clear as we look at some of our milestone moments through the lens of our four sustainability pillars: **Customers, Partners & Communities, Environment** and **Employees**.

Customers

Our customers have always been our focus. Since the beginning of our operations, and the operations of our predecessor companies, we've worked to provide the energy that our customers need to work, play and live. Consider, for example, the construction of our first hydroelectric plant at Bonnington Falls in 1898, the city gas systems in Vancouver and Victoria in the early 20th century, and the incorporation of Inland Natural Gas to distribute natural gas through the province's interior in the 1950s. Our dedication to meeting our customers' needs started over a century ago. We've continued to grow to meet the energy needs of our customers and have found ways to better serve them including new online options that enable customers to do everything from provide their opinions to monitor their electricity use on an hour-by-hour basis.

Partners & Communities

Relationships are a primary consideration in our Partners & Communities pillar, and those valued relationships have led to making our organization stronger, more resilient and more adaptive to the needs of the communities we serve. The adoption of the Statement of Indigenous Principles in 2004 marked a turning point in our relationships with Indigenous communities. In B.C.'s Interior, we provided tools and funding to the Okanagan College in Kelowna in 2016 to provide the region with more trades training opportunities. In 2017, we entered into a memorandum of understanding with the City of Vancouver to find ways to reduce GHG emissions in the Lower Mainland while ensuring natural gas's role in a low-carbon future.

Environment

Innovation, one of the hallmarks of FortisBC, includes improving operations in order to protect the natural environment. One of the most popular stories in recent years has been via our Osprey Cam in Kelowna, established in 2009, which highlights the ways in which we care for these birds of prey—and other wildlife—near our power lines. In 2010, we became the first utility in North America to offer Renewable Natural Gas¹ to our customers. In 2013, we began to work with BC Ferries to transition new ferries to using liquid natural gas (LNG) to reduce emissions.

Employees

In 1994, we established the Warm Hearts charity that benefits both the communities we serve and our employees who tell us they feel personally enriched by giving back. Our Target Zero safety program, started in 2016, ensures safety is part of our organizational culture and that all of our people go home safely at the end of the day.

As we look to the future, and a low-carbon economy for British Columbians, we know that our focus on sustainability will continue to benefit our customers, our partners, the communities we serve, the environment and our FortisBC employees.



Our Upper Bonnington hydroelectric facility has provided sustainable, emissions-free power for over a century.

¹Renewable Natural Gas is produced in a different manner than conventional natural gas. It is derived from biogas, which is produced from decomposing organic waste from landfills, agricultural waste and wastewater from treatment facilities. The biogas is captured and cleaned to create carbon neutral Renewable Natural Gas (also called biomethane).

Area of operations

Total length of natural gas and electric transmission and distribution lines across B.C.

56,000 km

Total volume of natural gas sales in 2017

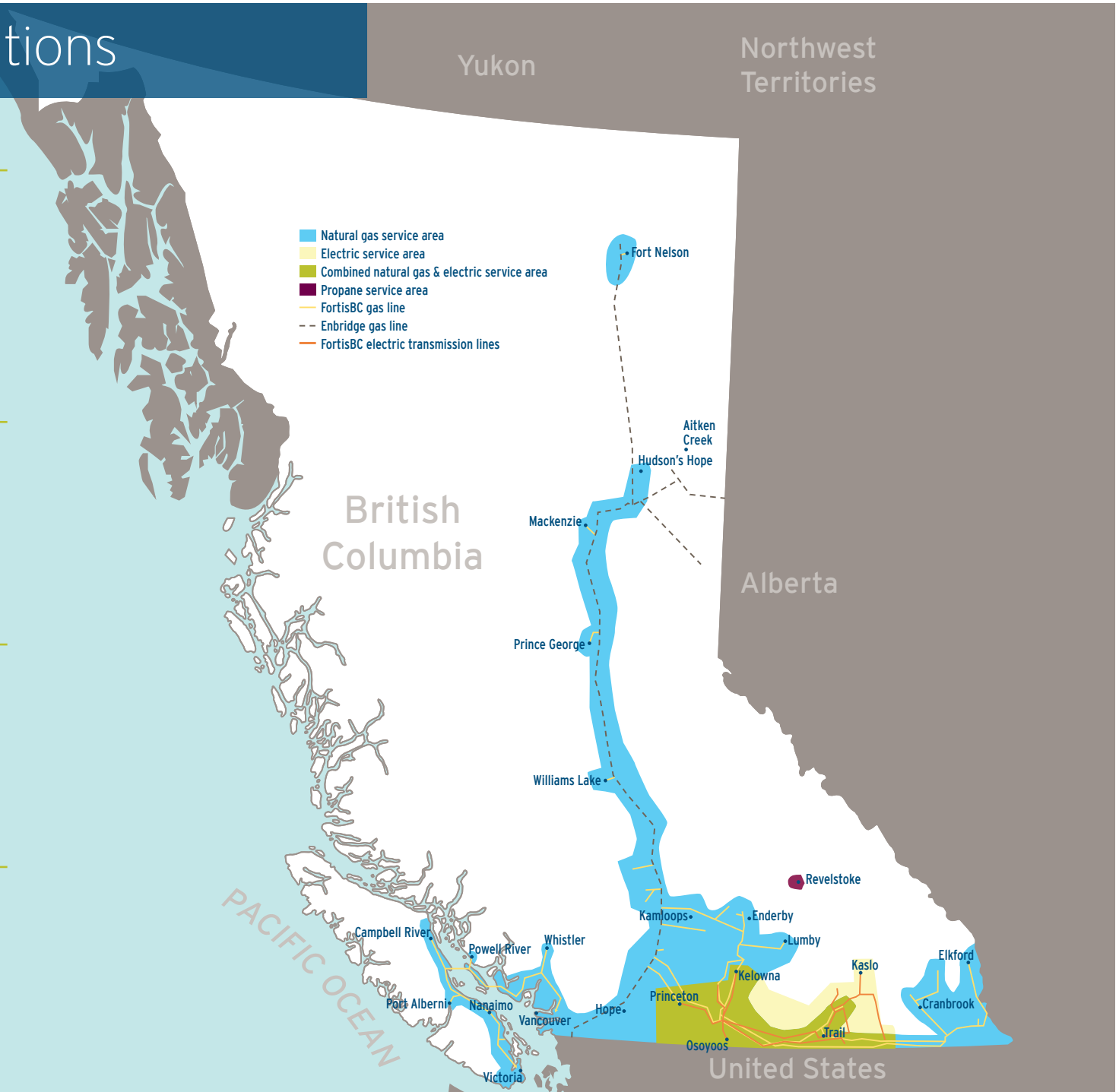
221 petajoules

Total peak electricity demand in 2017

731 megawatts

Total number of gas and electric customers across B.C.

1.2 million



Guiding principles & business priorities



To protect our employees, communities and our operations, safety is always top of mind. Our operations must be safe in order to be viable over the long term. John Kopchia, FortisBC Field Operations Supervisor, at an emergency training session in Kelowna.

