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September 16, 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. 2**

On March 11, 2019, FortisBC filed the Application referenced above. In accordance with the British Columbia Utilities Commission Order G-156-19 setting out the Regulatory Timetable for the review of the Application, FortisBC respectfully submits the attached response to BCSEA IR No. 2.

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

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1 **28.0 Topic: Evolving Operating Environment**

2 **Reference: Exhibit B-10, FortisBC Response to BCUC IR 1.2.4**

3 In its response to BCUC IR 1.2.4 regarding whether the evolving operating environment
4 and the CleanBC Plan create an increased risk of stranded assets for FEI, FortisBC
5 states:

6 “While policy developments continue to evolve and unfold, FortisBC’s
7 alternatives for mitigating the increased risk of stranded assets include:

8 •Developing pathways to pay for the early retirement of assets³; and/or

9 •Developing alternative energy products and services that leverage existing
10 assets while also reducing emissions.

11 FortisBC believes its assets will play a critical role in the transition towards a
12 lower carbon economy and because of this, has opted for the second approach,
13 developing alternative energy products and services that leverage existing assets
14 while also reducing emissions.

15 ³Pathways to early retirement can include actions such as accelerated
16 depreciation.” [underline added]

17 28.1 Please elaborate on the “the early retirement of assets” approach to mitigating
18 the risk of stranded assets in the face of evolving operating environments and the
19 CleanBC Plan. What would this involve? What types of assets would be
20 prioritized for early retirement?

21
22 **Response:**

23 Please refer to the response to BCUC IR 2.207.3.

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27 28.2 Does FortisBC see early retirement of assets as mutually inconsistent with
28 “developing alternative energy products and services that leverage existing
29 assets while also reducing emissions”?

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31 **Response:**

32 Please refer to the response to BCUC IR 2.207.3.

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28.3 If the proposed Clean Growth Innovation Fund is not approved, would FortisBC pursue the “the early retirement of assets” approach to mitigating the risk of stranded assets in the face of evolving operating environments and the CleanBC Plan? If so, would this occur within the test period? If not, why not?

Response:

If the Clean Growth Innovation Fund were not approved, FortisBC would still pursue its strategy of developing alternative products and services that leverage existing assets while also reducing emissions. FortisBC explains the reasons for pursuing this strategy in more detail in response to BCUC IR 2.207.3 and the impact related to a denial of the Clean Growth Innovation fund in the response to BCUC IR 2.207.9.

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29.0 Topic: Targeted Incentives, Conceptual Basis

Reference: Exhibit B-6, FortisBC Response to BCSEA IR 1.7.1.

“In general terms, the conceptual basis for performance incentives in ratemaking is to provide incentive to utilities to achieve certain objectives including increased efficiency, reduced costs and enhanced performance. In the case of FortisBC’s proposed MRPs, traditional incentives (including index-based O&M where the implied X factor is zero) are designed to achieve cost efficiencies in O&M and capital spending. Whereas targeted incentives seek to enhance performance in areas where success will benefit customers by advancing the adoption of cleaner, lower emissions energy solutions and contributing to the realization of energy and emissions goals, increasing customer engagement and managing rate increases through growth in system throughput...”

29.1 Is FortisBC saying that the conceptual difference between its proposed traditional incentives and its proposed targeted incentives is that traditional incentives aim at increased efficiency and reduced costs whereas targeted incentives aim at enhanced performance?

Response:

FortisBC confirms that its proposed traditional incentives seek to increase cost efficiencies in O&M and capital spending, and the targeted incentives seek to enhance performance and to achieve desired outcomes in specific areas. While achieving cost efficiencies can also be considered “enhanced performance,” the targeted incentives are different in that they are focused on specific outcomes.

29.2 In FortisBC’s view, will the objectives of traditional incentives remain distinct from the objectives of targeted incentives? Or does FortisBC see a future in which the objectives of traditional incentives come to include what are now the objectives of targeted incentives? Will today’s enhanced performance become tomorrow’s baseline performance?

Response:

Under the proposed incentive framework, FortisBC believes that the objectives of traditional and targeted incentives are distinct. However, the outcomes associated with enhanced performance can become part of the baseline over time. For example, the investment of resources required today to achieve the targeted outcomes should, over time, reach a steady state to support the desired level of activity, and could then be considered “baseline performance”.

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30.0 Topic: Targeted Incentives

Reference: Exhibit B-10, FortisBC Response to BCUC IR 1.96.1

FortisBC's response to BCUC IR 1.96.1 states:

"The Targeted Incentives listed in Table C8-1 of the Application are not being compensated by the approved rate of return. The approved rate of return is based on the Fair Return Standard, the legal test applied to ensure that investors receive the opportunity cost on their investment represented by the rate of return investors could expect to earn elsewhere without bearing more risk. FortisBC's fair return is not based on carrying out a regular business plan; rather, under the Utilities Commission Act, the BCUC must approve rates that provide FEI and FBC a reasonable opportunity to earn a fair and reasonable return.

The Targeted Incentives FortisBC has proposed in its MRPs are a part of the ratemaking mechanism that is conceptually separate from the approved rate of return. The proposed MRPs are a form of performance or incentive ratemaking designed to provide incentives to the utilities to achieve certain objectives. As stated in Section 60 of the *Utilities Commission Act*, the BCUC must have due regard to setting a rate that "encourages public utilities to increase efficiency, reduce costs and enhance performance" and "may use any mechanism, formula or other method of setting the rate that it considers advisable".

The level of performance embedded in each of the Targeted Incentives listed 1 in Table C8-1 of the Application represents performance above and beyond conventional service and creates positive value for customers. In other words, the Targeted Incentives have been designed to create outcomes above what is normally expected in the regular course of business. It is just and reasonable for the BCUC to approve a ratemaking plan that includes such incentives as they encourage FEI and FBC to enhance their performance, will benefit customers, and are aligned with the public interest." [pdf p.695]

FortisBC's response to BCSEA IR 1.73 includes the following statement:

"For clarity, the targeted incentives are not subject to the earnings sharing mechanism, but will be included in the comparison of allowed and achieved ROE (after sharing) once the amounts are known." [underline added]

30.1 Please explain what FortisBC means by "FortisBC's fair return is not based on carrying out a regular business plan."

Response:

BCUC IR 1.96.1 asked the following question:

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For each of the targeted incentives listed in Table C8-1 on page C-159 of the Application, please explain why pursuit of these targets is not part of FortisBC's regular business plan, and therefore already compensated by the approved rate of return. [Emphasis added]

It was not clear to FortisBC what was meant in the question by a “regular business plan”, but the question suggested that the fair return was meant to compensate the utility for carrying out a business plan. In its response, FortisBC was explaining that a fair rate of return on equity is not compensation for carrying out a business plan, but is set based on factors such as the opportunity cost on the investment represented by the rate of return investors could expect to earn elsewhere without bearing more risk.

30.2 FortisBC says that the approved rate of return is intended to be the rate of return investors could expect to earn elsewhere without bearing more risk, and that the proposed targeted incentives are conceptually separate from the approved rate of return. Is this because of timing, i.e., because FortisBC's approved rate of return was established prior to FortisBC's proposed targeted incentives?

Response:

No. As noted in the preamble, the rate of return on equity and the reward flowing from the achievement of the targeted incentives are conceptually separate. This is not because of the timing of the establishment of FortisBC's approved rate of return. Rather, the distinction flows from the fact that they are designed to compensate for different purposes. Further, the fact that FortisBC has proposed a reward for the achievement of the targeted incentives in the form of an ROE adder does not mean there is any connection between the two concepts. FortisBC could have proposed other methods for calculating the reward for achieving the targets. As indicated in response to BCUC IR 1.96.2, FortisBC proposed the ROE adder methodology as it is transparent and simple. As discussed in response to BCUC IR 1.96.7, it also provides a reward that is relative to the size of the utility.

For clarity, please refer to the response to BCUC IR 1.96.1 where FortisBC discusses the basis for the determination of the targeted incentives:

The Targeted Incentives FortisBC has proposed in its MRPs are a part of the ratemaking mechanism that is conceptually separate from the approved rate of return. The proposed MRPs are a form of performance or incentive ratemaking designed to provide incentives to the utilities to achieve certain objectives. As stated in Section 60 of the Utilities Commission Act, the BCUC must have due regard to setting a rate that “encourages public utilities to increase efficiency

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1 reduce costs and enhance performance” and “may use any mechanism, formula
2 or other method of setting the rate that it considers advisable”. [Emphasis Added]

3 Please also refer to the response to BCUC IR 1.96.2 where FortisBC discusses the basis for the
4 determination of the authorized ROE:

5 The appropriateness of FEI and FBC’s authorized ROE and capital structures is
6 not addressed in this Application. Rather, their authorized ROE and capital
7 structures are determined through separate cost of capital proceedings which
8 would examine, among other things, the appropriate balance of risk and reward
9 and financial market considerations. Any future cost of capital proceedings will
10 take into account both the current rate making structure in place and other
11 changes in the Utilities’ operating environment in determining any required
12 adjustments to the cost of capital. [Emphasis Added]

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16 30.3 FortisBC says that the targeted incentives will be included in the comparison of
17 allowed and achieved ROE (after sharing) once the amounts (of targeted
18 incentives) are known. In what regulatory process(es) does this comparison of
19 allowed and achieved ROE occur?
20

21 **Response:**

22 The FortisBC utilities calculate their achieved ROEs each year and report them to the BCUC.
23 Historical ROE information is available through IR requests, such as was requested and
24 provided in the response to MoveUP IR 1.4.1. FortisBC will provide its performance against
25 targeted incentives in its Annual Review filings for the term of the MRPs¹.

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29 30.4 When the Commission next establishes FortisBC’s approved rate(s) of return
30 does FortisBC expect that the approved rate of return will take into account any
31 revenues from targeted incentives (whether past revenues or anticipated future
32 revenues)? Does the notion that targeted incentives are conceptually separate
33 from the approved rate of return mean that the approved rate(s) of return will
34 strictly exclude revenues from targeted incentives?
35

¹ Including two years after the term of the MRP to ensure actuals are fully evaluated against target.

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1 **Response:**

2 In cost of capital proceedings, the authorized return on equity (ROE) is ordinarily based on
3 financial models such as the Capital Asset Pricing Model (CAPM) and/or Discounted Cash
4 Flows (DCF). The inputs that go into these models are all independent of FEI's or FBC's
5 revenues and costs (the input data to these models are either based on capital market data
6 such as risk free rates or data from similar risk peer groups such as earnings growth estimates).
7 This is to ensure that the authorized ROE provided to the Utilities' investors is comparable to the
8 return available from the application of the invested capital to other enterprises of like risk.

9 However, and as explained in the response to BCUC IR 1.96.2, changes to the Utilities' rate
10 making structure is considered as part of the regulatory risk assessment (usually filed as part of
11 the business risk appendix in cost of capital applications) and is used, along with a multitude of
12 other items, to inform the BCUC regarding the Utilities' overall business risk profile.

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16 30.5 Please confirm, or otherwise explain, that under the proposed MRP framework
17 the earnings sharing mechanism associated with the traditional incentives can
18 result in the companies' achieved ROE exceeding their approved ROE.

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20 **Response:**

21 The earnings sharing mechanism itself does not result in the Companies' ROEs exceeding their
22 approved ROEs. Under the proposed MRP framework, the Companies' achieved ROEs could
23 vary from the allowed ROEs for a number of reasons and the ESM serves to reduce the amount
24 of the variance by sharing half of the amount (positive or negative) with ratepayers.

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28 30.5.1 Does the same possibility occur with the proposed targeted incentives,
29 i.e., that the proposed the proposed targeted incentives can result in the
30 companies' achieved ROE exceeding their approved ROE.?

31

32 **Response:**

33 Confirmed. While FortisBC has proposed to exclude targeted incentives when determining the
34 earnings sharing amount (as indicated in the preamble), the incremental earnings associated
35 with targeted incentives can result in achieved ROE exceeding approved ROE.

36

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31.0 Topic: Targeted Incentives – Design of the Incentives

Reference: Application, Exhibit B-1, section 8.3, Table C8-1, p. C-159; section 8.3.7, Power Supply Incentive (FBC), pp. C166-167

In Table C8-1, FortisBC lists the proposed incentive amounts for most proposed targeted incentives in terms of a set number of basis points of the ROE for each incented item for which FortisBC exceeds a threshold. In contrast, the incentive mechanism described in pp. C-166 – C-167 for the Power Supply provides a rate that increases in proportion to increasing achievement of the objective.

31.1 For each proposed targeted incentive item besides the PSI, please discuss why a fixed BPS incentive was chosen instead of an increasing rate. Please include a discussion of how a fixed or an increasing incentive would help to further the purpose of the item being incented.

Response:

Please refer to the response to BCUC IR 1.96.8 where FortisBC explains its rationale for proposing a reward for the targeted incentives based on a binary outcome as opposed to a “trigger point”.

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32.0 Topic: Targeted Incentives

Reference: Exhibit B-10, FortisBC Response to BCUC IR 1.96.7

In its response to BCUC IR 1.96.7, FortisBC provides a table showing the results of a cost-benefit analysis for the Targeted Incentives for which benefits can be quantified. For Growth in Renewable Gas, Growth in NGT, GHG Emissions Reduction (Customer), and GHG Emissions Reduction (Internal) the table is as follows:

Targeted Incentives	Analysis Period (yrs)	NPV of Benefits (\$000s)	NPV of Cost of Service Impact (\$000s)	Gross Benefits/(Costs) (\$000s)	NPV of Proposed Incentive - Equivalent BPS (\$000s)	Net Impact to Customers Benefit/(Costs) (\$000s)
	(a)	(b)	(c)	(d) = (b) + (c)	(e)	(f) = (d) + (e)
Growth in Renewable Gas (RNG)	10	666,708	(536,315)	130,393	(10,088)	120,305
Growth in NGT	10	459,458	(40,171)	419,287	(10,088)	409,199
GHG Emissions Reduction (Customer)	15	282,714	(29,891)	252,823	(5,044)	247,780
GHG Emissions Reduction (Internal)	20	9,608	-	9,608	(5,044)	4,564

32.1 Please explain how FortisBC obtained the Benefits, and the Cost of Service Impact, of each the four Targeted Incentives.

Response:

Please refer to Attachment 96.7 included as part of FortisBC's response to BCUC IR 1.96.7 for the detailed calculation of the benefits and cost of service impact for each quantifiable targeted incentive.

The table below provides further explanation and discussion of the assumptions used for the calculations:

	Benefits	Cost of Service Impact
RNG	<ul style="list-style-type: none"> Avoided carbon tax for RNG customer Avoided electricity cost premium for RNG customer, assuming total annual bill from BC Hydro vs. total annual RNG bill from FEI for residential customer consuming 90 GJ per year Avoided capital cost of conversion required for electrification (e.g., electric baseboard and electric hot water tank) for RNG customer (i.e., no capital upgrade required) 	<ul style="list-style-type: none"> Delivery rate impact to FEI non-bypass customers for the maximum incentive if RNG target is successfully achieved (refer to BCUC IR 1.96.6) Delivery rate impact to FEI non-bypass customers for RNG supply, assuming \$30 per GJ

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	Benefits	Cost of Service Impact
NGT	<ul style="list-style-type: none"> - Avoided diesel premium compared to natural gas - Avoided carbon tax premium compared to natural gas - Avoided cost of diesel exhaust fluid after treatment, assumed at \$0.1 per DLE (diesel litre equivalent) - Monetization of carbon credit based on BC Renewable and Low Carbon Fuel Requirements Regulation and credit at \$100 per tonne - Offsetting delivery revenue to FEI non-bypass customers resulting from the increased throughput of FEI system 	<ul style="list-style-type: none"> - Delivery rate impact to FEI non-bypass customers for the maximum incentive if NGT target is successfully achieved (refer to BCUC IR 1.96.6) - Incremental revenue requirement of additional NGT stations for the additional load, assuming based on average cost of service per GJ of existing NGT stations in 2019
GHG Emissions Reduction (Customer)	<ul style="list-style-type: none"> - Avoided commodity premium for conversion from heating oil and propane compared to natural gas - Avoided carbon tax premium for heating oil and propane - Offsetting delivery revenue to FEI non-bypass customers resulting from increased throughput of FEI system 	<ul style="list-style-type: none"> - Delivery rate impact to FEI non-bypass customers for the maximum incentive if emissions target is successfully achieved (refer to BCUC IR 1.96.6) - Incremental revenue requirements resulting from new customer additions (e.g., new service line, meter installation, sustainment, etc.)
GHG Emission Reduction (Internal)	<ul style="list-style-type: none"> - Avoided carbon tax resulting from reduced natural gas throughput (either from consumption and/or leak) - Avoided cost of gas resulting from reduced natural gas throughput (either from consumption and/or leaks) 	<ul style="list-style-type: none"> - Delivery rate impact to FEI non-bypass customers for the maximum incentive if emission target is successfully achieved (refer to BCUC IR 1.96.6)

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33.0 Topic: Targeted Incentives, Growth in Renewable Gas

Reference: Exhibit B-6, FortisBC Response to BCSEA IR 1.11.3; Exhibit B-10, FortisBC Response to BCUC IR 1.97.3; Exhibit B-10, FortisBC Response to BCUC IR 1.94.3; Application, Exhibit B-1, section 8.3.1 Growth in Renewable Gas (FEI), p. C-160

BCSEA asked in IR 1.11.3: “Is FortisBC’s ramp-up of Renewable Gas limited by competition for fibre supply with BC Hydro and the sellers of biomass generation to BC Hydro?”