Guiding principles

FortisBC's vision is to create value for our customers, employees and shareholders through leadership in the generation, transmission and delivery of energy, safely and reliably at the lowest reasonable cost. This leadership is based not only in our day-to-day performance but also in our commitment to seek better ways and provide innovative energy solutions for British Columbians.

FortisBC is committed to playing an important role in B.C.'s transition to a low-carbon future. We see ourselves as a trusted energy solutions provider that has economic, environmental and community-based solutions for the transportation and building sectors. We're focused on providing support for British Columbians meeting their climate goals while leveraging FortisBC's existing assets and infrastructure. And we're addressing global emissions through bunkering and the export of LNG to Asia as well as local transport markets.

Sustainability is more than just environmental considerations; sustainability includes socioeconomic concerns. We prioritize the strength and resiliency of the communities where we operate, the needs of our customers we serve and the health, safety and career goals of our employees. To help achieve this vision for the future and stay true to our corporate values, our business priorities are focused on:

Customers and maintaining competitiveness

We respond to the changing needs of our customers. In 2017, we enhanced our customer communication by providing more ways to connect with us in person, by phone and online.

Our customer contact centres handled close to 3,900 calls per day in 2017 and our willingness to actively work with customers and address their concerns helps cement our standing as B.C.'s foremost energy provider.

Safety and maintaining system integrity

We ensure the safety of our employees and the public. Every day, we're building on our safety culture so that we all return home safely at the end of the work day. In 2017, FortisBC continued its public awareness and education efforts supporting natural gas and meter safety as well as power line safety in the Interior. We're also maintaining focus on safeguarding the integrity of our gas transmission system through new in-line inspection tools for smaller-dimension lines.

Growth and Major Projects execution

FortisBC is executing key business initiatives that enable the continued growth of the business and economic opportunity for British Columbia. In 2017, the Surrey to Coquitlam natural gas line upgrade was completed, installing eleven kilometers of new gas line to enhance our coastal transmission system that serves over 700,000 homes and businesses in the lower mainland.

Regulatory

FortisBC works hard to keep rates fair, equitable and affordable for our customers throughout the regulatory process with the British Columbia Utilities Commission (BCUC). Throughout 2017, we met with customers to better understand their preferences and concerns on how they were billed for electricity. These and other discussions help shape the applications we file with the BCUC in designing our rates.

Leveraging innovation and technology

FortisBC continues to focus on developing new energy offerings to respond to customer preferences and market dynamics. Over the last year, FortisBC adopted technology to maintain and expand our markets, respond to changing customer expectations and improve service delivery. For example, we supported BC Transit and the Resort Municipality of Whistler in converting its public bus fleet to compressed natural gas (CNG), providing decreased fuel costs and lower air contaminant and GHG emissions.

Stakeholder engagement and communications

FortisBC has established a reputation for our proactive collaboration with stakeholders, communities and different levels of governments—a reputation we will continue to build on. In 2017, we provided energy assessments to 233 small businesses throughout the interior of the province and worked closely with several municipalities to take advantage of energy solutions that can help communities reach their regional climate action goals.

Employee leadership and talent development

Our future success depends on supporting employee development. As an organization, we invest in our employees' development through on-the-job learning, tailored work assignments and focused skills training, and support sustained learning for new and existing leaders. By creating an environment where our people can succeed, we maintain a stable and experienced employee base. In fact, in 2017, we honoured 217 employees for their service—with tenures ranging from five to 45 years!

These values and priorities align within the four pillars of our sustainability framework:

Customers

Meeting evolving customer expectations:

- Customer experience
- Operational safety and system reliability
- Public safety, emergency preparedness and response

Partners & Communities

Building strong relationships:

- Community and partner relations
- Indigenous communities engagement and partnerships

Environment

Enabling a sustainable energy future:

- Energy solutions and energy use practices
- Environmental stewardship and management

Employees

Empowering our people:

- Employee engagement
- Employee safety and well-being

Framework overview

Energy at work  FORTIS BC[®]

We've got **Rebates**

Transform your pad
with low-cost tips and
high-efficiency equipment



FortisBC street team members speak to home show attendees about energy saving measures, available rebates and the benefits of natural gas.

The sustainability framework

Our Sustainability Framework is built to ensure the long-term sustainability of FortisBC across four primary pillars: **Customers, Partners & Communities, Environment** and **Employees**. Meeting expectations in each of these areas is crucial in order for FortisBC to meet its business goals in accordance with its values.

Arriving at our framework was no simple task. It was instrumental to gather external perspectives on FortisBC's future sustainability priorities in order to inform and update our Sustainability Plan and ensure that goals and activities were aligned with the needs and priorities of stakeholders and partners. This included a review of the current sustainability practices and identified areas of strength and opportunity. We also conducted internal discussions with employees throughout the organization as well as over 20 interviews with senior leadership of the business community, provincial government, unions, regulators, municipalities, associations and Indigenous groups to understand their perspectives on sustainability.

Understanding where the shared priorities and concerns lay from our stakeholders helped guide our decisions on the sustainability pillars and the framework they support. For example, there was a common view that sustainability should be more than just compliance with standards but rather leadership and demonstrable action.

As such, FortisBC set its sights on being among the leaders in sustainability and finding opportunities to share its accomplishments with British Columbians.

Our sustainability framework aligns well with Global Reporting Initiative (GRI) sustainability metrics. GRI is an independent international organization that has pioneered sustainability reporting since 1997. The GRI Sustainability Reporting Standards are the first and most widely adopted global standards for sustainability reporting.

How metrics were chosen

While there are numerous metrics available, we reviewed our most significant sustainability practices based on their impacts to our business, to stakeholders and to the communities affected by our business. The metrics chosen give a holistic view of where we've been, and provide insight into what is required in order to ensure we continue to make progress on sustainability practices.

All metrics included in this report are aligned with the GRI's standards for sustainability reporting. Benchmarking allows us to find areas to improve upon, as well as where we may be leading the industry when it comes to sustainability.

As our shareholders and stakeholders seek information on a wider range of topics, we plan to expand upon the current reported metrics in order to ensure we continue to evolve and raise our standards around our business practices.

Description of metric categories

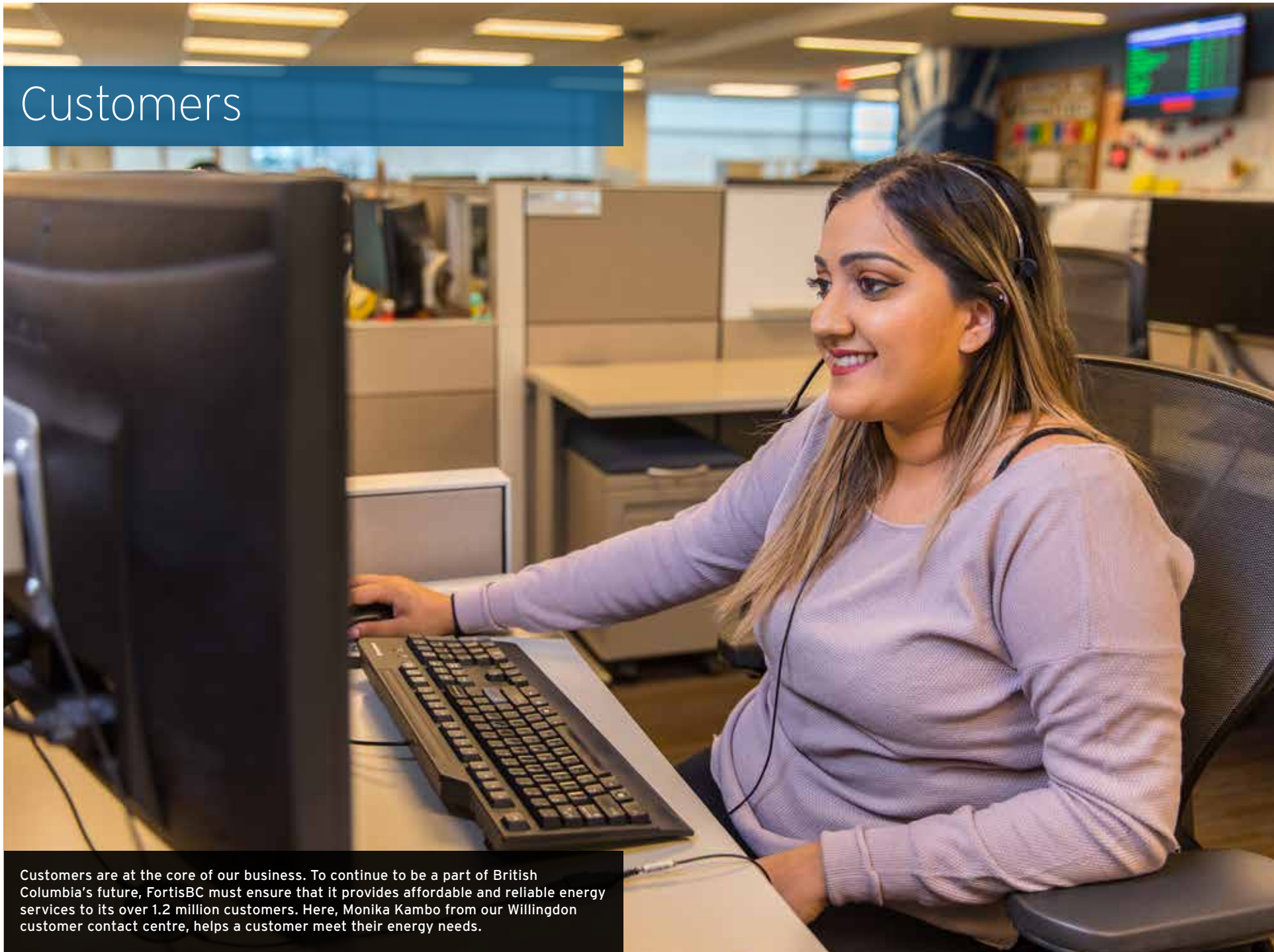
When we measure metrics related to **Customers**, we are considering the quality of service provided to our customers, our public safety awareness programs, emergency preparedness and response and the delivery of energy safely, reliably and at the lowest reasonable cost. We provide our customers with service and innovative solutions to meet their energy needs.

The **Partners & Communities** pillar is a measurement of the relationships we've built with communities throughout B.C. through local investment and honest conduct, including Indigenous communities. We provide gas and electricity service to customers in 135 communities. Our gas and electricity infrastructure crosses more than 150 Indigenous traditional territories and our company also provides service to 56 Indigenous communities. Understanding, respect, open communication and trust are key values in our relationships with Indigenous communities and are embedded in FortisBC's formal Statement of Indigenous Principles.

Environment refers to innovative energy practices that fit in a low-carbon future, including the reduction of GHG emissions, conservation and energy management programs for our customers and energy efficiency within our own operations. It also refers to our record on environmental stewardship and management such as fish and wildlife management near our facilities. Along with anticipating and innovating for British Columbia's future energy needs, we work to deliver and improve upon cutting-edge technology that reduces environmental impacts, including Renewable Natural Gas, electric vehicle (EV) charging stations and natural gas for transportation (NGT).

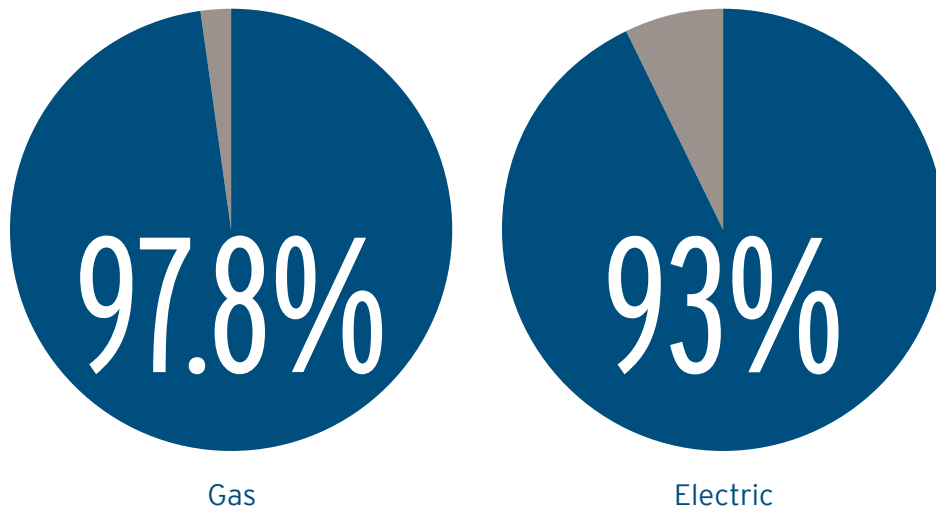
The **Employee** pillar measures the ways in which FortisBC provides a safe, respectful and engaging workplace that recognizes the value that our employees bring to the organization. We focus on a working environment in which everyone is valued, respected and treated with fairness. And we work to strengthen internal relationships and support diversity in the workplace, which enhances our ability to recruit and retain the best talent. By developing a stable and motivated workforce in this fashion, we are able to deliver on customer energy needs and shareholder expectations.

Customers



Customers are at the core of our business. To continue to be a part of British Columbia's future, FortisBC must ensure that it provides affordable and reliable energy services to its over 1.2 million customers. Here, Monika Kambo from our Willingdon customer contact centre, helps a customer meet their energy needs.

Emergency calls responded to within one hour



Responding to emergencies resulting from damage to our electrical and natural gas infrastructure in a timely and thorough manner is critical to ensure the safety of our customers and reliability of service delivery.