FortisBC’s responded that electricity generation from wood fibre may not be economical in the future and so a significant amount of fibre could be used for RNG generation. In its response, FortisBC also raised the topic of out-of-province sources of RNG. FortisBC’s response states:

“No. FEI’s Renewable Natural Gas (RNG) supply opportunities are based primarily on organic-derived RNG, which does include a portion of approximately 50 percent from RNG generated outside of BC. FEI understands that there are some concerns in the industry that electricity generation from wood fibre may not be economical in the future as BC Hydro shifts toward using its growing hydroelectric generation supply – namely, Site C. This would imply that a significant amount of fibre could be used for RNG generation.” [underline added]

In its response to BCUC IR 1.97.3, FortisBC provides the following projection of Renewable Gas (RG) volume over the MRP period for projects which are in service or are expected, but not yet approved:

(PJ’s)	2020	2021	2022	2023	2024
Expected Supply	0.47	0.67	0.67	0.67	0.67
RG Target	1.00	1.50	2.00	4.00	6.00

The table shows that Expected Supply of RG increases in 2021 but falls substantially short of the proposed RG Target. FortisBC adds that “FEI has identified additional RG projects, which if successful, have the potential to increase volumes by 0.5 to 1.0 PJs annually over the MRP period.”

FortisBC then addresses both out-of-province and off-system options, stating: “FEI is also pursuing out-of-province and off-system options which may also increase annual volumes, but remain uncertain.” [underline added]

In its response to BCUC IR 1.74.3, FortisBC provides an informative outline of the availability and supply of raw biogas in BC. One observation is that quite substantial volumes of RNG production potential from wood waste in BC would be achievable with

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1 long-term technological developments. However, FortisBC reports that the wood-waste
2 process is currently under development and not commercially available. FortisBC
3 concludes:

4 “FEI believes that it will need to source RNG from outside the province to achieve
5 the 15 percent renewable gas policy goal by 2030. RNG sourced from outside of
6 BC is both an expedient and an effective way to help reach the provincial
7 government target. From a time-to-market perspective, there are shovel-ready
8 projects in jurisdictions like Ontario that present an opportunity for BC and FEI’s
9 customers.”

10 33.1 Please describe what FortisBC means by “organic-derived RNG.” Does this refer
11 to RNG derived from organic waste such as agricultural waste or sewage? Does
12 it include RNG derived from wood fibre?
13

14 **Response:**

15 FEI uses the term “organic-derived RNG” to describe RNG produced from anaerobic digestion.
16 This includes RNG from agricultural waste, sewage, municipal organics, institutional waste
17 (such as food-processing or restaurant waste) and landfills.

18 For clarity, the term does not include RNG directly derived from wood fibre.
19
20

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22 33.2 With reference FEI’s RNG supply opportunities being based primarily on organic-
23 derived RNG, please briefly describe the other sources.
24

25 **Response:**

26 Other sources include wood-waste derived RNG and hydrogen.

27 RNG can be derived from wood-waste using a thermochemical conversion process resulting in
28 methane with a carbon intensity equivalent to organic-derived RNG. This is in contrast to
29 anaerobic digestion which is a biological process.

30 Hydrogen can similarly be produced using a thermochemical process coupled with carbon
31 capture, or it can be derived from electrolysis using excess electricity. The end result of either
32 process is a gas with equivalent carbon intensity to organic-derived RNG.

33 Alternately, FEI may consider using wood-waste derived syngas (which is a combustible gas
34 made up of carbon monoxide, carbon dioxide and hydrogen) to displace natural gas. The
35 application of syngas would be limited to a location where the gas could be both produced and
36 consumed (thereby displacing natural gas), as it cannot mix with conventional gas because of
37 its composition.

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33.3 Please clarify whether “include a portion of approximately 50 percent from RNG generated outside BC” refers to an inherent property of “organic-derived RNG” or refers to FEI’s intention to source 50% of “organic-derived RNG” from outside BC.

Response:

The statement does not refer to an inherent property of organic-derived RNG. Rather, FortisBC is stating that its supply opportunities consist primarily of organic-derived RNG. In addition, approximately 50 percent of this organic-derived RNG supply is expected to be sourced from outside the province, while the remaining approximately 50 percent will be sourced within the province.

33.4 When FortisBC says that approximately 50 percent of its organic-derived RNG supply is RNG generated outside of BC, is this referring to the present time, to the MRP test period, or to the post-MRP test period?

Response:

FortisBC is referring to the supply which FEI intends to secure over the MRP term. For further clarity, FEI confirms that it will need to source approximately 50 percent of its RNG from outside the province to achieve the RG target.

33.5 For clarity, is the RNG generated outside of BC 50 percent of FEI’s total RNG supply opportunities, or 50 percent of the organic-derived portion of FEI’s RNG supply opportunities?

Response:

RNG generated outside of BC comprises 50 percent of FEI’s organic-derived RNG. Please also refer to the response to BCSEA IR 2.33.3.

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33.6 Is it FEI's intention to source 50 percent of its RNG supply from outside of BC during the MRP test period?

Response:

Yes. While FEI remains focused on developing RNG opportunities in BC, FEI projects that 50 percent of its supply will need to be sourced from outside the province during the MRP term. It should be noted that there is also significant RNG supply potential using wood waste as a feedstock. As noted in the preamble, the realization of that supply potential requires technological developments. Should technology advance to the point that RNG using wood waste as a feedstock becomes feasible during the MRP term, the mix of in-province and out-of-province supply will change.

33.7 Does FEI consider that sourcing RNG from outside of BC is crucial for FEI to be able to achieve the proposed Targeted Incentive targets for Growth in Renewable Gas during the MRP test period? Would FEI be able to meet these targets without accessing out-of-province RNG?

Response:

Yes, sourcing RNG from outside BC is crucial for FEI to achieve the proposed targeted incentive for growth in renewable gas during the MRP term. Without rapid development of technology, such as wood-waste derived RNG production, FEI will not meet its targets without accessing out-of-province supply.

33.8 Please describe the out-of-province RNG resources that would be available to contribute to FEI's RNG supply. To the extent possible, please address the type of feedstock, volumes, cost, stage of technological development, and location.

Response:

Currently, FEI's identified RNG sources from outside of the province supply mirror those within BC. These projects, primarily from Alberta and Ontario, are based on landfills, agriculture, organic diversion and wastewater treatment feedstocks. FEI considers the majority of these projects to be technologically mature as they generally employ established technologies such as

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1 digesters and biogas upgraders. In some cases, FEI is able to take advantage of the fact that
2 some projects have existing digesters and established operating experience.

3 The volumes from individual projects vary, as they do in BC, from smaller farm-based projects
4 of about 60,000 GJ per year, to a large landfill that produces about 1 PJ per year.

5 FEI expects that the delivered cost to the FEI system will be equivalent to or lower than in-
6 province RNG projects that FEI is pursuing.

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10 33.9 Please address at a high level why out-of-province RNG resources would not be
11 utilized by the jurisdiction in which the resource is located. Is it simply a matter of
12 other jurisdictions putting a lower priority than BC does on reducing the carbon
13 intensity of delivered natural gas?

14
15 **Response:**

16 FEI cannot provide a definitive answer for all out-of-province jurisdictions; however, for further
17 discussion, please refer to the response to BCUC IR 2.235.11.

18
19
20
21 33.9.1 In considering acquiring RNG generated outside of BC to notionally
22 displace fossil fuel natural gas use within BC, has FEI considered the
23 impact and response in the other jurisdiction(s)? Is it reasonable to
24 expect that neighbouring jurisdictions would use their own organic
25 wastes to generate RNG to displace fossil fuel natural gas use within
26 their own jurisdiction?

27
28 **Response:**

29 Please refer to the response to BCUC IR 2.235.11.

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32
33 33.10 Please confirm, or otherwise explain, that RNG generated outside of BC would
34 be accounted for notionally in FEI's RNG supply rather than being transported
35 physically to the FEI pipeline system.

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Response:

Please refer to the response to BCUC IR 2.235.11.

33.11 Please confirm, or otherwise explain, that FEI's current supply of RNG is physical in the sense that it is injected into the FEI system. Does FEI consider that acquiring RNG supply using a notional concept would require Commission approval?

Response:

FEI confirms that, based on the legislative and regulatory framework in place at this time, all forms of RNG purchases require BCUC approval, including delivery terms.

Please also refer to the response to BCUC IR 2.235.11.

33.12 How does FEI analyze the GHG emissions reductions within BC that can be attributed to the notional use within BC of RNG generated outside of BC? Is there an accepted way to attribute the avoided methane emissions in the out-of-province jurisdiction to the BC GHG emissions inventory?

Response:

Please refer to the response to BCUC IR 2.235.11.

33.13 Please discuss the types of involvement in out-of-province RNG resources that FEI anticipates pursuing, such as taking a developer/owner/operator role, or purchasing pipeline-ready RNG.

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Response:

Currently, FEI is only considering the purchase of pipeline-ready RNG from its out-of-province projects and is not considering taking a developer/owner/operator role.

33.14 Does FEI have in mind acquiring out-of-province RNG from specific RNG generating facilities dedicated to supplying RNG to FEI, or from a multi-jurisdiction market for RNG?

Response:

Currently, all of the out-of-province projects that FEI is evaluating are providing RNG from the project to FEI. However, there may be instances in the future where a large project sells a portion of the RNG that the project generates to FEI, and a portion of the RNG to another entity in another jurisdiction. There have also been discussions in some of the industry fora that FEI attends that some larger RNG suppliers may wish to offer a “pooled” supply portfolio to their purchasers for RNG, consisting of multiple RNG supply projects across multiple jurisdictions. At the time of writing, FEI has not contemplated entering into any supply agreements that use pooled projects.

33.15 Has the concept of FEI acquiring RNG generated outside of BC, or more generally a gas distribution utility acquiring RNG generated outside the jurisdiction of its service territory, been discussed in the multi-jurisdiction climate action fora that FEI is involved in? If so, please summarize the current state of the discussion.

Response:

FEI is not involved directly in discussions of this nature at this time. However, the market for Renewable Identification Numbers (RINs) in the U.S. transportation fuel sector allows the environmental attributes of RNG to be attributed to the end-user without physical delivery. The RIN system allows RNG to be injected at one location and used at another location, with the emissions reductions for RNG attributed to the volume of conventional gas consumption in the non-production location. In other words, the RIN system does not require physical delivery of RNG to an end customer, but rather allows the environmental attributes of the RNG to be disconnected from the original source and re-attached at the end-use. In order to be recognized

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1 by the renewable fuel standard established by the US EPA, there must be a demonstrated
2 contractual path between the RNG supply and the end-use customers and a connection to the
3 existing continental US natural gas system. The RIN system ensures that environmental
4 attributes of RNG used in transportation are not double counted and the environmental benefits
5 (emissions reductions) end up with the end customer. This model, or one like it, could be
6 considered for the use of RNG in all sectors.

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10 33.16 Please elaborate on the “off-system” RNG generation options that FEI is
11 pursuing. Would these be located within BC? Would these options connect to
12 natural gas transmission or distribution systems but not to the FEI system? Or
13 would they connect directly to an end-user?
14

15 **Response:**

16 Off-system RNG generation options refers to projects that would connect to an existing natural
17 gas system or transmission pipeline that is not owned and operated by FortisBC. This may
18 include the purchase of RNG from a supplier at a delivery hub that is not on the FEI system
19 (e.g., AECO/NIT). Conversely, it may include the purchase of RNG from within BC that
20 connects to another natural gas system (such as PNG) and is delivered to FEI via Station 2 in
21 Northeast BC.

22 FEI may also consider projects in BC where there is a direct customer connection. In these
23 cases, the customer could be an existing natural gas customer, facilitating the displacement of
24 conventional natural gas for low-carbon renewable gas.
25

FEI does not have any additional information other than what has been published in the draft regulation.

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34.3 By what future year is the amount of the targeted GHG emissions reductions expected to be between 5 and 7 Mt CO₂e/y across Canada or roughly a 2 to 3 percent reduction in the carbon intensity of natural gas delivered by local distribution companies?

Response:

FEI notes that the regulatory framework for the gaseous stream is not yet developed and the targeted GHG reductions for the gaseous stream remain unknown. However, FEI understands that the reduction in carbon intensity of natural gas delivered by local distribution companies across Canada is expected to be achieved by 2030.

34.4 Please compare the percentage carbon intensity reduction anticipated under the federal Carbon Fuel Standard with: the percentage carbon intensity reduction under FEI's current RNG supply, the test period RNG under business as usual, and the test period RNG with achievement of the RNG Growth Targeted Incentive with.

Response:

The specific carbon intensity reduction anticipated under the federal CFS is still unknown as the regulatory framework for the gaseous stream is not yet developed and the targeted GHG reductions for the gaseous stream remain unknown. However, based on the Proposed Regulatory Approach² published by ECCC, 23 Mt of GHG emissions reductions are being sought in the liquids stream. If the gaseous stream³ was to make up the remaining 7 Mt of the 30 Mt sought for the entire program then the carbon intensity reduction for natural gas would be an estimated 2 to 3 percent on average across Canada. The CFS is designed to allow multiple compliance options for utilities to achieve this CI reduction. Renewable Natural Gas is one pathway, but utilities could improve processes, generate credits from natural gas for transportation, or purchase credits to achieve the CI reduction.

² <https://www.canada.ca/en/environment-climate-change/services/managing-pollution/energy-production/fuel-regulations/clean-fuel-standard/regulatory-approach.html>.

³ The CFS aims to reduce the carbon intensity of fuel consumption along three streams, liquids, gaseous and solids so that it achieves 30 Mt of GHG reductions by 2030. ECCC is developing the regulations for the liquids stream first and will follow up with regulations for gaseous and solids. It is anticipated that the regulations will be highly aligned between the streams but will also account for specific differences in the fuel markets for each.

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Estimating the carbon intensity reduction of different RNG pathways requires assumptions on the total load of natural gas through the system and the carbon intensity of both the natural gas and renewable natural gas. In the indicative analysis which is provided below, FEI used notional values for load and carbon intensities informed by our data and analysis. Load was assumed to be 200 PJ which is the notional load in the system today. FEI did not change load for any scenario, assuming that load would maintain at 200 PJ. Because the CFS quantifies the lifecycle GHG reduction of fuels, FEI used lifecycle carbon intensity values. For natural gas, the lifecycle emissions factor is based on 2017 data and is 0.059 kg CO₂e per GJ in BC. For Renewable Natural Gas we used the weighted average carbon intensity of the portfolio of Renewable Natural Gas projects supplying to FortisBC with a value of 0.011 kg CO₂e per GJ.

The table below demonstrates the indicative carbon intensities of the requested scenarios and the percent reductions. Draft regulations for the gaseous stream of the CFS are in development and slated to be released in 2020. The federal election this fall could impact the CFS and the gaseous stream meaning that there is still high uncertainty on the influence that the CFS will have on RNG development. The targeted incentive for renewable gas will encourage FortisBC to continue to develop and expand RNG supply no matter how the regulation develops.

	System load (PJ)	RNG supply (PJ)	Lifecycle CI (kg CO ₂ e per GJ)	% carbon intensity reduction from 'No RNG'
No RNG	200	0	0.0590	--
RNG Current	200	0.35	0.0589	-0.14%
RNG Business As Usual ⁴	200	0.67	0.0588	-0.27%
RNG Targeted Incentive	200	6	0.0576	-2.44%

34.5 Please confirm, or otherwise explain, that FEI's current RNG program involves customers voluntarily paying a premium price for receiving a defined portion of their gas delivery in the form of RNG.

Response:

Confirmed.

⁴ Based on the volumes provided in the response to BCUC IR 1.97.3.

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34.6 What will be the effect of implementation of the Clean Fuel Standard framework on the rationale for a voluntary premium price for RNG? Would the rationale for a voluntary premium price for RNG remain applicable where a customer wants to receive RNG in a proportion higher than the CFS standard?

Response:

Because draft regulations have not been developed, FortisBC is basing its response on its current understanding and interpretation of the CFS for the gaseous stream.

Should the CFS be implemented and require a reduction of 2 to 3 percent in carbon intensity from obligated parties in the gas distribution system, it will result in a stronger incentive to increase RNG supply to generate compliance credits. However, it is unlikely that the CFS will specifically mandate compliance pathways including a minimum share of RNG in the total throughput of the system. Rather, obligated parties will be responsible to hold credits to match their carbon intensity reduction. Credits could be acquired through multiple compliance pathways, including RNG, natural gas for transportation, process and operational improvements across the entire gas system, and market purchases of credits. This means that there will be no specific CFS-mandated standard for RNG in the system and that it will also be difficult to quantify the direct impact the CFS may have on total RNG volumes.

The CFS will likely drive activity to address the carbon intensity along the supply side for gas and will not stipulate specific approaches for RNG pricing for end-users.

34.7 Please explain the statement that “all renewable gas production will be considered as eligible to reduce the carbon intensity of gas regardless of the year it was introduced.” Does this mean that where an RNG went into service prior to the initiation of the CFS framework RNG production from the facility in a given year after initiation of the CFS framework will be eligible to reduce the carbon intensity of natural gas delivered in the given year? Or does it mean that RNG generated in years prior to the introduction of the CFS framework will be eligible to reduce the carbon intensity of natural gas delivered in a later year when the CFS framework is in place?

Response:

Because draft regulations have not been developed, FortisBC is basing its response on its current understanding and interpretation of the CFS for the gaseous stream.

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1 FEI confirms that it understands that in the situation where an RNG facility went into service
2 prior to the initiation of the CFS framework, RNG production from the facility in a given year after
3 initiation of the CFS framework will be eligible to reduce the carbon intensity of natural gas
4 delivered in the given year.

5 FEI does not believe that RNG generated in years prior to the introduction of the CFS
6 framework will be eligible to reduce the carbon intensity of natural gas delivered in a later year
7 when the CFS framework is in place.

8

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35.0 Topic: Targeted Incentives, Growth in Renewable Gas

Reference: Exhibit B-10, FortisBC Response to BCUC IR 1.1.1

In its response to BCUC IR 1.1.1, FortisBC states:

“Federal Clean Fuel Standard (CFS)

The full impacts of the federal CFS are not yet known as this policy remains under development. However, at this time, FEI expects the CFS to require gas distribution utilities to reduce the lifecycle intensity of gaseous fuels starting in 2023. The CFS is designed to allow multiple compliance pathways whereby regulated entities must hold the required amount of emissions reduction credits to meet their annual obligations. Examples of compliance pathways to reduce the lifecycle intensity of natural gas include blending natural gas with RNG or hydrogen, as well as carbon capture and sequestration.

Given that the CFS is expected to achieve the greatest GHG emissions reductions of any federal policy by 2030, FEI expects that it will need to commit additional resources to complying with this policy; however, the extent and scope will not be known until the CFS has been completed. For example, CleanBC’s requirement for 15 percent renewable gas content may overlap to some degree with the requirements of the CFS, but this will not be known until the policies are completed and turned into legislation. FEI continues to work with policy makers with the goal that the federal CFS and provincial CleanBC policies can work effectively together. FortisBC will bring forward the impacts of the CFS once they are known and certain.” [underline added]

35.1 Will FortisBC report on the status of the federal Clean Fuel Standard and the provincial CleanBC RNG target at the Annual Reviews under the proposed MRPs?

Response:

To the extent that legislation is passed regarding either the federal CFS or the CleanBC RG target that impacts the MRP elements, it will be reported on during the relevant Annual Review.

35.2 Does FortisBC see the proposed “Growth in Renewable Gas Targeted Incentive” as FEI’s sole response to the federal and provincial initiatives aimed at reducing the carbon intensity of delivered natural gas? Or are there other FEI activities directed toward this end?

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Response:

Within the MRPs, the targeted incentives for growth in renewable gas and emissions reductions (internal) both contribute to a reduction in carbon intensity of delivered natural gas. Similarly, the proposed Clean Growth Innovation Fund seeks to promote innovation and the development of clean energy technology, including those technologies that reduce the carbon intensity of delivered natural gas.

FortisBC's suite of climate solutions aimed at reducing emissions is described in its Clean Growth Pathway to 2050 found in Appendix A5 of the Application, and includes other significant initiatives like natural gas for transportation which displaces higher carbon fuels.

35.3 In FortisBC's view, if the "Growth in Renewable Gas Targeted Incentive" is approved for the test period what if any changes should occur if and when legally binding requirements are in place to achieve the objectives of the federal Clean Fuel Standard and the provincial CleanBC RNG target?

Response:

The details associated with the federal CFS and provincial CleanBC renewable gas target remain uncertain at this time. As such, FortisBC is unable to comment on what changes should occur to its proposed targeted incentive framework. However, FortisBC suggests that appropriate adjustments to the targeted incentive framework as a result of any legally binding requirements associated with the CFS or CleanBC could be raised at the Annual Reviews.

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1 **36.0 Topic: Targeted Incentives, Growth in Renewable Gas**
2 **Reference: Exhibit B-10, FortisBC Response to BCUC IR 1.2.5**

3 Fortis states in response to BCUC IR 1.2.5:

4 “The [Province of BC’s Greenhouse Gas Reduction (Clean Energy) Regulation
5 (GGRR)] also includes recent amendments to the prescribed undertakings to
6 include renewable natural gas (RNG) as a transportation fuel for natural gas
7 transportation customers, which supports the policy statement quoted above
8 regarding “increasing the production of renewable transportation fuels.”
9 [underline added]

10 36.1 What volumes of RNG would be involved in carrying out projects and
11 undertakings to include RNG as a transportation fuel under the recent
12 amendments to the GGRR?

13
14 **Response:**

15 Because RNG can be used interchangeably with conventional compressed or liquefied natural
16 gas to virtually eliminate both GHG and air contaminant emissions from transportation, with no
17 modifications required to the natural gas vehicle, the potential for RNG demand specific for NGT
18 applications is considerable. FEI is expecting a range of RNG volumes for NGT. The range is
19 based on contracted RNG NGT volume and the targeted NGT volume. Below is a table
20 identifying the range of RNG volumes for NGT. The upper end of the potential use of RNG for
21 NGT is the entirety of the projected NGT volume.

Year	Potential RNG for NGT Volume (PJ)
2020	0.10 to 3.0
2021	0.15 to 4.0
2022	0.25 to 5.0
2023	0.50 to 6.0
2024	0.50 to 7.0

22

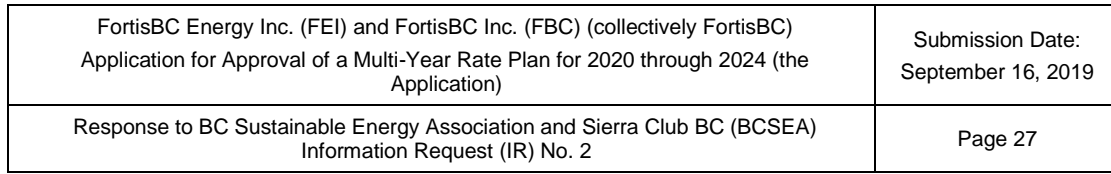
23

24

25

26 36.2 Does FEI anticipate that RNG for transportation could significantly increase the
27 use of RNG?

28



2 Yes; please refer to FEI's response to BCSEA IR 2.36.1.

3
4

9

11 Confirmed.

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At the time of writing, the details and mechanics of the 15 percent Renewable Gas target have not been confirmed by government. In FEI's view, it is reasonable to include RNG for transportation under the GGRR toward the CleanBC Plan's 15 percent target. RNG for NGT applications result in greater GHG emissions than RNG's displacement of conventional natural gas in residential, commercial and industrial applications. This is because RNG in transportation is typically displacing higher carbon intensity fuels like diesel as opposed to lower carbon intensity natural gas in residential, commercial and industry.

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Response:

Draft regulations have not been developed for the gaseous stream. Based on FEI current understanding and interpretation of the CFS according to the Proposed Regulatory Approach for the liquids stream published by Environment and Climate Change, FEI understands that RNG for transportation will be eligible to generate credits in the liquids stream of the CFS.

36.6 In FEI's view, would the use of RNG as a transportation fuel compete with the use of RNG to displace natural gas for FEI's non-transportation customers?

Response:

Depending on how government policy related to the 15 percent renewable gas goal outlined in the CleanBC policy evolves, and depending on whether the current demand-supply imbalance continues, RNG for use in transportation could compete with the use of RNG for non-transportation customers.

While there is a robust appetite for RNG amongst FEI's customers of all types, using RNG to displace diesel in the transportation sector results in greater GHG emissions reductions than using RNG to displace conventional natural gas. At this time, the demand for RNG has exceeded currently available supply. FEI is working hard to secure additional sources of RNG supply, and to obtain BCUC approval for these additional RNG supply projects such that all customers who elect to use RNG on a subscription basis, whether on a firm or a long-term interruptible basis, can do so.

36.6.1 If so, how would FEI address the conflict?

Response:

In order to provide FEI with some guidance, FEI has retained the services of Price Waterhouse Coopers, the Fairness Advisor that FEI uses to provide advice on the dispensation of the vehicle capital incentives for NGT that are enabled by the GGRR. That work is not yet complete, so it is too early to say how FEI would address the allocation of RNG between transportation and non-transportation customers. Additionally, as noted in the response to BCSEA IR 2.36.6, government's approach to the 15 percent renewable content policy goal in

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1 CleanBC is evolving, and FEI will need to consider that policy goal in allocating RNG between
2 customer groups.

3
4

5
6 36.6.2 If not, why not?

7
8 **Response:**

9 Please refer to the responses to BCSEA IRs 2.36.6 and 2.36.6.1.

10

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37.0 Topic: Targeted Incentives – Growth in Renewable Gas

Reference: Application, Exhibit B-1, section 8.3.1, pp. C-159 – C-160

37.1 Is the proposed Targeted Incentive for Growth in Renewable Gas limited to RNG supplied by FEI to customers under FEI's RNG program?

Response:

No. FEI's proposed incentive applies to renewable gas of all types, including hydrogen, that FEI is able to bring onto the system. In other words, the target is based on supply. As noted on page C-159 of Exhibit B-1: "*RG can be obtained from a wide variety of sources: landfills, curbside organics, wastewater treatment plants, and agriculture, food manufacturing and wood wastes. Renewable hydrogen, either from waste streams of hydrogen or from electrolysis using renewable electricity is also considered by FEI to be RG.*"

37.2 For greater certainty, please explain whether RNG for transportation customers is separate from, or included within, FEI's RNG program.

Response:

For added clarity, the targeted incentive for RG is based on supply. RNG purchased by transportation customers is included within FEI's RNG demand projections.

Please also refer to the responses to BCSEA IRs 2.36.6 and 2.36.6.1.

37.3 If FEI intends to attempt to achieve the Growth in RG target in part by acquiring Renewable Gas outside of FEI's RNG program please explain what FEI has in mind and how this would work.

Response:

The primary objective of the RG target is to incent and achieve growth in renewable gas supply in an effort to meet growing customer demand for lower carbon energy, and align with policy direction at all levels of government by contributing to GHG emission reductions. In order for FEI to achieve the RG targets, modifications will need to be made to the current policy mechanisms that enable the RNG program as it exists today. This includes addressing issues such as:

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- The inclusion of other forms of renewable gas in addition to the renewable natural gas offered in the current iteration of the program;
- Accessing RG supply from outside British Columbia; and
- Addressing the \$30/GJ ceiling price identified in the current iteration of the Greenhouse Gas Reduction Regulation, which may not be adequate to capture other forms of renewable gas.

FEI has not fully developed the program mechanics for forms of RG other than RNG at this time. For example, FEI is in the early stages of investigating the feasibility of delivering hydrogen derived from low carbon sources such as electricity, to its customers. This will require significant up-front work to evaluate the technical feasibility, implications for the regulatory framework, total cost of production, safety regulations, and customer perceptions.

Another opportunity is the use of syngas to displace conventional natural gas in industrial applications where similar up-front evaluation is required.

These elements must be addressed before other forms of renewable gas, such as hydrogen or syngas, can be incorporated into the gas distribution system to make the full spectrum of renewable gas available to British Columbians.

- 37.4 In accounting for its progress in achieving the proposed Growth in RG target will FEI count sales of RNG to customers or the acquisition of RNG from providers? In other words, does unsold RNG count towards the Growth in RG target?

Response:

FEI's Growth in RG target is for the acquisition of renewable gas from providers and produced by FEI.

- 37.5 What discussions has FortisBC had with the Province about the regulatory regime under which a 15% RNG content would be achieved in the FEI system? Please discuss any approaches or strategies FortisBC discussed.

Response:

Please refer to the response to BCUC IR 2.222.1.

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4 37.6 Is FortisBC aware of any plans by the Province to introduce specific policies or
5 regulations regarding the 15% RNG target? If so, when might such policies or
6 regulations be implemented?

7

8 **Response:**

9 Please refer to the response to BCUC IR 2.222.1.

10

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38.0 Topic: Clean Growth Innovation Fund, Digital Feedstock

Reference: Exhibit B-1-1, Appendix C6-4, Multi-Year Rate Plan - Main Innovation Activities, 1.11 Developing Digital Natural Gas Feedstock [TRL-4 TO TRL-8], pdf p.611

“FEI wants to gain a better understanding of ‘Digital Feedstock’ and, in particular, the barriers to broad-based adoption of digital feedstock as a basis for natural gas trading.

Digital Feedstock refers to a collection of technologies and practices that would allow for more diverse, granular and verifiable measurements of natural gas characteristics and the subsequent facilitation of a market for these characteristics. This would allow natural gas, which is currently highly commodified, in the sense of being treated the same across producers, to be a more differentiated product. Currently, there is only one characteristic of natural gas that is measured and traded: energy content (in MMBtu or GJ). However, natural gas produced by different plants can vary on a number of other dimensions that customers might care about. A primary one is the GHG content of a given unit of natural gas, which can vary both from the natural properties of gas in specific locations as well as from the energy-intensity and energy efficiency of the plant that produces the gas. Buyers of natural gas including industrial users, residential consumers, and investors may well care about the GHG content and be willing to pay higher prices for ‘cleaner’ gas. Another as-yet untraded characteristic that varies across producers is the ethane content of natural gas, which can affect the Wobbe index and may be important information for transmitters and industrial users whose equipment may be affected.

Allowing for trading on these additional dimensions first requires data collection at the plant level. It then also requires a trading platform, possibly enabled by secure private or public ledger technology such as blockchain that can capture, verify, and disseminate this additional data about each unit of gas supplied to the market. Finally, it requires market participants to be willing to adopt or participate in this enhanced platform-based marketplace.

RD&D investments in this technology will be focused on implementing demonstrations projects that would demonstrate to stakeholders, gas producers and gas purchasers how well the technology works and allow better assessment of the business and environmental benefits.”

38.1 Please confirm, or otherwise explain, that “technology readiness level” (TRL) refers to a scale in which there are the 9 technology readiness levels, with 1 being the least ready and 9 being already used in real-life conditions.

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1 **Response:**

2 Please refer to the response to BCUC IR 2.220.1.

3

4

5

6 38.2 To help explain “digital feedstock,” please give an example of a digital feedstock
7 technology that is at TRL-8.

8

9 **Response:**

10 A digital feedstock technology at Level 8 would be one in which the technology has been proven
11 to work in its final form and under expected conditions.

12 Xpansiv (<https://www.xpansiv.com>) and Provenance (<https://www.provenance.org>) are
13 examples of companies with a digital feedstock product at this level. Based on the information
14 available, Xpansiv is geared toward the energy industry, but has relatively few customers in
15 Canada at this time. Provenance appears to have an established product, but it is not energy-
16 specific.

17 If FortisBC were to pursue innovation at this level (after it was selected through the governance
18 process described in the response to BCUC IR 2.218.3), activities would include developmental
19 testing and evaluation of whether it will meet operational requirements.

20

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39.0 Topic: Targeted Incentives, Natural Gas for Transportation

Reference: Exhibit B-6, FortisBC Responses to BCSEA IR 1.12.1

FortisBC states:

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

39.1 Please elaborate on the types of battery-electric medium and heavy-duty vehicles that are expected to hit the market before 2024.