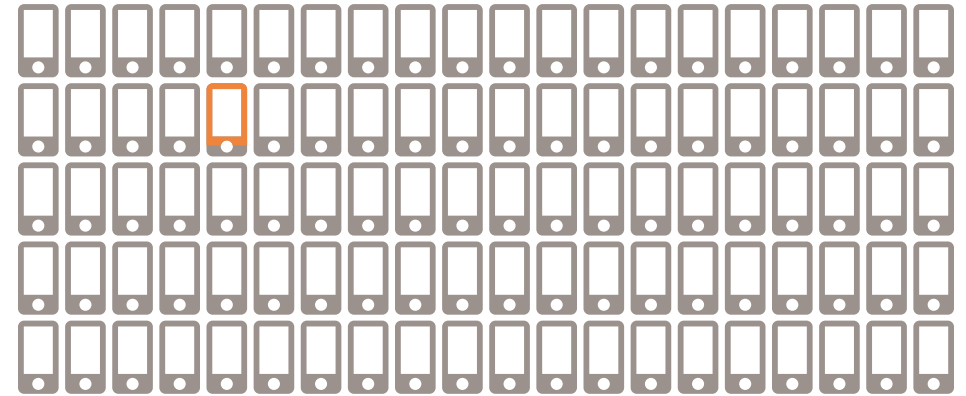
2017 System Average Interruption Duration Index (SAIDI)¹ **4.05**
 2017 System Average Interruption Frequency Index (SAIFI)² **1.78**

Customer service awards and acknowledgements

- Contact Centre and Web Self-Service World Class Customer Experience Certified by SQM Inc. This recognition based on 80 per cent (or higher) of customers getting their call resolved on the first call or first contact with our website for three consecutive months or more.
- Awarded **Highest Customer Service in Energy** for 2017 (among SQM Inc.-rated companies). This recognition indicates FortisBC has demonstrated high first-contact response and customer experience performance.

SQM Inc. provides unbiased evaluations of a company's operations relating to issues of quality, service, cleanliness and value. Awards received reflect relative performance of FortisBC as compared to customer service standards applicable to various industries and service providers.

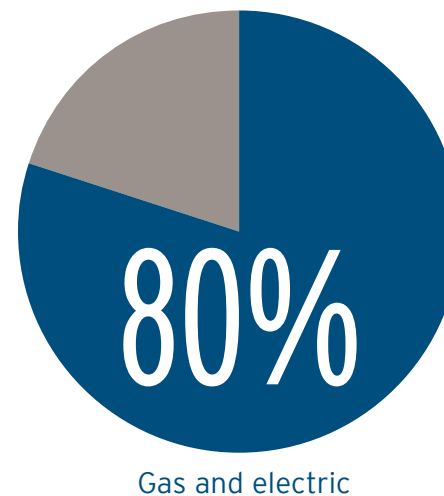
Fewer than one (.85 to be exact) gas line damage incidents for every 100 BC One Call requests



BC One Calls increased in 2017; however, there are still situations where work was undertaken without knowledge of where underground utilities are located.

Resources like BC One Call help underline the importance of "click or call before you dig" to reduce public damage of gas lines. Reducing damage also prevents added GHG emissions.

Customers who achieve resolution in one contact with our call centre



Resolution of a customer's reason for contacting FortisBC is very closely aligned with satisfaction and a strong measure of overall customer satisfaction as a result.

¹ SAIDI depicts the average outage duration for each customer served, indicated in minutes per customer.

² SAIFI depicts the average number of interruptions that a customer would experience, indicated in units of interruptions per customer.

Partners & Communities



As an organization, we draw strength from the communities we work in and work to build relationships based on trust, understanding and mutual benefit. In 2017, our employees worked to help clean up flood damage on Bluebird Beach in Kelowna, supporting communities that are home to many employees.

Community giving

Total dollars directed back into communities through corporate investment and employee donation:

\$2.1 million

Providing support for organizations and charities is one way FortisBC and its employees care for their communities.

Participated in

251

community events

Communities that received community investment:

85

Supporting the communities we work and live in is part of why we are B.C.'s energy leader.

Giving back to our communities is important to allow for communities to grow and prosper.



FortisBC made relationships with Indigenous peoples a priority in 2004 when we signed our Statement of Indigenous Principles. In 2017, we celebrated Indigenous Peoples Day in both our Surrey and Kelowna offices, including a traditional carving demonstration from Xwalacktun of the Kwakwak'wakw nation.

Working with Indigenous communities

More than

\$5 million

earned by Indigenous businesses for the Surrey to Coquitlam natural gas line upgrades in 2017

Indigenous-affiliated businesses provided valuable support in 2017 on the Surrey to Coquitlam natural gas line upgrade.

Indigenous communities received training from the First Nations Emergency Services Society:

126

which we provide with financial support and educational sessions on natural gas and LNG safety

Environment



Through our Conservation & Energy Management programs, we provide energy-efficiency tips and rebate programs to help our customers reduce their overall GHG emissions and help communities meet their Climate Action goals.

Using innovative energy solutions such as Renewable Natural Gas and LNG for transportation reduces GHG emissions.

GHG emissions avoided from Renewable Natural Gas, LNG, CNG, cumulative Conservation & Energy Management and electric vehicle usage¹:

250,000

tonnes CO₂e

Emissions avoided in 2017 are equivalent to heating the communities of Prince George and Vernon combined, or

56,500

households.

Equivalent to taking approximately **53,500** vehicles off the road



Each icon represents 250 vehicles

¹ Values were derived using a variety of industry standard GHG emission factors and inputs. For CNG, LNG and Conservation & Energy Management, the GHG emission factors and inputs are publicly available for review through either the B.C. Low Carbon Fuels Compliance Pathway Assessment or through demand side management reports from FortisBC's website.

² Energy savings are from customers' efforts to encourage efficiencies due to FortisBC programming.

³ A Class 3 spill is defined as an event that results in significant damage that includes large spills in waterways, spills that significantly exceed externally reportable thresholds, a regulatory non-compliance investigation by regulator and/or a fire that may cause damage more than \$100,000.

Offering Conservation & Energy Management programs helps reduce energy demand and improve environmental outcomes.

Energy savings from 2017 natural gas conservation efforts²:

533,000 GJ

Equivalent to the energy used for home heating in **6,000** homes in a year.

Total expenditure through all Conservation & Energy Management programs in 2017: **\$34,000,000**

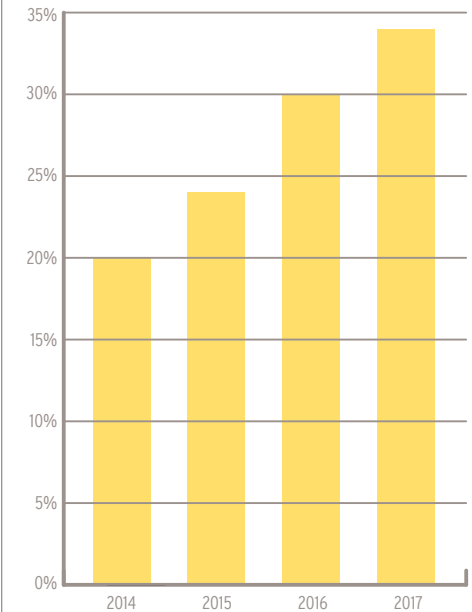
Energy savings from 2017 electric conservation efforts:

27,800 MWh

Equivalent to the power used by approximately **2,600** homes in a year.