Response:

FortisBC expects that a variety of types of vehicles will be available on battery-electric platforms by 2024. The referenced article provides information from a trucking industry publication regarding some of the types of vehicles that may be available by 2024⁵. These could include panel trucks such as those used by UPS, refuse trucks, school and transit buses and Class 7 and 8 tractors.

A number of manufacturers have already announced new battery-electric medium and heavy-duty vehicles including Freightliner (Daimler) with their Class 8 eCascadia model, and Peterbilt who has introduced two models: the Model 579EV, a Class 8 tractor for port drayage and regional applications, and the Model 520EV, an electric refuse truck. An article in GreenBiz states: “Volvo already makes electric trucks and buses for the European market and plans to commercialize them in North America in 2020. Daimler hopes to start manufacturing production electric trucks in a Portland, Oregon, factory in 2021.”⁶ In addition, a number of manufacturers such as BYD, New Flyer, and Proterra have released commercially available electric buses.

39.2 Does FortisBC acknowledge that in some situations battery-electric medium and heavy-duty vehicles are better than NGT vehicles as an alternative to conventional-fuel vehicles?

⁵ <https://www.todaystrucking.com/taking-quick-spin-with-daimlers-electric-trucks/>.

⁶ <https://www.greenbiz.com/article/big-truck-makers-are-starting-take-electric-trucks-seriously>.

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1 **Response:**

2 FortisBC notes that NGT-fueled medium and heavy-duty vehicles are available and in use
3 today, which makes them the best alternative to conventional-fuel vehicles at the present time.

4 When evaluating future vehicle technology, including battery-electric and hydrogen fuel cells,
5 FortisBC considers the “appropriateness” of the technology as opposed to which is “better”
6 since every vehicle technology has positives and negatives associated with it. Further, FortisBC
7 is a strong advocate for a full lifecycle approach to environmental impacts from different vehicle
8 technologies, where activities to produce motive energy forms are taken into account, as well as
9 end-use emissions and end-of-life considerations.

10 For example, the natural gas used in British Columbia to power Natural Gas Vehicles (NGVs)
11 comes largely from British Columbia, where upstream resource extraction practices are the
12 least impactful to the environment as compared to other jurisdictions. Another example would
13 be the end-of-life disposal of the large battery packs associated with battery-electric medium
14 and heavy duty vehicles. As the battery-electric technology for medium and heavy duty vehicles
15 is early stage, the disposal of these battery packs is an unknown at this time. Consideration
16 must be given to these aspects of transportation energy when technology selections are
17 described as “better”.

18 That said, battery-electric medium and heavy-duty vehicles may be appropriate as an
19 alternative to conventional-fuel vehicles in certain situations as the battery-electric vehicles
20 become more broadly available. However, fleet owners and operators considering the adoption
21 of battery-electric medium and heavy duty vehicles will take into account a number of factors
22 such as:

- 23 • vehicle application;
- 24 • vehicle operating range requirements;
- 25 • payload and resultant vehicle weight requirements;
- 26 • vehicle and fueling/charging infrastructure capital and operating costs;
- 27 • electrical system capacity and costs to accommodate charging infrastructure;
- 28 • availability of dealership support for sales and ongoing service issues;
- 29 • safety;
- 30 • public acceptance;
- 31 • insurance costs; and
- 32 • resale value.

33
34

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39.3 In previous proceedings FEI has confirmed that its NGT program does not target passenger vehicles where EVs are the predominant alternative to conventional-fuel vehicles. For the medium-duty and heavy-duty vehicle sectors, does FEI evaluate the relative costs and effectiveness of NGT vehicles and battery-electric vehicles? What criteria are used?

Response:

As noted in the responses to BCSEA IRs 2.39.1 and 2.39.2, battery-electric vehicles for the medium- and heavy-duty vehicle sectors are at the early stage of development, so there is no reliable information available at this time on lifecycle operating and capital costs for these vehicles. FEI anticipates supporting fleet customers considering the adoption of battery-electric vehicles in developing their business cases for these vehicles, just as it does for fleet owners considering the adoption of NGVs today. In terms of criteria, a number of factors, including some of those described in the response to BCSEA IR 2.39.2, are inputs to these business cases.

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40.0 Topic: Targeted Incentives – GHG Emissions Reductions – Customer (FEI)

Reference: Application, Exhibit B-1, section 8.3.3, Table C8-4, pp. C-161 – C-162

In Table C8-4, FortisBC lists “Gross Customer Attachments” and “Conversions.”

40.1 Please define “conversions” in this context. Does it refer to changes by people who may or may not be FEI customers from their existing energy source to natural gas supplied by FEI? Does it also refer to builders choosing to install natural gas equipment in new residential construction?

Response:

Conversions refers to individuals who are converting their existing energy source to natural gas supplied by FEI, and in the process, becoming a new FEI natural gas customer. It does not include builders choosing to install natural gas equipment in new residential construction.

40.1.1 Does “conversions” in this context include commercial or industrial use of gas?

Response:

FEI is proposing that the targeted incentive for emission reductions (customer) is measured by residential, commercial and industrial customer conversions. However, FEI does not expect that there will be many commercial conversions and very few, if any, industrial conversions.

FortisBC states on p. C-161:

“Natural gas is a clean fuel that reduces carbon emissions and improves air quality in comparison to energy sources like propane and oil. In comparison to heating oil, natural gas can lower emissions by approximately 27 percent.”
[footnote reference omitted]

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40.2 Would the incentive only apply to conversions from oil, propane or other more
GHG-intense fossil fuels to natural gas, or might it also include conversions from
electricity or wood to natural gas?

Response:

Historically, incentive program participation for space heating conversions are comprised of
approximately 97 percent from heating oil and the remainder from other fuel types such as
propane and wood. FEI anticipates a similar incentive and participation in the future. The
program is for the conversion of existing buildings and not available for new construction.

40.2.1 Please provide an estimate of the proportion of conversions expected
from different existing energy sources and for new construction.

Response:

Please refer to the response to BCSEA IR 2.40.2.

40.3 Please provide an estimate of the GHG emissions reductions beyond business
as usual that would be achieved if FortisBC were to achieve its proposed target
for conversions.

Response:

If FEI were to achieve its proposed annual target, FEI estimates that the GHG emissions
reductions over the lifetime of an installed gas space heating equipment is approximately
610,000 tonnes of CO₂ equivalent.

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41.0 Topic: Targeted Incentives, GHG Emissions Reductions – Customer (FEI)

Reference: Exhibit B-6, FortisBC Response to BCSEA IR 1.13.1

FortisBC states:

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

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

41.1 Is FEI able to focus its gas conversion programs so as to avoid inhibiting the success of programs aimed at converting high-carbon heating systems to air source heat pumps that have lower carbon-intensity than natural gas does?

Response:

FEI designed the conversion program to encourage customers who use other fuels to connect to the natural gas system, and thereby benefit from the convenience, affordability and low emissions of clean natural gas. In addition, existing customers benefit as fixed costs are spread among a larger base of customers and revenue is increased. This can have the effect of lowering rates to customers all things equal. The program is aimed at these benefits to new and existing customers but the program also results in lower emissions, which benefit all.

FEI believes that natural gas has a role to play in the low carbon economy while also delivering benefits such as affordability, comfort and convenience. FEI also believes that BC residents should have the option to choose the energy choice that meets their needs. FEI also has an obligation to serve natural gas to those residents who are in close proximity to the natural gas system.

As such, it is not viable for FEI to promote the conversion program only where there is no competition from other low carbon energy sources. Rather, by having the conversion program in market where there are other low carbon offerings, customers can choose the energy source that best meets their needs.

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2

3

4 41.2 To what extent would FEI be able to achieve the proposed annual natural gas
5 conversion target of 2,700 customers during the MRP term by focusing on
6 conversions where air source heat pumps are not a practical alternative?

7

8 **Response:**

9 FEI does not have the information to respond to this question. However, any change to the
10 basis for the targeted incentive would also require a corresponding change to its associated
11 targets. Please refer to the response to BCSEA IR 2.41.1.

12

13

14

15 41.3 Does the natural gas conversion program include commercial and industrial
16 customers, or is it limited to residential customers?

17

18 **Response:**

19 Please refer to the response to BCSEA IR 2.40.1.1.

20

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42.0 Topic: FBC Power Supply Incentive

Reference: Exhibit B-6, FortisBC Response to BCSEA IR 1.17.2

FortisBC states:

“FBC’s carbon intensity of power from the wholesale market in 2018 was calculated and audited to be 0.19 tonnes of CO₂e per MWh on average.”

42.1 Please provide a copy of the source of this estimate.

Response:

FBC calculates GHG emissions on electricity imports by looking at the US state where imports originate, based on the control area⁷ providing the power and applying the state’s GHG emission factor. The GHG emission factor assumed for each control area is based on data contained in the 2008 Western Climate Initiative (WCI)⁸ default calculator. The total energy (MWh) imported per control area is multiplied by the corresponding GHG emission factor to determine the tonnes CO₂e. The tonnes CO₂e from each control area are summed and divided by the total MWh imported. Export data from each control area includes third party information; therefore, FBC has only provided the data in aggregate.

Based on the source of 2018 market purchases, the emission factor was calculated and audited by PricewaterhouseCoopers LLP (PwC) to average 0.19 tonnes of CO₂e per MWh, as shown in the table below.

	MWh Imported	Tonnes CO ₂ e	Tonnes CO ₂ e/MWh
Total	402,655	77,057	0.19

⁷ The term control area refers to a Western Interconnect Balancing Authority. A map of balancing authorities can be found on WECC’s website (https://www.wecc.org/Administrative/Balancing_Authorities_JAN17.pdf).

⁸ Western Climate Initiative <http://www.wci-inc.org/>.

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1 **43.0 Topic: Annual Review**

2 **Reference: Exhibit B-6, FortisBC Response to BCSEA IR 1.20.1,**
3 **1.20.2**

4 BCSEA IR 1.20.2 asked if FortisBC has any objection to a requirement that it provide the
5 annual Sustainability Report for consideration at the Annual Review under the MRP. In
6 response, FortisBC referred to its response to BCSEA IR 1.20.1, which asked if FortisBC
7 would agree that the annual Sustainability Report on FortisBC's performance on some
8 40 indicators of sustainability would provide useful information at the Annual Review
9 within the proposed MRP framework. FortisBC stated:

10 “No. The purpose of the Annual Review is to set rates for the following year. As
11 part of the Annual Review process, FortisBC will continue to report on a balanced
12 set of SQIs (including GHG emissions for FEI) that are designed to show that
13 cost reductions under the MRP are not being made at the expense of reasonable
14 level of service. In addition, the new reporting and review requirements for
15 Targeted Incentives and the Innovation Fund already focus on those aspects of
16 FortisBC's transition to a lower carbon future that are components of the rate
17 setting framework. The Corporate Sustainability Report, however, covers a wider
18 variety of issues which are not relevant to the Annual Review process.”
19 [underline added]

20 43.1 Please provide a table showing the issues covered in the Corporate
21 Sustainability Review that in FortisBC's view are (a) relevant to the Annual
22 Review process, and (b) not relevant to the Annual Review process. For the
23 issues that are not relevant to the Annual Review process, please indicate the
24 forum in which FortisBC's customers have an opportunity to address them.

25
26 **Response:**

27 FortisBC developed its Sustainability Report to summarize its sustainability activities and efforts
28 across the different parts of its business. The Sustainability report showcases the various
29 initiatives in each of the pillars (Customers, Partners & Communities, Environment and
30 Employees) that define how sustainability is intrinsically part of FortisBC's priorities and
31 operations.

32 The table below shows the different pillars and the related content in the Sustainability Report
33 and provides a discussion of why the content for each of the pillars may not be relevant to the
34 MRP Annual Review process.

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Sustainability Pillar	Content in the Sustainability Report	Discussion of relevance to the Annual Review process
Customers	This section focuses on reporting of the service provided to customers, public safety programs, emergency preparedness and response for the safe, reliable delivery of energy. Highlights include examples of great service provided and innovative solutions to customers.	Some of the information and metrics reported in this pillar are the same as that reported for the MRPs. The metrics include SAIDI, SAIFI, emergency response time, first contact resolution and customer satisfaction. The Annual Review process provides a forum to discuss performance for these metrics relative to the targets established as part of the MRP.
Partners and Communities	This section discusses the partnerships and relationships with local communities, stakeholders, regulatory agencies, Indigenous groups and business organizations. Featured is the Companies' community investment program supporting a variety of projects focused on safety, education, environment or Indigenous initiatives.	There is no specific requirement to consider and review this as part of the Annual Review process.
Environment	The Environment section includes discussion of the innovative energy solutions that fit in B.C.'s lower-carbon future and FortisBC's diligence on environmental stewardship and management. Activities described include those to reduce environmental impacts, including renewable gases, hydrogen-injection, carbon capture and the installation of fast-charging electric vehicle stations. Discussed also are efforts to reduce natural gas emissions from FEI's natural gas system.	Reductions in GHG emissions in areas which are the focus of the proposed Targeted Incentives (i.e., RNG, natural gas used for transportation, etc.) and for which specific reporting is proposed as part of the Annual Review process. There is no specific requirement to consider and review Environment information as part of the Annual Review process.
Employees	This section focuses on the value of the Companies' employees. Highlighted are the training and development activities for employees and the efforts supporting inclusion in the workplace. Improvements to the Companies' overall safety culture are presented.	There is no specific requirement to consider and review this as part of the Annual review process.

1

2 As shown in the table above, the content in the Sustainability report is intended to provide a

3 broad discussion of FortisBC's Sustainability framework and the activities and efforts

4 undertaken by the Companies. Instead of relying on another source like the Corporate and

5 Sustainability report, the MRP has its own reporting requirements developed specifically to meet

6 the needs of the Annual Review process.

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1 Alternate forums where stakeholders can raise questions on the content of the Sustainability
2 report are the External Advisory Council for the proposed Clean Energy Fund and discussion
3 with FortisBC's Sustainability group.

4
5
6
7 43.2 What does FortisBC mean when it says "the new reporting and review
8 requirements for Targeted Incentives and the Innovation Fund already focus on
9 those aspects of FortisBC's transition to a lower carbon future that are
10 components of the rate setting framework"?

11
12 **Response:**

13 FortisBC clarifies that the "new reporting and review requirements proposed for Targeted
14 Incentives and the Innovation Fund" is in reference to the MRP elements (Targeted Incentives
15 and the Clean Growth Innovation Fund) for which the Companies will be providing progress
16 updates in the Annual Reviews during the MRP. FortisBC considers the Targeted Incentives
17 and the Clean Growth Innovation Fund as integral components of the rate setting framework
18 proposed, which are focused on FortisBC's transition to a lower carbon future.

19 Please refer to page C-13 of the MRP Application outlining the proposed Annual Review
20 process for the MRP. As indicated, included in the Annual Review will be an update on the
21 Targeted incentive results and the status of the Innovation Fund.

22
23
24
25 43.3 Please list "the new reporting and review requirements for Targeted Incentives
26 and the Innovation Fund." For each, please indicate where they would be
27 addressed, that is, in the Annual Review or in some other forum.

28
29 **Response:**

30 Please refer to the response to BCUC IR 2.218.3 for the reporting requirements related to the
31 Clean Growth Innovation Fund, as part of the Annual Review process.

32 Similarly, FEI and FBC will be providing highlights, an update on progress, and actual
33 performance relative to the approved Targets for each Incentive as part of the Annual Review
34 process.

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43.4 Please list the aspects of FortisBC's transition to a lower carbon future that are not components of the rate setting framework.

Response:

FortisBC's responses to BCSEA IRs 1.20.1 and 1.20.2 were intended to convey that a fulsome Annual Review process already exists and, with the additional requirements for Targeted Incentives and the Innovation Fund, all relevant aspects of FortisBC's transition to a low carbon future that are components of the rate setting framework will be captured in the updated Annual Review.

As described in the FortisBC's Corporate and Sustainability Report 2018 (the Report), "Sustainability isn't just something we do. It's how we do everything."⁹ The Report covers 52 indicators across the Companies' four sustainability pillars aligning with the Global Reporting Initiative (GRI) sustainability metrics, of which 14 are part of the rate setting framework in that they are also reported on in the Annual Reviews. Although the remaining Report indicators are relevant to our transition to a lower carbon future, they cover a broader scope and are not relevant to the setting of rates or evaluation of the Companies' performance under the proposed MRPs.

Please refer to Attachment 43.4 for a copy of FortisBC's 2018 Corporate and Sustainability Report.

43.5 Is implementation of the proposed Targeted Incentives and Innovation Fund expected to improve FortisBC's performance on at least some of the measures in the annual Sustainability Report? If so, please indicate which measures and whether the results on these measures will be reported in the Annual Meeting. If not, why not?

Response:

Confirmed.

The implementation of the Clean Growth Innovation Fund and the Targeted incentives are expected to improve FortisBC's performance on at least some of the measures in the Sustainability report. These measures are similar to those being reported as part of the Annual Review process. As discussed in the response to BCSEA IR 2.43.3, progress updates on the

⁹ Page 7.

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1 performance of the Clean Growth Innovation Fund and the Targeted Incentives will be reported
2 as part of the Annual Review process.

3 Success in the proposed Targeted Incentives is expected to foster growth in RNG volumes,
4 natural gas use for transportation, and internal GHG reduction. These are GHG reduction
5 initiatives that are reported in the Corporate and Sustainability report and also as part of the new
6 reporting for Targeted Incentives included in the Annual Review.

7 Similarly, success in the implementation of the Clean Growth Innovation Fund is expected to
8 reduce emissions for FortisBC and support its transition to a lower carbon economy while
9 maximizing the use of its energy delivery systems. With the investment areas covered by the
10 Clean Growth Fund (refer to Table C6-2 on page C-142 of the Application), the expected impact
11 of the Clean Growth Fund will mostly be on the GHG metrics reported as part of the
12 Environment pillar in the Sustainability report.

13 Refer to the excerpt below from the 2018 Corporate and Sustainability report listing the GHG
14 emissions metrics reported as part of the Environment Pillar.

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Performance summary

Environment Pillar¹

Indicator	2017	2018
Emissions		
Direct GHG emissions (Scope 1) ¹⁶	153,000 tCO ₂ e	130,000 tCO ₂ e
Indirect GHG emissions (Scope 2) ¹⁷	5,300 tCO ₂ e	7,200 tCO ₂ e
GHG emissions saved from natural gas used for transportation ¹⁸	48,000 tCO ₂ e	45,000 tCO ₂ e ²
GHG emissions saved from LNG used for marine bunkering	9,000 tCO ₂ e	17,000 tCO ₂ e ²
GHG emissions saved from Renewable Natural Gas ¹⁹	7,700 tCO ₂ e	8,900 tCO ₂ e ²
Reduction in criteria air contaminants (CAC) released to the environment through the use of LNG and CNG by customers ²⁰	249 tonnes CAC	269 tonnes CAC
Lifetime energy saved from Conservation and Energy Management Programs ²¹	292,000 tCO ₂ e	334,000 tCO ₂ e ²
Class 3 spills²²		
Number of spills by FortisBC	0	0
Number of spills by contractors	3	0
Waste		
Amount of hazardous waste disposed of in accordance with regulatory requirements ²³	170 tonnes	270 tonnes
Penalties		
Number of environmental fines and penalties	0	0

- 1
- 2 The performance of the Clean Growth Innovation Fund, which may impact the Companies' GHG
- 3 emissions, will be discussed as part of the Annual Review process.
- 4

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1 **44.0 Topic: Clean Energy Innovation Fund – gaps and innovation activities**
2 **Reference: Exhibit B-6, FortisBC Response to BCSEA IR 1.23.3;**
3 **Exhibit B-1-1, Appendix C6-4: Multi-Year Rate Plan – Main Innovation**
4 **Activities, section 1.3 CARBON CAPTURE [TRL-2 TO TRL-6], pdf**
5 **p.605**

6 Carbon capture is included within FortisBC’s proposed “Main Innovation Activities” for
7 the Clean Energy Innovation Fund. FEI says it is “currently conducting a small-scale pilot
8 with Clean 02 (a manufacturer of an end-use carbon capture device called Carbonix) to
9 test and demonstrate energy efficiency and GHG reductions of up to 10 units.”

10 In its response to BCSEA IR 1.23.3, FortisBC states:

11 “Assuming the Clean Growth Innovation Fund is approved as requested, the
12 prioritization of the activities will be finalized by the governance entities shown in
13 Figure C6-8 in the Application. However, given the challenging nature of the
14 renewable gas goal set out by the CleanBC Plan, Blending Hydrogen and
15 Renewable Natural Gas are likely to be high priorities.” [underline added]

16 44.1 If FortisBC’s research focus within the area of “carbon capture” will go beyond
17 Carbonix pilot project, please identify the topics.

18
19 **Response:**

20 Please refer to the response to BCUC IR 2.223.3.1.

Attachment 43.4



FORTIS BC™

Energy at work

Corporate and Sustainability
Report 2018

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Our business

Looking back at 2018

FortisBC delivers the energy customers need safely, reliably and at the lowest reasonable cost. Whether delivering electricity, natural gas or propane, our more than 2,400 employees serve approximately 1.2 million customers in 135 communities.

FortisBC owns and operates approximately 49,000 kilometres of natural gas transmission and distribution pipelines, and 7,260 kilometres of electric transmission and distribution power lines.

Our energy infrastructure assets also include B.C.'s largest underground natural gas storage facility, two liquefied natural gas (LNG) storage facilities, and four hydroelectric generating plants.

FortisBC Inc. and FortisBC Energy Inc. do business as FortisBC. We are indirectly wholly owned by our parent company, Fortis Inc., a leader in the North American electric and gas utility business. Through its subsidiaries, Fortis Inc. serves more than 3.3 million natural gas and electricity customers.

Performance

FortisBC Energy Inc. Natural gas & piped propane	2017	2018
Peak day demand (TJ)	1,336	1,353
Gas volumes (PJ)	221	212
Customer satisfaction index	8.4	8.7

FortisBC Inc. Electricity	2017	2018
Generating capacity (MW)	225	225
Peak demand each year (MW)	731	731
Energy		
Regulated (GWh)	3,305	3,250
Customer satisfaction index	8.2	8.3

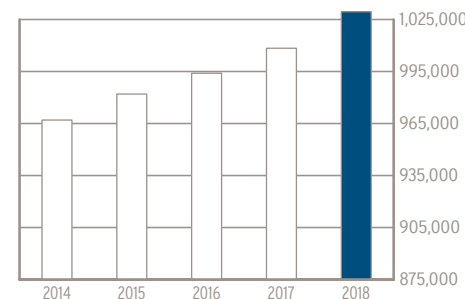
Financial highlights (in millions of dollars)

FortisBC Energy Inc. Natural gas & piped propane	2017 ¹	2018
Net earnings	\$186	\$190
Revenues	\$1,199	\$1,187
Operating expenses	\$297	\$308
Capital expenditures ²	\$444	\$486

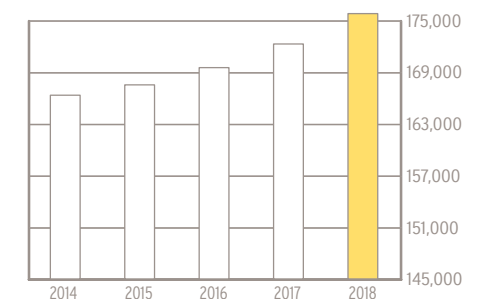
FortisBC Inc. Electricity	2017 ¹	2018
Net earnings	\$50	\$50
Revenues	\$381	\$391
Operating expenses	\$81	\$96
Capital expenditures ²	\$105	\$106

¹ Certain comparative figures have been classified to conform to the current year's presentation. ² Capital expenditures before contributions in aid of construction and including cost of removal.

FortisBC gas customers³ (Approximately 1,029,476 in 2018)



FortisBC electricity customers⁴ (Approximately 175,868 in 2018)



³ Includes piped propane customers. ⁴ Includes direct and indirect customers (customers who are served by utilities to which FortisBC provides wholesale energy or distribution service).

Area of operations

Yukon

Northwest
Territories

- Natural gas service area
- Electric service area
- Combined natural gas & electric service area
- Propane service area
- FortisBC gas line
- Enbridge gas line
- FortisBC electric transmission lines

British
Columbia

Alberta

PACIFIC OCEAN

United States

A message from the President and CEO



Roger Dall'Antonia

Over the last year, the FortisBC group of companies have continued to increase their focus on sustainability. While it has always been a part of our business, we have found that the concept of sustainability mirrors our organizational values and encompasses the expectations of our customers and employees on how good companies act. Simply put, we pursue sustainability because it is the right thing to do.

Many people see sustainability as synonymous with environmental responsibility. While safeguarding the environment is a key piece of our sustainability framework, it is far from the only piece.

Our strategic decisions must also be guided by social sustainability, considering the needs, priorities and safety of our partners and communities, including Indigenous communities. We must consider the sustainability of our workforce and continually seek out ways to enrich the careers of our people and provide meaningful opportunities for professional development and advancement. And, of course, we have to watch the books to ensure our business is economically sustainable over the long-term by serving the needs of customers, delivering reliable, affordable energy while maintaining and expanding our customer base.

Indeed, taking the long view of our business is key to ensuring sustainability. While we will always strive to meet the needs and expectations of our customers today, we must also look to the priorities of our future customers. Their interests will evolve over time and FortisBC must have the foresight to adapt our services to continue to match their expectations of reliability, safety, affordability and a lower environmental impact.

In 2018, FortisBC continued to deliver on customer and shareholder expectations. We saw a net growth of 21,054 natural gas customers and another 3,525 electricity customers, including dynamic new markets such as natural gas transportation, cannabis growers and blockchain server farms. This growth has helped us deliver \$240 million in net earnings in 2018.

In order to maintain our high level of service to our growing customer base, we continue to invest in our energy infrastructure. Over the summer, we tackled the first leg of arguably one of the most challenging projects we have undertaken—the FortisBC Gas Line Upgrades project—a 20 kilometre stretch of new pipeline running underneath East First Avenue in Vancouver. As one of the primary commuter routes in Metro Vancouver, this phase of the project had some challenging impacts on traffic, local residents and businesses. However, through detailed project planning, extensive consultation and engagement, and hard work, the section was completed on budget and a day ahead of schedule. Completion of this segment of the Lower Mainland system ensures that we'll be able to continue delivering natural gas to over 210,000 customers—safely and reliably. Work continues in 2019 as we undertake the next phase of the gas line replacement in Coquitlam under Como Lake Road. I'm confident we'll see similar success.

The integrity of our electric infrastructure in the interior of the province is also something we continually invest capital dollars in. In 2018, we began the \$63 million replacement of the spill gates at the Corra Linn Dam. We expect to complete the work at Corra Linn by 2021. We also entered the second year of refurbishment of our Upper Bonnington Dam generating station. This \$32 million investment combines new technology with original systems within the 110-year-old facility to provide decades more clean, reliable power to our customers.

Our investment and activity in the province goes well beyond the provision of energy to homes and businesses across B.C. 2018 was a banner year for the advancement of our natural gas for transportation business. More than 150 new compressed natural gas (CNG) vehicles hit the road in 2018 from organizations such as BC Transit, TransLink and UPS—bringing the grand total of heavy-duty, on-road natural gas vehicles to more than 850. By replacing diesel or gasoline-powered vehicles with CNG, operators are reducing greenhouse gas (GHG) emissions from their fleets by 20 to 30 per cent while saving roughly 50 per cent on fuel costs.

BC Ferries completed the conversion to LNG of another vessel in its fleet, *Spirit of British Columbia*. This is the fifth BC Ferries' vessel that has been converted to LNG and another ferry is expected to be converted in 2019. A total of seven local vessels are now fuelled by FortisBC, five from BC Ferries and another two from Seaspan ULC, using our proprietary onboard trailer-to-ship bunkering technology. In fact, in 2018, our LNG team passed an important milestone as we surpassed over 1,000 successful bunkerings since we began in 2016.

In 2018, we also expanded our infrastructure in electric transportation with the construction of new Direct Current Fast Charging electric vehicle (EV) charging stations as part of the accelerate Kootenays initiative. We believe that FortisBC has an integral role to play in the expansion of the province's EV charging network and look forward to helping build out the network of fast charging stations in 2019.

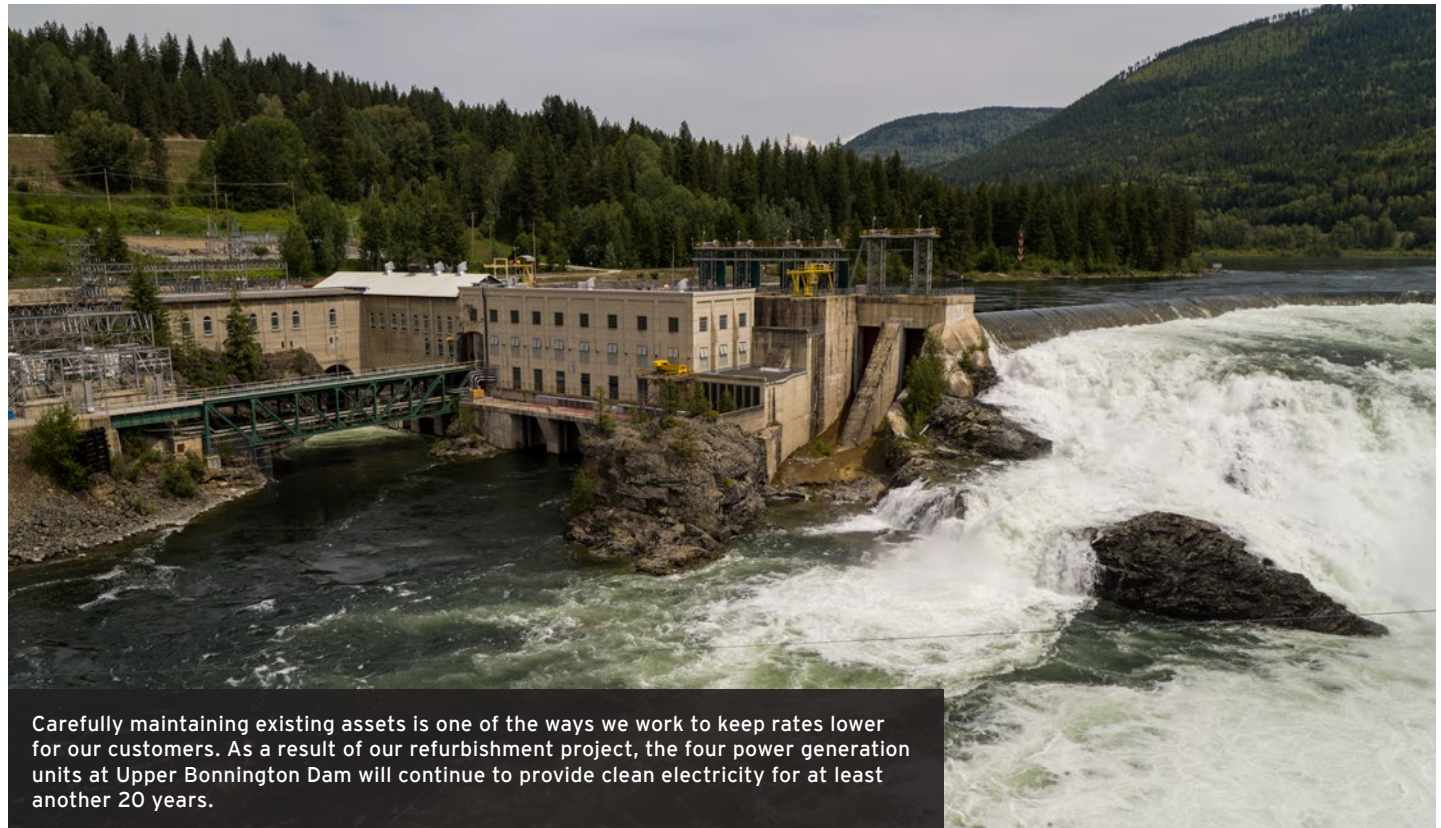
But while the successes of the past year are worth celebrating, a commitment to sustainability requires us to look towards the future and set the foundation for continued success.

Late in the year, we released our *Clean Growth Pathways to 2050* strategy; our vision of how FortisBC can contribute to a lower carbon future and help drive environmental change in the province. The strategy calls for four primary actions to drive change within our energy systems.

1. Make significant investments in low and zero-carbon vehicles and transportation infrastructure.
2. Ramp up Renewable Natural Gas⁵ (RNG) and other renewable gas supply to achieve a 15 per cent carbon-neutral gas supply by 2030.
3. Position B.C. as a domestic and international LNG provider.
4. Triple our investment in energy efficiency and develop innovative energy projects within the province.

Initiatives are already underway to meet these objectives and firmly establish FortisBC as a sustainable energy provider that will be a cornerstone of a lower-carbon future in this province. Natural gas has a critical role in providing energy to tomorrow's B.C.—an energy that will be lower-carbon than today yet still maintains its affordability. Our energy products must be attainable in order to be sustainable.