Total expenditure through all 2017 Conservation & Energy Management programs: **\$7,300,000**

Growth in customers with paperless billing

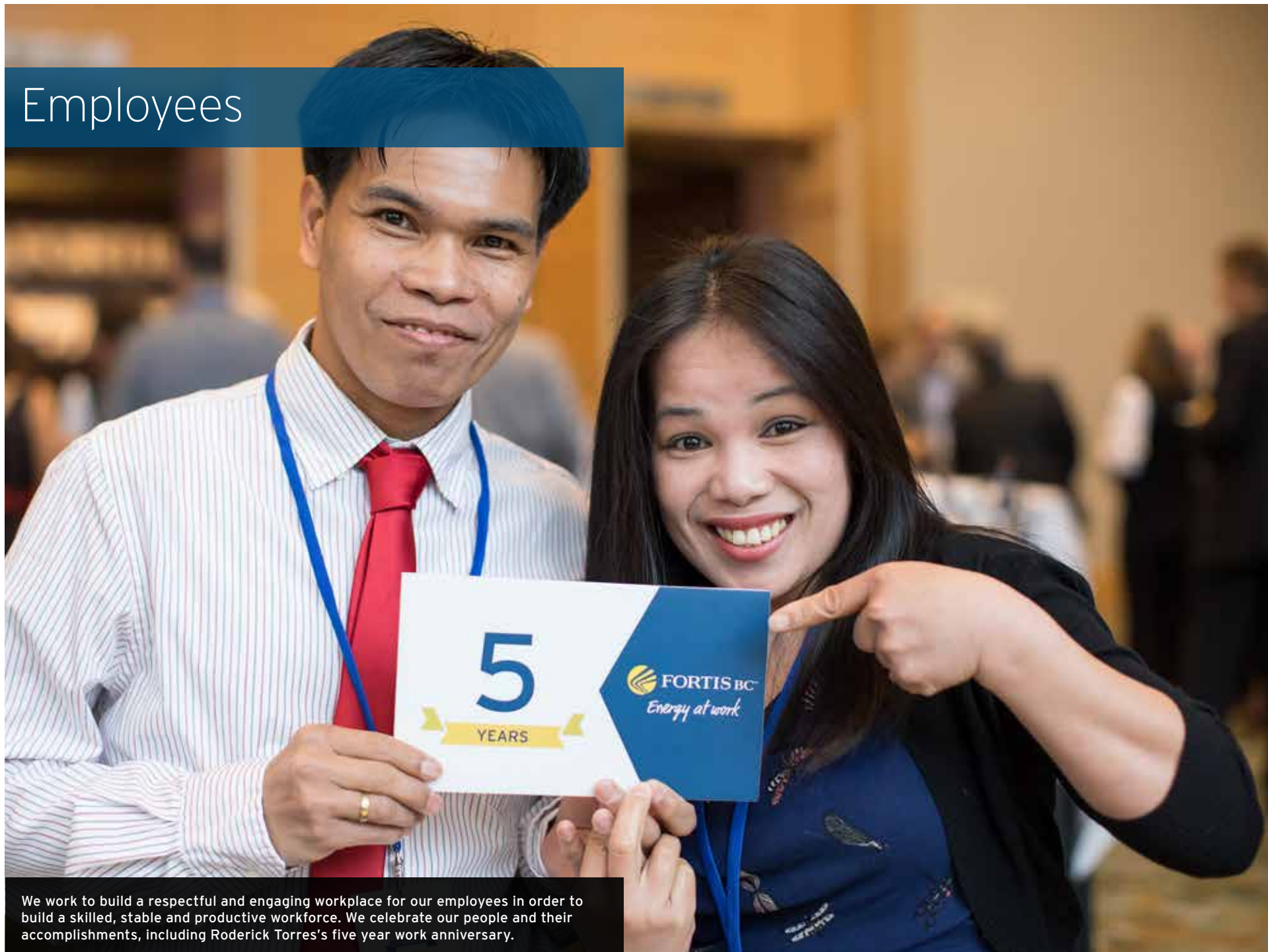


The growing percentage of customers that are on paperless billing represent overall savings for customers as a result of reduced printing and postage-related costs as well as positive impacts on environmental considerations by reducing paper use and waste.

Number of Class 3 spills in 2017 by FortisBC³:

0

Employees



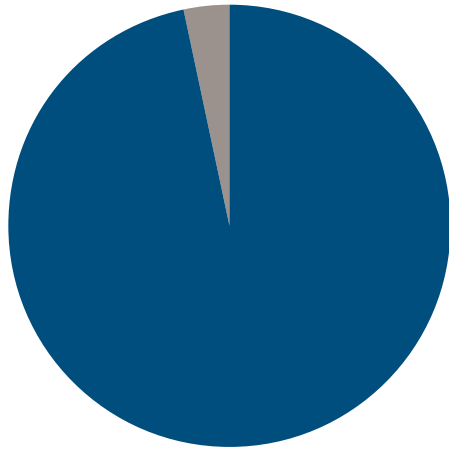
We work to build a respectful and engaging workplace for our employees in order to build a skilled, stable and productive workforce. We celebrate our people and their accomplishments, including Roderick Torres's five year work anniversary.

2017 All Injury Frequency Rate (AIFR) of **1.3** per 100 workers



We maintain strict safety standards to keep our employees safe. FortisBC's Target Zero program has a mission to raise the overall level of safety awareness and to create an environment where everyone works together and watches out for each other to prevent injury and incidents—which will lead us to our target of zero incidents.

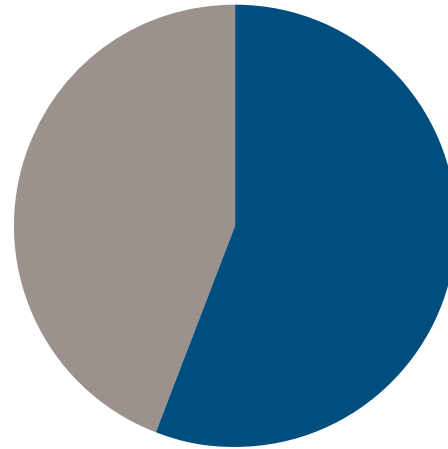
Voluntary turnover of only **3.3%**



Excluding retirements

Our low voluntary turnover rate is indicative of employee satisfaction and engagement.

56% of job postings are filled internally



We support employees' career development by promoting from within.

Training

Overall in-class and online training attendance, including trades, compliance, business and leadership development:

5,300 courses

14,800 participants

Our employees are valued and developed to enhance their careers as well as job-related skills and satisfaction.



Each year, our executive team (including our vice president of external relations and business development Doug Stout pictured here at the podium) speaks directly to our workforce to share the latest in our business direction and share new visions for the future of FortisBC.

Vision for the future



The future is now

As a sustainable organization, we're always looking ahead—innovating for the future, and setting a vision that we move toward with confidence. Our pillars of sustainability—Customers, Partners & Communities, Environment and Employees—provide the framework we need to ensure our vision is as robust as possible.

- We intend to continue to deliver safe, reliable energy in an environmentally-responsible manner to all of the communities that we serve. And we'll continue to earn the trust of those communities through transparency and ethical conduct.
- In doing so, we envision a future where efficiency and conservation lead to lowered energy requirements and lowered emissions, and renewable energy sources become a greater focus in our operations.
- We'll continue to work closely with local governments and organizations to help them lower their emissions, meet Climate Action goals and provide solutions for residents and businesses to save energy and money.
- We've applied to double our conservation and efficiency incentives available to our customers for 2019 and are committed to tripling this investment by 2022, subject to regulatory approval.
- We're working on innovations in biogas, subject to regulatory approval and supply availability, that could boost our supply of Renewable Natural Gas to 10 per cent of FortisBC's annual natural gas demand by 2030.



We are building for the future in our operations and practices to help British Columbia transition to a low-carbon economy and sustainable future.

- We'll support the move to low-carbon, low-emission vehicles by advancing electric vehicle charging infrastructure and conversion of medium and heavy duty vehicles and marine vessels to natural gas in the province of British Columbia.
- We'll continue to expand on our network of fast-charging EV stations so that people can drive their electric vehicle with confidence across our electric service territory.
- We'll work to develop new markets that increase the use of our existing infrastructure, helping to keep delivery rates stable for our customers in the long term.
- We're committed to building effective Indigenous relationships and to ensure we have the structure, resources and skills necessary to maintain these relationships.
- We'll continue to work closely with our customers, allowing us to better understand their needs and expectations so that we can deliver the energy they require.
- Our workforce will represent the diversity of the communities we serve, including Indigenous communities.
- We'll continue to improve our safety practices to ensure that our employees go home safely every day. Our Target Zero program, which aims to eliminate injury and lost-time incidents, will continue to play a large part in protecting both employee and public health and safety.

Q&A with Jody Drope



Jody Drope, Vice President, Human Resources and Environment, Health and Safety

The dialogue around energy provision and environmental policy frames our current operating environment at FortisBC. Jody Drope provides context on how FortisBC has positioned itself to address these topics, and how opportunities for resilience have developed as a result.

Q How does FortisBC's sustainability vision align with the long-term interests of the business?

A We believe by being financially, socially and environmentally focused, our business is sustainable for the long term. We engaged several key internal and external stakeholders in the development of our sustainability framework, which involved meaningful conversation—something that's consistent with our overall approach to

business. From these conversations, four key pillars emerged to comprise our sustainability framework: Customers, Partners & Communities, Environment and Employees.

We place great importance on developing positive relationships with all of our customers and work hard to ensure they have positive interactions with us. Our employees benefit from our Safety First focus, with strengthened health and safety programs, awareness and initiatives designed to prevent safety incidents and injury. We take a forward-looking approach through continuous engagement, based on honest and transparent conduct, with our community partners, stakeholders and rights holders, including municipal and Indigenous parties. And our commitment to minimizing the environmental impact of our operation and reducing global GHG emissions is central to our sustainability strategy.

Q How have international commitments like the Paris Agreement and pressures to reduce GHGs affected FortisBC?

A We were pursuing environmentally responsible energy supply prior to the Paris Agreement and continue to do so. We are very proud to have decreased reported GHG emissions by 26 per cent in 2017 relative to 2005 from gas operations. We see ourselves as part of the solution by providing sustainable energy in B.C. and beyond. We take our leadership responsibility seriously and will continue to pursue innovation and technology to improve the efficiency of FortisBC operations.

Natural gas, in liquified or compressed form, can be used for transportation to replace more carbon intense diesel and marine fuel. LNG can replace diesel fuel and propane for heating and power generation in off-grid communities. And we continue to advance innovative ways to reduce the use of natural gas, such as our Renewable Natural Gas program and exploring methanized hydrogen.

Investments in electric vehicles and charging stations as well as renewables like wind and solar infrastructure are opportunities we're exploring. Our hydroelectric energy from the Columbia River is 99 per cent renewable, which fundamentally contributes to global emissions reductions.

Q Being a regulated energy provider, how does the regulatory and political environment impact FortisBC?

A FortisBC is a leading energy provider in British Columbia. This title does not come without the ability to form strong and positive relationships with our key stakeholders. Regulation confirms to our customers that our strategies for growth have had financial and technical oversight; projects only move forward after careful review and only with the support of our regulators and shareholders. Increasingly, federal and provincial regulations have placed more importance on the environment and on building strong, strategic relationships with Indigenous peoples. We embrace this opportunity by increasing our engagement with communities as well as federal, provincial, municipal and Indigenous policy makers.

Q How has FortisBC helped British Columbians manage their energy consumption?

A We provide guidance and leadership on the efficient use of our affordable, abundant and safe energy supply while focusing on innovative ways to conserve consumption, which strengthens these relationships.

Energy provision, customer satisfaction and ensuring that energy products are safe, reliable and affordable are core business functions. FortisBC takes a proactive role to help customers realize energy efficiencies. Along with our Renewable Natural Gas, CNG and LNG technologies for alternate uses, our Conservation & Energy Management programs provide rebates and other incentives for homeowners and businesses that encourage efficient energy use. In 2017 alone, these programs helped to avoid the release of approximately 250,000 tCO₂e or the equivalent of heating a community approximately the size of Prince George and Vernon combined, or 56,500 households.

Appendix



Performance summary

For 2017, we identified our performance across 40 indicators in our four sustainability pillars. These indicators show an overall performance we can be proud of as well as a road map for continued focus.

As we advance our sustainability program, we'll track our ongoing performance against these indicators and strive for continuous improvement. In future years, this report will contain historical data to enable us to show trends.

Customers Pillar¹

Indicator	2017 Performance
Operational safety and system reliability	
Integrity Management - gas	-2
Integrity Management - electric	-2
Energy use	
Amount of energy delivered, gas and electric ³	64,700 GWh or 233 PJ
Customers	
Number of customers, gas	1,008,000
Number of customers, electric	172,000
Customer satisfaction index - gas ⁴	8.4
Customer satisfaction index - electric ⁴	8.2
Number of cybersecurity incidents ⁵	0
Economic	
Fuel cost savings for customers using natural gas for transportation	-2
FortisBC investment in Conservation & Energy Management programs ⁴	\$41.3 million

¹ This summary table reports on data for FortisBC Energy Inc. and FortisBC Inc.

² Value is not available at time of print.

³ Total amount of natural gas and electricity delivered to FortisBC customers, excluding energy exports and upstream usage, amounts to 51 per cent of energy provided by public utilities.

⁴ As reported to the BCUC.

⁵ A cybersecurity incident is defined as an incident that is reportable to the BCUC.

⁶ Revenues as reported per external financial statements for FortisBC Energy Inc and FortisBC Inc.