⁵Renewable 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).



Carefully maintaining existing assets is one of the ways we work to keep rates lower for our customers. As a result of our refurbishment project, the four power generation units at Upper Bonnington Dam will continue to provide clean electricity for at least another 20 years.

We also took time to plan for our future through our application for a new multi-year rate plan to establish the required revenue to provide safe, reliable and affordable natural gas and electricity service for our customers. While the plan is still in the review process, we are confident in the direction it charts and are excited about the new incentives it contains to pursue energy innovations that can raise efficiency, lower emissions and reduce costs.

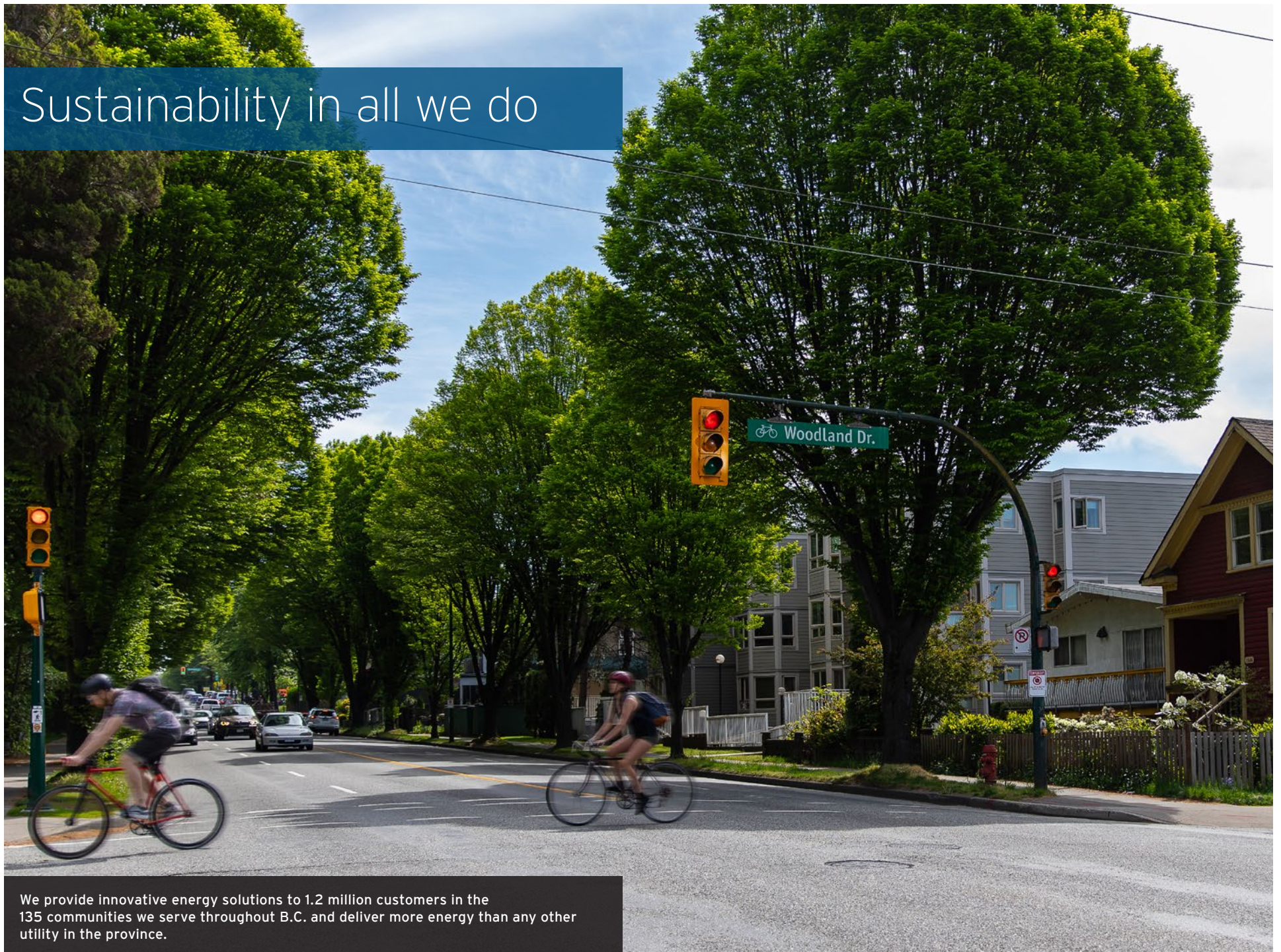
The future of energy is evolving. With the energy needs of the world constantly growing and changing, we will need to find a range of energy solutions to best meet the needs of customers, help communities grow and prosper and protect the environment. There are challenges ahead, but by focusing on our sustainability pillars, we have the means to meet them. We will address energy issues in ways that are sustainable, attainable and work to lower GHG emissions.

We are proud to present to you our 2018 Corporate and Sustainability Report and demonstrate how FortisBC is succeeding today while preparing for tomorrow.

Handwritten signature of Roger Dall'Antonia.

Roger Dall'Antonia
President and CEO
FortisBC

Sustainability in all we do



We provide innovative energy solutions to 1.2 million customers in the 135 communities we serve throughout B.C. and deliver more energy than any other utility in the province.

About sustainability at FortisBC

Sustainability isn't just something we do. It's how we do everything.

This is the commitment of our parent company, Fortis Inc., and it perfectly encapsulates how we operate at FortisBC. Sustainability is embedded in our work of delivering energy to our customers.

We provide innovative energy solutions to 1.2 million customers in the 135 communities we serve throughout B.C. and deliver more energy than any other utility in the province.

We invest in and maintain local energy infrastructure and provide customers with energy conservation incentives and programs. We also own and operate LNG facilities that supply natural gas for transportation in the on-road and marine sectors, as well as supply LNG for natural gas exports to Asia, positioning B.C. as a vital domestic and international LNG provider. We believe that by offering practical solutions and leveraging our existing infrastructure, we can contribute to lowering global GHG emissions.⁶

Sustainability is clearly reflected in our company's values

Value	What it means to us	How we live our values
Safety	We put safety first. Safety is always top of mind.	Internally, we are committed to a strong safety culture, ensuring our people go home safe every day. Externally, we work to educate customers, contractors and others about safe practices around natural 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. We employ a team of Community and Key Account 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.	We strive to build internal relationships and support inclusivity in the workplace, which strengthens our ability to make sound business decisions and to recruit and retain the best talent. Our teams work together 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 support inclusion and diversity by providing education for our employees on respect, anti-bullying and cultural awareness.
Progressive	We seek better ways.	We research innovative energy solutions so that our customers will continue to have access to the energy products and solutions they need. Along with anticipating and innovating for B.C.'s future energy needs, we also work and partner to deliver and improve upon cutting-edge technology that helps reduce environmental impacts.

The importance of our sustainability report

In 2018, we published our first Sustainability Report that highlighted the integration of sustainability within our business. This year's report continues to showcase the various initiatives that define how sustainability is intrinsically part of FortisBC's priorities and operations. With continued successes spanning over a century, including companies amalgamated throughout the years, FortisBC is proud to account for a history of sustainable business practices and initiatives.

For many, sustainability is synonymous with environmental protection and preservation. While this is an important pillar underpinning FortisBC's sustainability framework, it is only one aspect. For an organization to flourish, we must consider everything that allows our operations to succeed over the long-term. Through careful planning and analysis, we can track performance to develop a holistic picture of how we are performing.

Our operations and our environmental and social impacts are interconnected. We are a company that is forward thinking: we are preparing today for the energy landscape of tomorrow. We recognize there is a growing demand for innovative energy solutions, not just throughout our province but also globally. This includes demand for affordable and reliable energy solutions, creation and delivery of low-carbon energy and the development of innovative technology and services. Our submission to the B.C. Government, the *Clean Growth Pathway to 2050*, identifies innovative means to accelerate opportunities for natural gas solutions, such as renewable gases and natural gas for transportation.

⁶ Assuming that the use of natural gas displaces heavier carbon fuels.

Our business activities and investments are focused in these areas, allowing our company to meet customer needs while supporting long-term growth for shareholders. We also acknowledge the increasing demand for innovative energy products and solutions internationally; developing low-carbon energy options will allow for reductions of GHG emissions on a global scale.

Sustainability framework

Our sustainability framework was crafted across four primary pillars: Customers, Partners & Communities, Environment and Employees. This framework was developed after a review of current practices and identified areas of strength and opportunity.

We consulted extensively with employees throughout the organization. We also conducted interviews with senior leadership of the business community, provincial government, unions, regulators, municipalities, associations and Indigenous groups to understand their perspectives on FortisBC and sustainability. Identifying our employees and stakeholders' priorities and concerns helped guide our decisions on the sustainability pillars and the framework they support.



Employees ensure they perform maintenance in the safest possible manner on our electrical and natural gas infrastructure.

Customers

This pillar focuses on the quality of service provided to our customers, public safety programs, emergency preparedness and response and the safe, reliable delivery of energy. We work to provide customers with great service and innovative solutions, ensuring they have access to the energy they need.

Partners & communities

We serve the communities in which we live and work. We work to enhance our partnerships and relationships with local communities, stakeholders, regulatory agencies, Indigenous groups and business organizations. Our Partners & Communities pillar demonstrates our commitment to enhancing mutually beneficial relationships to support our business operations. These relationships include Indigenous communities, where understanding, respect, open communication and trust are key values embedded in FortisBC's formal Statement of Indigenous Principles.

Environment

Environment includes the innovative energy solutions that fit in B.C.'s lower-carbon future and our diligence on environmental stewardship and management. Anticipating and innovating for B.C.'s future energy needs, we work to deliver cutting-edge technology that helps reduce environmental impacts, including renewable gases, hydrogen-injection, carbon capture and the installation of fast-charging electric vehicle stations. Our policies today shape our environmental practices now and into the future.

Employees

We provide a safe, respectful, inclusive and engaging workplace that recognizes the value of our employees and their careers. We are committed to training and developing our employees and supporting inclusion in the workplace, which in addition to producing stronger business outcomes, enhances our ability to recruit and retain the best talent.

Reporting guidelines

Meeting performance goals in each of these areas is crucial for FortisBC to succeed. Our successes are measured through the use of sustainability performance indicators, all of which align with the 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.

Our Sustainability Governance model is similar to that of our parent company

Stakeholder	Responsible for:
Board of directors	receives updates from the FortisBC CEO and Executive Leadership Team on sustainability initiatives and strategies
CEO and executive leadership team	oversees the development and progression of the overarching business strategy and direction of the sustainability initiatives at FortisBC risk management oversight and ensuring business is conducted to meet high standards of environmental and social responsibility
Natural gas and electricity operations	operational aspects of sustainability, including the identification and development of initiatives that support and progress the FortisBC sustainability strategy and business priorities
Sustainability business unit	developing the sustainability strategy and leading performance reporting practices

We use the United Nations Sustainable Development Goals and the Task Force on Climate-related Financial Disclosures as guidelines for many of our indicators and metrics.

Achieving success in sustainability requires a balance of financial, environmental and social factors and outcomes. Focusing on sustainability ensures 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.

As we look toward the future, we want to celebrate our accomplishments in 2018, while continuing to build on them to achieve continued success. The diversity of the pillars demonstrates how our business priorities, our environmental and social impacts are all interconnected.



To commemorate the Winter Olympic Games in Pyeongchang, FortisBC sponsored the lighting of the Olympic Cauldron in Vancouver, B.C. with 100 per cent Renewable Natural Gas. Our Street Team members, like Alex Balicki were also present, giving away biodegradable compost buckets.

Our business priorities for 2019 can be summarized by four main goals:

Enhancing customer engagement

Having customers is a privilege of any business; however, having engaged customers that advocate for our services is a key ingredient to our long-term success.

Growing our business

In 2019, the continued growth of our business will remain one of our priorities, and doing so in a sustainable manner will ensure that our energy offerings are safe, reliable and affordable for our customers.

Preparing for the next generation of ratemaking

We are developing a new ratemaking framework to calculate gas and electricity rates. This model will ensure that we continue to strike a balance within our rate structure that encourages customer service and retention, provides funding for capital investment and spurs ongoing innovation to unlock new opportunities in a lower-carbon energy future.

Responding to environmental policy

Our policy environment is changing rapidly. This presents both challenges and opportunities for us around identifying and delivering innovative energy practices and solutions.

In order to meet these priorities, our leadership determined four primary enabling initiatives:

Safety

In 2019, we will continue to evolve how we improve and monitor safety performance. We'll move to a more leading-indicators approach and recognize proactive safety behaviours.

Employees

We will continue to invest in our employees' development and expand on opportunities for career advancement and challenging work assignments.

Indigenous relations

We will continue to build meaningful and mutually beneficial relationships with our Indigenous partners.

Technology advancement

We will continue to innovate and advance the use of technology.

These priorities and enabling initiatives speak directly to our view of an organization that is socially, financially and environmentally sustainable.

Customers



Customers are at the heart of our business. Here, Rodel Nacion from our Willingdon Park Customer Contact Centre helps a customer meet their energy needs.



In 2018, our customer service representatives were able to help 82 per cent of customers achieve resolution in one call with our contact centres. Service Quality Metrics (SQM) recognized FortisBC with an award for the Highest Customer Service in the Energy Industry. From left to right: Nader Ghattas (SQM), Sarah Nelson, Mark Hynes, James Teichgrab, Heather Omiunu, Jennifer Datchkoff, Andrea MacInnis, Erica Gugay and Lara Pow (SQM).

Our customers depend on us. We recognize the important role we play in our customers' lives, and we take that responsibility seriously. Developing, maintaining and enhancing strong customer relationships is crucial to ensuring the sustainability of our business. Our employees know the importance of delivering the type of service that meets our customers' evolving expectations.

Increasing options for every customer

When we measure performance related to the Customer Sustainability pillar, one of the most important factors is the quality of service provided to our customers. Our employees work hard every day to ensure that each customer receives friendly, effective service. In 2018, our customer service representatives were able to help 82 per cent of customers achieve resolution in one call with our contact centres. Service Quality Metrics (SQM) recognized FortisBC with an award for the Highest Customer Service in the Energy Industry.

To provide more timely communication, we launched a Facebook page to join our Twitter, YouTube, Instagram and LinkedIn accounts. On Facebook, we feature daily postings on rebates, safety and energy-efficiency tips, updates about community events and the latest news on our company.

By staying abreast of communication tools, we are meeting customer expectations. We are vested in providing customers with a positive experience that meets their needs and expectations, a core tenant of the Customer Sustainability pillar.

Collectively our three contact centres handled approximately

3,500

customer inquiries each day

With one phone call, our contact centre customer service representatives helped

82%

of customers achieve resolution



Betsy Matamoros, Manager, Electric Network Assets, Tyler Hlookoff, Information Systems Technician, and Lisa Ruchkall, Kootenays Regional Engineer, work together in our Kootenay Operations Centre to ensure customers have access to the energy they depend on.

The effectiveness of Facebook as a platform for customer communication was demonstrated during the natural gas supply disruption that B.C. faced during the winter months of 2018. We received more than 1,000 messages about the disruption caused by Enbridge's Transmission South pipeline rupture and our informative posts garnered close to five million views. We also posted numerous videos explaining why conservation was needed and how the rupture could impact B.C.'s natural gas supply. These videos garnered just under 58,000 views on Facebook alone.

In 2018, we added another new option for customers as we launched our FortisBC mobile app. The app gives our customers anytime, anywhere access to their accounts, useful safety information, rebates, energy-saving tips and more. The app, which has been downloaded 27,500 times, helped increase the level of accessibility for customers.

Our online account management tool, Account Online, continued to see an increase in use throughout 2018. To date, we have 432,569 natural gas customers and 47,152 electricity customers enrolled in it. Approximately 130,000 customers use this tool each month.

We completed several improvements to enhance the customer experience, including simplifying the automated move process, redesigning emails and notifications to make them easier to read and understand, and adding the ability for natural gas customers to receive emailed billing alerts. These upgrades help customers understand more about their energy use, consumption and opportunities for energy savings.

We have offered a paperless billing option to our customers since 2012. This year, we saw a 5.5 per cent increase for gas customers and a 5.3 per cent increase for electricity customers subscribing to this service. This reduces costs for all customers and is environmentally friendly.

Looking forward, we remain committed to enhancing the customer experience and ensuring we can continue to meet their expectations. To achieve this, we have started work on several initiatives, including a bill redesign to ensure the information we provide is easy to use and meaningful; a new online tool where customers can get personalized energy usage information; the launch of an online program to make applying for natural gas rebates quick and easy; and ongoing improvements to existing channels such as our mobile app and Account Online.

Working together to support customer needs

Our customers are diverse and so are their needs. That is especially true for those who are new to Canada. This year, we continued our collaboration with the Kambo Energy Group to fund a one-of-a-kind program called Empower Me, created for new Canadians and delivered in nine languages. Through Empower Me, energy mentors provide one-to-one energy-efficiency education to customers in their native language. Mentors participated in a total of 48 community events, reaching more than 7,000 residents with personalized energy advice.

In total

389,910

gas customers and

57,528

electricity customers have subscribed to the paperless billing option since 2012

In 2018, the FortisBC mobile app was downloaded

27,500

times, helping to increase the level of accessibility for customers



We continued to upgrade our natural gas line in Burnaby and Coquitlam to ensure more than 210,000 homes and businesses across the Lower Mainland continue to receive the natural gas they count on every day.

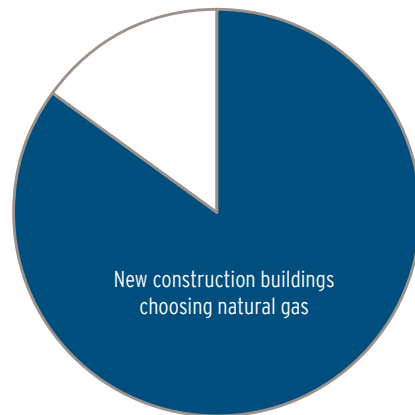
Maintaining regular contact with our customers is important. Like most utilities, we review our rate structures periodically to make sure the costs to provide service are distributed fairly across customer classes. This year, we submitted an electric Rate Design Application to the British Columbia Utilities Commission (BCUC) to phase out the two-tier residential rate over the next five years. Prior to submitting the application, we held open houses in Kelowna, Oliver and Castlegar in our electricity service area. At the sessions, customers learned about the rate design process and the changes we planned to make, including our request to the BCUC to allow us to phase-in a single rate for electricity customers.

The feedback we received provided valuable insight into what matters to our customers and helped inform our proposals.

We take pride in listening to and working with the communities in which we live and work. For example, this year, there were 2,623 gas and electricity customers under evacuation order due to floods and wildfires, and they received a bill credit that accounts for bills they may have received for service to their homes or businesses while they were evacuated.

Ensuring reliable service

Natural gas remains an affordable and efficient energy source that is well suited to fit within B.C.'s lower-carbon future. This year, we saw more than 22,000 new customers choosing to connect to gas.



In 2018, 85 per cent of new construction buildings chose natural gas.

There was also an increase in customers taking advantage of the Connect to Gas conversion rebate, which encourages them to move from high-carbon heating systems (oil, propane, wood) to high-efficiency natural gas systems, resulting in GHG emissions reductions.

As the number of natural gas customers continues to grow, we are working to ensure all of our customers continue to have access to the energy they need. We are in the process of upgrading 20 kilometres of gas line between Vancouver and Coquitlam. This work will ensure that more than 210,000 homes and businesses across the Lower Mainland will continue to receive the natural gas they count on every day.

In 2018, we invested approximately \$159 million in the FortisBC Gas Line Upgrades project, including \$31 million in local procurement. The first phase of the upgrade was successfully completed in Vancouver and Burnaby in 2018 and the second phase will launch in March 2019.

Every step of the way we have worked to keep our customers and the general public up-to-date on construction planning and progress. So far, we have had close to 7,000 conversations with the community, and as the project progresses we will continue to engage directly, hosting public information sessions and providing frequent updates on the project website, talkingenergy.ca.

This year

22,000

new customers chose to connect to natural gas

In 2018, we invested approximately

\$159million

in the FortisBC Gas Line Upgrades project

Since January 2018, there have been approximately

225

suppliers in 28 B.C. municipalities active on the FortisBC Gas Line Upgrades project, including Indigenous-affiliated businesses

Our Upper Bonnington Dam refurbishment continued in 2018. The \$32 million upgrade combined new technology with original turbines, rotors and shafts to provide our electricity customers with reliable power for another two decades. Continuous maintenance and improvement of our infrastructure is a hallmark of how we ensure reliable service to our customer base.

Promoting energy conservation

Our conservation and energy-efficiency programs provide rebates and other incentives for homeowners and businesses to promote efficient energy use. These programs help reduce energy demand in B.C. and help communities reach their regional climate action and GHG emission reduction goals. Conservation and energy-efficiency programs also demonstrate our commitment to reducing customers' energy consumption and costs.

We offer many rebates to help residential customers save money and energy by upgrading to high-efficiency heating systems, appliances and products. This year, we provided more than 35,000 residential natural gas rebates to help customers upgrade to high-efficiency equipment in their homes. An additional 4,000 rebates were provided to customers for high-efficiency electric products. In 2018, residential rebates totalled over \$11.8 million helping to reduce GHG emissions by 163,000 tonnes of carbon dioxide equivalent (tCO₂e). Annual residential GHG emission savings in 2018 were the equivalent of removing about 6,300 cars off the road.



FortisBC Street Team member Shayna Lawrie speaks to a home show attendee about energy-saving measures, available rebates and the benefits of natural gas.

As part of our Small Business Engagement initiative, we visited businesses in five communities. Initial visits provided businesses with basic energy-efficiency advice and information about rebates that can help them conserve natural gas and electricity, reduce their energy costs and enhance the comfort of their business space.

In 2018, we launched our Social Housing Retrofit Support Program. The program is designed to encourage and support social housing apartment organizations to replace inefficient equipment and systems with high-efficiency solutions. We're working alongside the program partners to expand access to energy efficiency funding and rebates in B.C.'s social housing sector.

We are committed to helping B.C. cost-effectively achieve its climate goals by providing British Columbians with practical and affordable solutions for their energy needs. To that end, we applied to the BCUC to double the conservation and efficiency incentives available to our customers for 2019 and are committed to tripling this investment by 2022.

To assist income-qualified customers with conservation, we gave out more than

14,000

Energy Saving Kits

We installed over

7,000

energy-saving products in those homes

We performed over

2,000

home energy evaluations

Partners & communities



In April, a group of Vancouver Island FortisBC employees took part in a Community Giving Day at the Port Alberni Salvation Army. Volunteerism is one way we do our part to create a sustainable future for both our communities and our province.

Relationships are what's important when we think of our Partners and Communities pillar. Those valued relationships have helped make our organization more in tune and responsive to the needs of the communities we serve.

We believe we have a responsibility to give back to the neighbourhoods where we live and work, which we do in a number of ways.

Supporting communities and causes

As part of our efforts to create a sustainable future for British Columbians, our community investment program supports a variety of initiatives that have a lasting positive impact. We do this by supporting projects that focus on safety, education, environment or Indigenous initiatives.

Prior to the annual Union of BC Municipalities (UBCM) convention, we invited local government officials from across B.C. to nominate a charity or non-profit project in their community for a community giving contribution. In 2018, we received 33 nominations, and were proud to recognize three recipients that are helping to support stronger, healthier B.C. communities.

The Sunshine Coast Natural History Society in Sechelt, the Nelson Izu-shi Friendship Society and the Orphaned Wildlife Rehabilitation Society in Delta each received a \$15,000 award.



In 2018, we donated \$42,000 to the Okanagan College Vernon Campus Trades Training Centre to provide students with state-of-the-art equipment and help the College to deliver training on the latest techniques in energy efficient construction.

A focus on safety was one of the considerations when FortisBC provided funding to the Grand Forks Search & Rescue organization for two full sets of specialized personal protective equipment—equipment that was put to use when the community experienced flooding in May.

We also provided financial support to help the North Kootenay Lake Water Monitoring Program purchase a new snow tube to collect core samples from snowpacks in the North Kootenay watershed. The collected information will help government and private organizations to plan and implement adaptive strategies in response to a changing climate.

This year, we demonstrated our commitment to investing in educational initiatives with our support of the Vancouver Sun's Adopt-a-School program. A.H.P. Matthew Elementary's after-school program, BLAST and the Peer-to-Peer Mentoring Program at Queen Elizabeth Secondary received \$5,000 each to support programming for at-risk and vulnerable youth.

To help develop our province's workforce, we announced a \$42,000 gift for the Okanagan College Vernon Campus Trades Training Centre in 2018. In addition to supporting the facility, the donation provided students with state-of-the-art equipment and helped the College to deliver training on the latest techniques in energy-efficient construction.

We also partnered with other post-secondary institutions, including the University of British Columbia (on their Masters of Engineering Leadership in Clean Energy Engineering curriculum content) and our recent partnership with the University of British Columbia Okanagan campus to support a research position focused on clean energy and enhanced building performance.

In 2018

75

communities received support through our community investment program

We gave

\$1.8million

back to communities through corporate investment, employee donations and community engagement

We announced a

\$42,000

gift for the Okanagan College Vernon Campus to help develop B.C.'s workforce

Our donations in 2018 were not limited to dollars. As always, we were proud to support the volunteer efforts of employees who made a difference in their communities in 2018. Through our Community Giving Days, employees volunteer to offer hands-on support for a community group in need. Employees helped the Kamloops Boys & Girls Club build a playground, volunteered with the Salvation Army food bank in Port Alberni and planted over 350 native trees, ferns and shrubs in Burnaby's Stoney Creek Trail system. Efforts like these help to ensure that the communities we operate in will continue to be sustainable for generations to come.

Strengthening Indigenous relations

At FortisBC, we are guided by our Statement of Indigenous Principles, which helps ensure that we conduct business in a manner that respects the social, economic and cultural interests of Indigenous Peoples. Our gas and electricity infrastructure crosses more than 150 Indigenous traditional territories and we provide service to 56 Indigenous communities. We know that it is through collaboration we are best able to partner with Indigenous Peoples to provide energy solutions and offer ways to help increase energy efficiency.

Working with the Osoyoos Indian Band (OIB), we helped the community take steps to make the homes on their reserve land more energy efficient. Many of the homes on the reserve were initially built between the 1960s and 1980s, before opportunities for increased energy-efficiency measures were able to be identified.

We provided financial support to the OIB as they conducted energy evaluations for all homes on reserve. Following the evaluations, band-owned homes were retrofitted and rebates were provided to retrofit member-owned homes. This assistance helped to significantly upgrade housing conditions and lower energy costs.

We value inclusion and encourage awareness and respect for Indigenous cultures and beliefs by supporting programs and projects that showcase the traditions and knowledge of these communities.

In 2018, we provided funding to the Trans Canada Trail to support the installation of interpretive signs along various sections of the Chief Isadore portion of the trail in southeastern B.C. The trail takes its name from the Chief who brought peace to the Ktunaxa Nation and European settlers during a time of tension in the 1880s. The multilingual signs, which can be found at points of interest on the trail, allow users to learn more about the history, traditions and legends of the Ktunaxa people.

Supporting traditional practices is another way we show respect for Indigenous communities. This year, two second-growth cedars needed to be removed as part of work to extend culverts at the Silver Creek watershed in Burnaby for the FortisBC Gas Line Upgrades project. We donated both logs to Suwa'lkh School, an Indigenous school in Coquitlam. The logs were used for student projects including traditional wood carving and bark weaving classes. We believe in building strong and positive relationships with local Indigenous communities, and this project is an example of the mutually beneficial work we do every day to strengthen these relationships.

Preparing first responders

Partnering with local emergency responders is important to our overall safety efforts. Several of the communities we operate in are served by rural, often volunteer, fire departments. With limited resources, it is especially important for these departments to know what to expect in an emergency.

Every year volunteer firefighters gather for their spring training seminar, a weekend event where they get hands-on experience fighting various types of dangers. In 2018, more than 300 firefighters from 72 fire departments across B.C., Alberta and Washington attended. Participants followed a circuit of 26 stations that included four FortisBC-led stops teaching firefighters how to handle electrical, natural gas and LNG emergencies. FortisBC was also a sponsor of the event.



Our employees lead a firefighter training session, demonstrating potential hazards in a life-size simulated vehicle crash using an electrical safety board where the vehicle is touching a "live" power pole.

Our natural gas and electricity infrastructure crosses more than

150

Indigenous traditional territories

We provide service to

56

Indigenous communities

We were also proud to support the First Nations Emergency Services Society at the Safety Expo held in Esquimalt. The Expo brought together volunteer firefighters from Indigenous communities across the province for a firefighter competition and two days of intensive fire and equipment training. Along with financial support, 2018 was the first year we provided additional educational sessions on natural gas and LNG safety to 60 participants from nine Indigenous communities.

Responding to the Transmission South pipeline rupture

In 2018, B.C. faced a potential disruption in its supply of natural gas due to the rupture of Enbridge's Transmission South gas line near Prince George. Immediately after the rupture on October 9, we began reaching out to the provincial government, municipalities, the BC Chamber of Commerce, industry associations and customers to provide situation updates.

As part of our commitment to providing proactive updates, we hosted community and government relations stakeholder calls and face-to-face meetings, participated in numerous media interviews, provided shareable content to all impacted municipalities and distributed several all-customer emails and update videos via social media.

As a result of the information we provided, municipal governments, schools, business organizations and customers all took steps to conserve and helped reduce overall demand by about 20 per cent in October.



Volunteer firefighters from Indigenous communities across the province gathered in Esquimalt for a firefighter competition and intensive fire and equipment training.

Although we already had a healthy appreciation for the community spirit that exists in B.C., we were truly overwhelmed by the support we received from customers, both large and small.

Following the incident, a third-party contractor surveyed over 800 respondents across the province and found that 77 per cent of respondents rated our communications efforts regarding the natural gas shortage situation as either "good" or "excellent".

Keeping communities safe

We frequently collaborate with other utility operators, regulators and associations to promote damage prevention messaging. In partnership with the BC Common Ground Alliance and other members, FortisBC hosted five Ground Disturbance Seminars (Victoria, Kamloops, Chilliwack, Vancouver and Surrey) to contractors and builders on excavation safety and best practices. In total, over 200 professional contractors and municipal workers attended the sessions.

The Call Before You Dig public awareness campaign with BC One Call was also successful in encouraging people to find out the locations of underground utilities before beginning any type of ground disturbance work.

We work closely with provincial emergency response officials as well as local fire and emergency authorities to help monitor wildfire situations in the province, ensure public safety and protect our natural gas and electricity infrastructure.

In 2018, we worked with provincial, regional and municipal emergency agencies during the wildfire season to perform preventative, precautionary emergency work on our system and engaged in several daily wildfire coordination calls around the province.

In 2018, we processed more than

157,700

BC One Call requests and line hits decreased by

3.8%

from 2017

We provided educational sessions on natural gas and LNG safety to

60

participants from nine Indigenous communities

Five FortisBC-hosted Ground Disturbance Seminars were attended by

200

professional contractors and municipal workers



At a public information session in Vancouver, Blake Mansbridge, Community Relations Manager, chats with a community member. These sessions give local residents an opportunity to talk to us about our gas line upgrades in Vancouver, Burnaby and Coquitlam.

Connecting with communities

Understanding and addressing the interests of communities where we operate is critical. We regularly engage with local communities to create opportunities for conversations and collaboration with stakeholders.

Project construction provides a good example of how this takes place. Beginning in the early stages of project development, employees make sure residents and business owners have an opportunity to ask questions and make suggestions. As development and construction continues, they are updated through face-to-face meetings, community open house events, project newsletters and other communications. Once development is complete, we continue to communicate with stakeholders to help ensure community needs are being met. In 2018, our major projects team hosted more than 60 public engagement activities and open houses.

We work with B.C. municipalities and regional districts to share information and resources on how residents can save energy. This year, our Direct Community Engagement program reached out to residents in Saanich, Vancouver, Surrey and Summerland. Our community ambassadors encouraged event attendees to become more energy efficient in their homes by pledging to integrate a simple conservation behaviour into their daily lives. Our community ambassadors attended 72 events, garnering 5,900 customer interactions and more than 1,500 energy conservation pledges. This was part of our ongoing commitment to help customers understand more about their energy use, consumption and opportunities for energy savings.

We also believe in educating British Columbia's next generation about energy solutions, safety and conservation as part of their daily lives.

In 2018, we presented in many schools and provided more than 700 classroom resources as part of our Energy Leaders curriculum. Through our Energy Champions program, we reached approximately 20,000 students in B.C. Delivered together with teachers, FortisBC employee volunteers and the BC Lions, our school programs help teach students about the importance of energy literacy, natural gas and electricity safety and conservation.