Partners and Communities Pillar¹

Indicator	2017 Performance
Economic	
Economic value generated ⁶	\$1,580 million
Economic value distributed	
• Operating costs	\$177 million
• Employee wages and benefits	\$265 million
• Payments to providers of capital	\$471 million
• Payment to government	\$410 million
• Community investment ⁷	\$2.1 million
Social	
Discrimination incidents ⁸	3
Indigenous	
Indigenous rights incidents ⁹	0
Taxes paid when on reserve land (gas and electric) ¹⁰	\$2.1 million
Safety	
Number of emergency exercises ¹¹	18

⁷ Includes investments into the communities including donations, in-kind contributions and sponsorships.

⁸ Incidents include both discrimination and harassment complaints resulting in policy breaches. Policy includes compliance with all applicable legislation.

⁹ Defined as incidents that have been substantiated by an external authority.

¹⁰ For taxes paid on FortisBC land, infrastructure and other taxable real property situated on reserve or treaty lands of any First Nation that has opted to exercise optional legislative power to property taxation.

¹¹ FortisBC defines an emergency exercise as a simulated emergency in which participants carry out roles, actions, functions and responsibilities that would be expected of them in a real emergency.

Performance summary

Environment Pillar¹

Indicator	2017 Performance
Emissions	
Reduction in criteria air contaminants released to the environment through the use of LNG and CNG by customers	-2
Direct GHG emissions ¹²	153,000 tCO ₂ e
Indirect GHG emissions ¹³	5,300 tCO ₂ e
GHG emissions saved from natural gas used for transportation ¹⁴	48,000 tCO ₂ e
GHG emissions saved from LNG used for marine bunkering	9,000 tCO ₂ e
GHG emissions saved from Renewable Natural Gas	7,700 tCO ₂ e
GHG emissions saved from Conservation & Energy Management programs	186,000 tCO ₂ e
Class 3 spills¹⁵	
Number of spills by FortisBC	0
Number of spills by contractors	3
Waste	
Amount of hazardous waste disposed of in accordance with regulatory requirements ¹⁶	170 tonnes
Penalties	
Number of environmental fines and penalties	0

¹² Scope 1 emissions, as defined under the Greenhouse Gas Protocol, are direct emissions from owned or controlled sources. Direct GHG emissions for 2016: 137,000 tCO₂e; 2015: 131,000 tCO₂e; 2014: 151,000 tCO₂e.

¹³ Scope 2 emissions, as defined under the Greenhouse Gas Protocol, are indirect emissions from the generation of purchased electricity. Indirect GHG emissions for 2016: 3,800 tCO₂e; 2015: 3,000 tCO₂e; 2014: 4,300 tCO₂e.

¹⁴ Value differs from the compliance credits as determined by the Renewable and Low Carbon Fuel Requirements Regulation due to designated allowable limits as determined by the B.C. Government for the purposes of reporting under that regulation.

¹⁵ A Class 3 spill as defined by the FortisBC standard is a spill that results in significant damage that includes large spills in waterways, spills that significantly exceed externally reportable thresholds or spills that result in a regulatory non-compliance investigation by a regulator.

Employees Pillar¹

Indicator	2017 Performance
Health and safety	
All injury frequency rate ¹⁷	1.3 injuries/100 workers
Injury severity rate ¹⁸	17.6 lost work days/100 workers
Number of fatalities	0
Number of employees	2,310
Voluntary turnover rate ¹⁹	3.3 per cent
Employees in unions or associations ²⁰	1,538
Diversity	
Women in workforce ²¹	35 per cent
Women in senior management ²²	27 per cent
Women on the board of directors ²³	36 per cent

¹⁶ Hazardous waste as reported on the Movement Document / Manifest form which is required for the movement of all hazardous waste by the B.C. Ministry of Environment Hazardous Waste Regulation. This includes 50 tonnes attributed to a major roof replacement project.

¹⁷ AIFR 3-year rolling average as reported to the BCUC is 1.83.

¹⁸ Depicts the number of lost work days experienced per 100 workers.

¹⁹ Excludes retirements. The voluntary turnover rate includes high turnover departments such as Customer Service, not present in other industry comparators. Values are aligned with the 90th percentile of industry comparators.

²⁰ Includes members from International Brotherhood of Electrical Workers (IBEW) and MoveUp.

²¹ Number of women in workforce, 813.

²² Women in senior management, 68.

²³ Women on board of directors, 4.

Concordance

This concordance table defines and cross-references what frameworks and other standards FortisBC is in accordance with as well as how those metrics can be benchmarked with other organizations. It also provides a format to share this information easily with readers.

A concordance table is valuable for highlighting the broader vision of the company and how the large number of day-to-day operations across the organization are integrated to give a more complete picture of our sustainable practices. Most importantly, it allows for greater transparency and consistency in our reporting.

Customers Pillar

Indicator	Indicator Definition/Intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
Create value for our customers, employees and shareholders				
First Contact Resolution - customers who achieve resolution in one contact	Indicator represents overall customer satisfaction	G4, PR4, GRI 417-2: Incidents of non-compliance concerning product and service information and labeling	n/a ⁴	n/a ⁴
Gas and Electricity Integrity Management	Indicator demonstrating resilient infrastructure	G4-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories and GRI 102-30: Effectives of risk management and processes	9	Yes ⁵
Fuel cost savings for customers by using natural gas for transportation	Indicator highlighting financial savings from the use of natural gas for transportation	G4-EN4, GRI 302-2: Energy consumption outside of the organization	12	Yes ⁵
Emergency response time - calls responded to within one hour	Highlights the importance placed on ensuring safety of our customers and infrastructure	G4-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories	7, 9	Yes ⁵
Delivering energy safely, reliably and at the lowest reasonable cost				
System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI)	Depicts the average outage duration as well as the average number of interruptions for our customers	G4PR2, GRI 417-2: Incidents of non-compliance concerning products and service information labeling	7	n/a ⁴
Amount of energy delivered - gas and electric	Depicts the amount of energy delivered safely and reliably to customers	G4-EN4, GRI 302-2: Energy consumption outside of the organization	12	n/a ⁴

¹GRI is an independent international organization that has pioneered sustainability reporting since 1997. GRI helps businesses and governments worldwide understand and communicate their impact on critical sustainability issues such as climate change, human rights, governance and social well-being.

²References United Nations Sustainable Development. Goals by number: sustainabledevelopment.un.org/sdgs

³Alignment with Task Force on Climate Related Financial Disclosures.

⁴N/A signifies that the sustainability indicator does not fall within the scope of the UNSDG and TCFD requirements.

⁵Disclose the indicators used by the organization to assess climate risks and opportunities in line with its strategy and risk management process.

Customers Pillar

Indicator	Indicator Definition/Intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
Delivering energy safely, reliably and at the lowest reasonable cost				
Number of customers	Useful to track trend in number of gas and electric customers	G4-8, GRI 102-6: Markets served	n/a ⁴	n/a ⁴
Customer satisfaction index	Highlights customer satisfaction	G4-PR5, GRI 102-44: Key topics and concerns raised	12	n/a ⁴
Number of cybersecurity incidents	Highlights the emphasis on the security of operations for all parties involved	G4-PR8, GRI 418: Customer privacy (substantiated complaints concerning breaches of customer privacy and losses of customer data)	9	Yes ⁵
Reducing overall environmental impact				
Number of gas line damage incidents per 100 BC One Call requests	Indicator demonstrating public-facing resource to encourage reduced damage of gas lines and associated GHGs	G4-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories	9	n/a ⁴

Partners & Communities Pillar

Indicator	Indicator Definition/Intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
Create value for our customers, employees and shareholders				
Community relations including event participation, charitable giving and community investment	Indicator tracks engagement to foster healthy and involved communities	G4-SO1, GRI 413-1: Operations with local community engagement, impact assessments and development programs	11	n/a ⁴
Dollars earned by Indigenous businesses for the Surrey to Coquitlam natural gas line upgrades in 2017	Indicator depicts the importance of investing in and supporting local community businesses	G4-EC9, GRI 204-1: Proportion of spending on local suppliers (definition by FortisBC must specify that local includes Indigenous communities) G4-HR10, GRI 414-1: New suppliers that were screened using social criteria	8	n/a ⁴
Number of discrimination incidents	Depicts number of discrimination incidents that occurred	G4-HR3, GRI 406-1: Incidents of discrimination and corrective actions taken	3	n/a ⁴
Number of Indigenous rights incidents	Depicts the number of incidents involving non-compliance with Indigenous rights	G4-HR3, GRI 406-1: Incidents of discrimination and corrective actions taken	3	n/a ⁴
Taxes paid for reservations served with existing infrastructure	Value illustrates economic contributions for taxes paid on FortisBC land, infrastructure and other taxable real property situated on reserve or treaty lands of any First Nation that has opted to exercise optional legislative power to property taxation	G4-EC8, GRI 203-2: Significant indirect economic impacts	11	n/a ⁴
Delivering energy safely, reliably and at the lowest reasonable cost				
Economic value generated	Indicator depicts economic value generated and distributed	G4-EC1, GRI 201-1: Direct economic value generated and distributed	8	Yes ⁵
Economic value distributed: Operating costs	Value illustrates economic contributions	G4-EC8, GRI 203-2: Significant indirect economic impacts	8	n/a ⁴
Economic value distributed: Employee wages and benefits	Value illustrates economic contributions	G4-EC8, GRI 203-2: Significant indirect economic impacts	8	n/a ⁴
Economic value distributed: Payments to providers of capital	Value illustrates economic contributions	G4-EC1, GRI 201-1: Direct economic value generated and distributed	8	n/a ⁴
Economic value distributed: Payments to government	Value illustrates economic contributions	G4-EC8, GRI 203-2: Significant indirect economic impacts	11	n/a ⁴
Economic value distributed: Community investment	Value illustrates economic contributions	G4-EC8, GRI 203-2: Significant indirect economic impacts	11	n/a ⁴
Number of emergency exercises completed	Illustrates the commitment to safety through completing emergency exercises	G4-PR1, GRI 416: Customer Health and Safety (Assessment of the health and safety impacts of product and service categories)	3	Yes ⁵

Environment Pillar

Indicator	Indicator Definition/Intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
Delivering energy safely, reliably and at the lowest reasonable cost				
Number of environmental fines and penalties received	Indicator outlines the number of environmental non-compliance incidents	G4-EN29, GRI 307-1: Non-compliance with environmental laws and regulations	12	n/a ⁴
Reducing overall environmental impact				
Direct GHG emissions	Indicator highlighting emissions from owned and/or controlled sources	G4-EN15, GRI 305: Direct (scope one) GHG emissions	7	Yes ⁵
Indirect GHG emissions	Indicator highlights emissions from the generation of purchased electricity	G4-EN16, GRI 305-2: Energy indirect (Scope two) GHG emissions	7	Yes ⁵
GHG emissions saved from natural gas	Indicator depicts emissions saved through the use of various FortisBC programs	G4-EN19, GRI 305-5: Reduction of GHG emissions	7	Yes ⁵
Reduction in Criteria Air Contaminants released to the environment through the use of LNG and CNG by customers	Indicator highlights the reduction in air pollutants due to the use of LNG and CNG by customers	G4-EN19, GRI 305-5: Reduction of GHG emissions, and GRI 305-7: Nitrogen oxides, sulfur oxides and other significant air emissions	11	Yes ⁵
Number of spills	Indicator outlines the number of spills that occurred by contractors and FortisBC employees and were cleaned up	G4-EN24, GRI 306-3: Significant spills	15	Yes ⁵
Amount of hazardous waste properly disposed of	Indicator conveys the responsible collection and disposal of hazardous waste	G4-EN23, GRI 306-2: Waste by type and disposal method	5	Yes ⁵

Employees Pillar

Indicator	Indicator Definition/Intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
Create value for our customers, employees and shareholders				
Overall in-class and online training attendance, including trades, compliance, business and leadership development	Indicator highlights learning and development opportunities offered to employees	GRI 404, GRI 404-1: Average hours of training per year per employee G4-LA10, GRI 404-2: Programs for upgrading employee skills and transition assistance programs	4	n/a ⁴
Number of employees	Indicator highlights human capital comprising the company	G4-10, GRI 102-8: Information on employees and other workers	8	n/a ⁴
Voluntary turnover as a percentage of total employees	Indicator depicts employee satisfaction and engagement	G4-LA1, GRI 401-1: New employee hires and employee turnover	8	n/a ⁴
Number of employees in employee unions or associations	Indicator conveys the employee engagement with various associations and unions	G4-HR4, GRI 407: Freedom of Association and Collective Bargaining / G4-11, GRI 102-41: Collective bargaining agreements	8	n/a ⁴
Percentage of postings filled by internal candidates	Highlights internal development opportunities for employees	G4-DMA, and G4-10, GRI 102-8: General disclosures, information on employees and other workers	8	n/a ⁴
Number of women in the workforce	Indicator depicts diversity in the workplace	G4-LA12, GRI 504-1: Diversity of governance bodies and employees	5	n/a ⁴
Number of women in senior management	Indicator depicting women in leadership positions	G4-LA12, GRI 504-1: Diversity of governance bodies and employees	5	n/a ⁴
Number of women on the board of directors	Indicator depicts women in leadership positions	G4-LA12, GRI 504-1: Diversity of governance bodies and employees	5	n/a ⁴
Delivering energy safely, reliably and at the lowest reasonable cost				
All Injury Frequency Rate (AIFR)	Indicator depicts recordable injuries per 100 workers	G4-LA6, GRI 403-2: Types of injury and rates of injury, occupational diseases, lost days, absenteeism and number of work related fatalities	11	n/a ⁴
Injury severity rate (ISR)	Indicator illustrates the severity of injuries occurred defined as the number of lost work days experienced per 100 workers	G4-LA6, GRI 403-2: Types of injury and rates of injury, occupational diseases, lost days, absenteeism and number of work related fatalities	3	n/a ⁴
Number of fatalities	Indicator illustrates the number of fatal incidents which occurred	G4-LA6, GRI 403-2: Types of injury and rates of injury, occupational diseases, lost days, absenteeism and number of work related fatalities	3	n/a ⁴



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Energy at work



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