In 2018, our major projects team hosted more than

60

public engagement activities and open houses

Our community ambassadors garnered

1,500

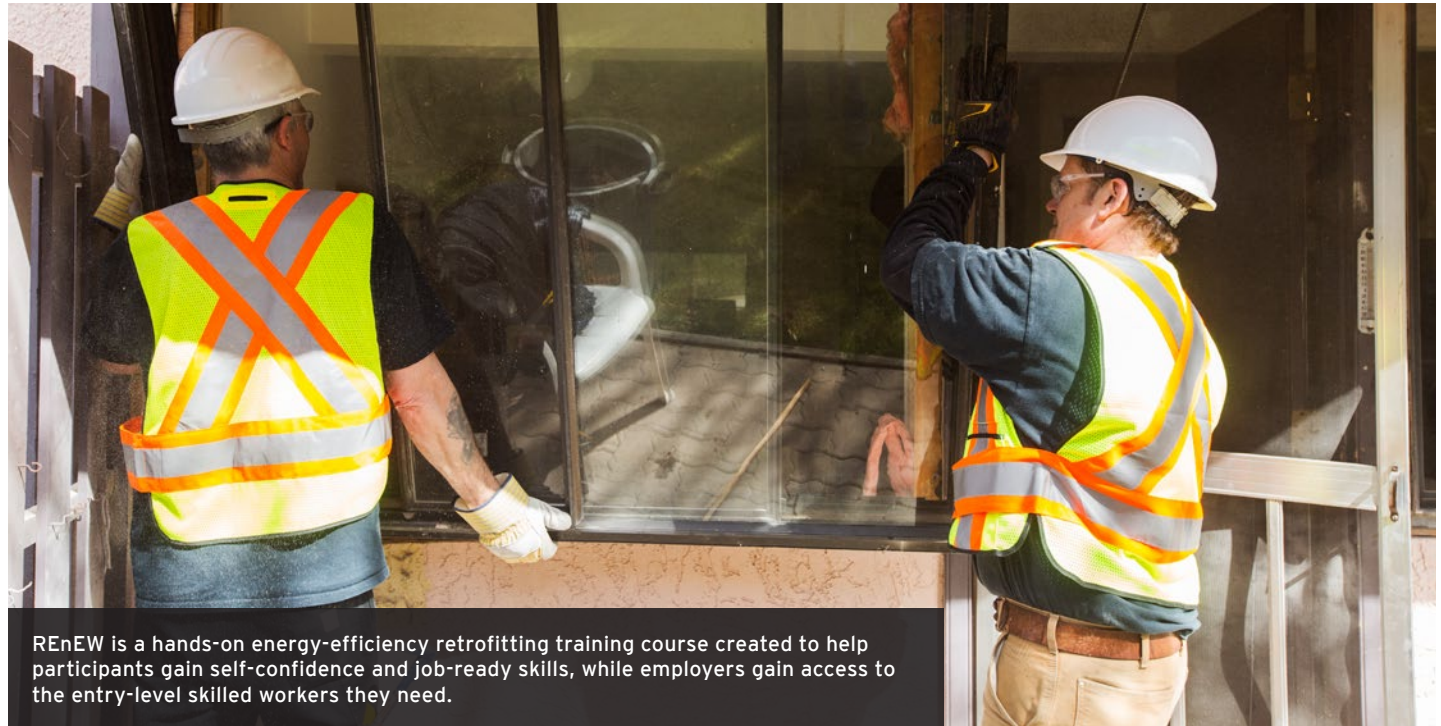
energy conservation pledges

Partnering for climate action

Through our Climate Action Partners program, we have been able to develop community energy plans to promote RNG and CNG, boost energy conservation behaviour and build a broad awareness of FortisBC's rebates for energy efficiency and conservation activities. In 2018, the City of Surrey increased participation in our conservation and energy management programs. For example, participation in the Rental Apartment Efficiency Program was up by 600 per cent from 2017. We're also working with the District of Saanich and City of Victoria on a regional approach to promoting our energy-saving programs that aid income-qualified customers.

Working with the City of Kelowna, we helped develop a plan to implement the BC Energy Step Code, including a workshop to educate and train the builder community on the incremental requirements of building to the code. We're supporting additional workshops to educate stakeholders on best practices for building a more efficient building envelope in the Regional District of Central Kootenay and City of Surrey, among other communities.

With our support, the City of Kamloops has undertaken multiple initiatives to help residents and businesses reduce their GHG emissions. These initiatives included hosting community energy-efficiency block parties and mail campaigns, and encouraging property owners to visit the BC Home Energy Coach website to learn about energy-saving advice and utility incentive programs.



REnEW is a hands-on energy-efficiency retrofitting training course created to help participants gain self-confidence and job-ready skills, while employers gain access to the entry-level skilled workers they need.

Creating opportunities together

Residential Energy Efficiency Works (REnEW) is a training program that was created by FortisBC in co-operation with community groups to help individuals with barriers to employment train for jobs in the growing field of energy-efficiency retrofitting. The course helps participants gain self-confidence and job-ready skills, while employers gain access to the entry-level skilled workers they need.

In 2018, FortisBC held a REnEW session in Kelowna in partnership with the John Howard Society of Central and Southern Okanagan. Participants received energy-efficiency trade training, safety training, a full set of professional-quality tools, an enhanced resume and a renewed sense of confidence around their career prospects.

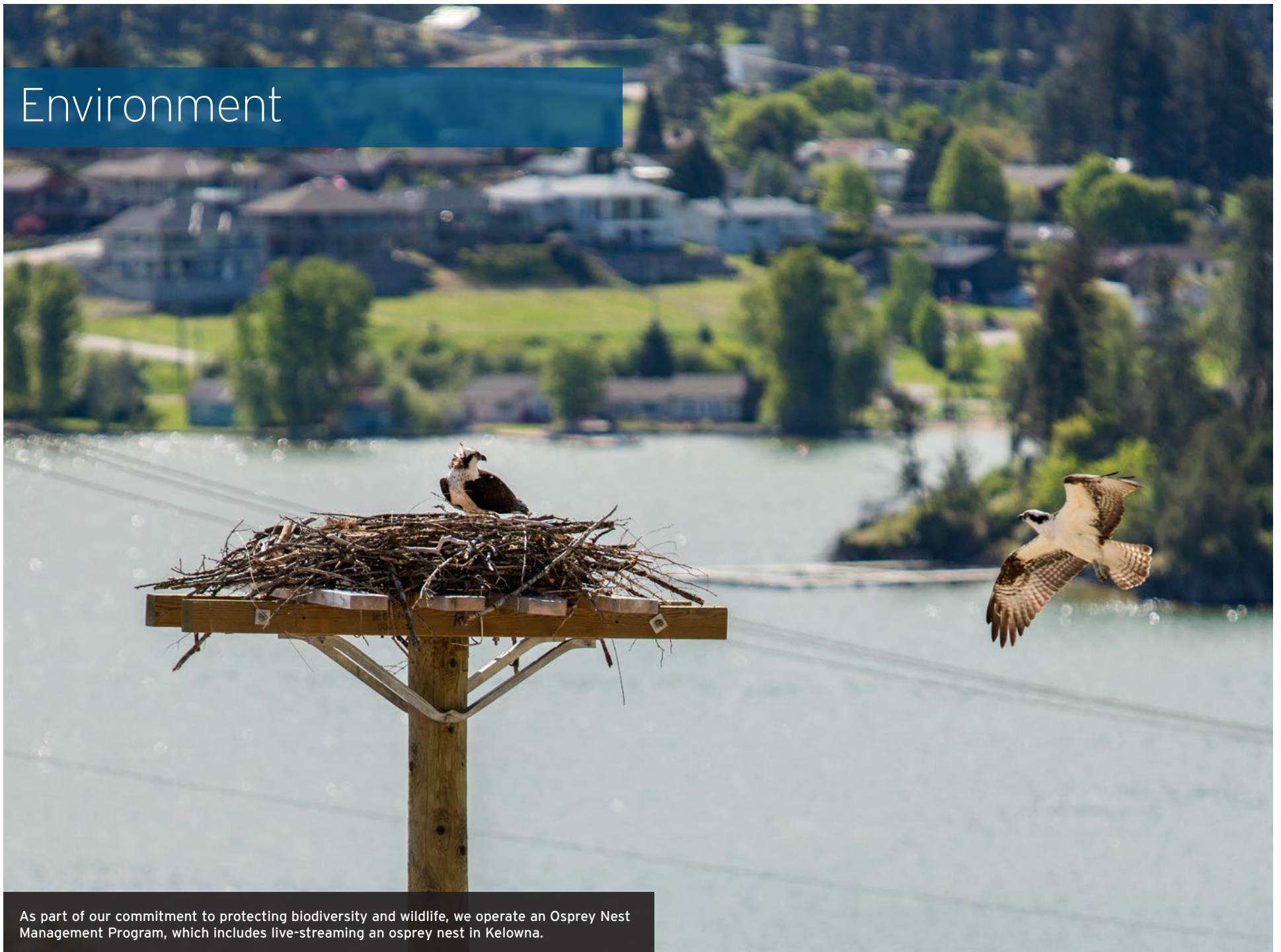
In 2018, we partnered with WorkWithUs, a Vancouver-based non-profit staffing organization that works to improve community economic development by providing meaningful employment opportunities for marginalized communities. This year, we provided term work assignments for six WorkWithUs candidates.

Participation in the Rental Apartment Efficiency Program was up by

600%

in comparison to 2017 numbers

Environment



As part of our commitment to protecting biodiversity and wildlife, we operate an Osprey Nest Management Program, which includes live-streaming an osprey nest in Kelowna.

We are invested in finding cost-effective energy solutions that fit B.C.'s lower-carbon future through both our natural gas and electric operations. Natural gas remains one of the cleanest conventional carbon-based energy sources currently available and provides our customers with reliable and affordable energy that powers homes and businesses. Technological advances have further improved the efficiency of using natural gas, extracting more energy at lower emissions. Our hydroelectric generation is also proven clean technology. Through power from our own dams and purchased from others, FortisBC's electricity is among the cleanest in North America.⁷

Anticipating B.C.'s energy needs, we work to deliver technology and incentives that further reduce environmental impacts, including RNG, natural gas for transportation and EV while pursuing carbon capture, hydrogen injection and solar power technology. Our policies today shape our practices now, and into the future.

Working to reduce GHG emissions from the natural gas system

We believe that renewable energy will be a key driver towards reducing B.C.'s carbon emissions. As we continue to develop RNG for our customers, we are also exploring adding clean-burning hydrogen to our natural gas supply, which can help reduce B.C.'s carbon emissions.

Partnering with community organizations to realize their carbon reduction goals helps to encourage innovation in operations and the development of new products.

Our carbon capture pilot program is another example of innovative technology helping B.C. businesses save energy and decrease GHG emissions. Pilot program participants receive carbon capture units, which can reduce the GHG emissions of commercial natural gas boilers by up to 10 per cent, and convert carbon dioxide into soda ash, a byproduct that can be used to manufacture dyes and colouring agents, synthetic detergents and fertilizers.

In 2018, we had three carbon capture units installed in local businesses. Carbon capture technology has significant potential to help B.C. meet its emissions reduction goals.

With our large network of distribution and transmission pipeline used for transporting natural gas throughout the province to customers, managing our own GHG emissions is important to us. We have undertaken a number of initiatives to manage and reduce GHGs from our system. These activities include leak detection and repair at compressor stations, pipe surveys and inline inspection of transmission pipeline infrastructure and the development of a fugitive emissions management plan for LNG. Our Tilbury LNG facility is powered by electricity, creating safe, clean, low-GHG emitting LNG.⁸

Driving electrical innovation

Working with governments at all levels, we're partnering with communities to facilitate increased adoption of EVs as a cleaner transportation choice.

⁷ Source: Clean Energy BC, *Electrification of BC White Paper*—page 3. ⁸ Compared to LNG produced in facilities using natural gas.



More than 1,800 kilometres of the Kootenay region's highways can now be driven in an EV thanks to 13 strategically placed Direct Current Fast Chargers, five of which are owned and operated by FortisBC. There are also 40 Level 2 charging stations installed. The stations are a result of accelerate Kootenays, a unique rural partnership that FortisBC is a part of that has the objective of linking Kootenay communities through a clean transportation network.

More than

1,800 km

of the Kootenay region's highways can now be driven in an electric vehicle



Kootenay EV charging stations

In 2018, we were recognized by the Canadian Electricity Association's Centre of Excellence for our role in building, owning and operating EV fuelling stations in the accelerate Kootenays initiative. We are one of the first regulated utilities in Canada to have a rate for service for EV drivers approved by our regulator and look forward to helping spur the development of a wider EV charging network with additional infrastructure deployments planned for 2019 onwards.

Linking communities by developing critical infrastructure encourages the increased use of EVs, which helps to reduce GHG emissions from transportation.

This infrastructure is also required to support B.C.'s mandate of having 100 per cent of new vehicle sales be zero-emission by 2040. FortisBC's role in developing the EV charging infrastructure is indicative of the role we play as both an energy partner and provider in B.C.

Working around nature

As part of our commitment to protecting biodiversity and wildlife, we operate an Osprey Nest Management Program, which includes live-streaming of an osprey nest in Kelowna. The webcam had more than 76,000 views from April to September, demonstrating how our program helps protect our infrastructure, educates the public and keeps the birds safe.

Every year, we provide funding for a variety of community initiatives. This year, our employees helped restore a slope near a decommissioned trail in Burnaby that had been eroding due to human impact. We planted 350 native trees, ferns and shrubs in the



Several FortisBC employees took part in a Community Giving Day in Burnaby's Stoney Creek Trail system. Their efforts helped restore a slope near a decommissioned trail that had been eroding due to human impact.

Stoney Creek Trail system. The native plants will bring the area near the creek closer to its natural state.

Our environmental management team works with local authorities to assess and prevent the spread of non-North American invasive species such as zebra and quagga mussels. This species of freshwater mussels grow at a rapid rate, killing off local marine life, degrading water quality, damaging boats and posing a threat to our hydroelectric dams. To stem the mussels' spread while ensuring the protection of native wildlife, we provided \$250,000 to B.C.'s Invasive Mussel Defence program. This year, we also donated to the Invasive Species Council of British Columbia to support efforts to reduce the impact of non-native species.

We pride ourselves on being a good neighbour. We know major construction projects can be disruptive and our commitment to the community is to reduce those impacts as much as possible. One of our goals is to restore areas to the same condition, or better, than before we started work.

For our Surrey to Coquitlam gas line upgrade, we installed a new gas line parallel to an existing one that has been in service for almost 60 years. After we finished construction at the end of 2017, our focus shifted to restoring the areas and habitat. Restoration efforts included work done to lawns, shrubbery and driveways, hydro-seeding and riparian restoration that took place where construction passed through watercourses.

From April to September, we had more than

76,000 views

of our osprey webcam

We donated

\$250,000

to B.C.'s Invasive Mussel Defence Program

Moving forward with energy solutions

FortisBC Alternative Energy Services Inc. (FAES) is an affiliate of FortisBC Energy Inc. and a trusted owner and operator of thermal energy systems. It owns and operates thermal systems at 45 sites across B.C. A great example of ingenuity at work is the FAES owned-and-operated TELUS Garden thermal system. This system recovers energy from the neighbouring telecommunications building that would normally be released into the atmosphere and uses it for space and hot water heating throughout the development, reducing demand from conventional energy sources.⁹

In 2018, FAES optimized the system at TELUS Garden which means the usage of the recoverable waste heat energy increased, improving the carbon intensity performance of the development. TELUS Garden now meets or exceeds the stringent carbon intensity targets set for new builds in the City of Vancouver.

A FortisBC energy solution that lowers the carbon intensity of our natural gas system is RNG, a certified carbon neutral¹⁰ energy source made from organic waste from landfills, wastewater treatment facilities and agriculture.

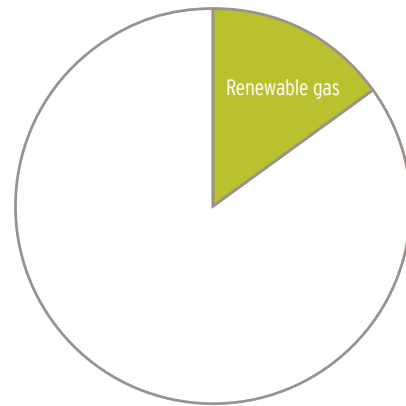
In 2018, we purchased approximately 178,000 gigajoules of RNG on behalf of our customers, which is equivalent to avoiding about 8,900 tCO₂e or removing 1,900 cars off the road for one year.

⁹ Assuming system is operating to design specifications.

¹⁰ FortisBC's Renewable Natural Gas has been designated as carbon neutral in BC by Offsetters. ¹¹ Sources: Liquefied natural gas: a marine fuel for Canada's West Coast—page 31. Northwest Gas Association, Natural gas facts—page 12.

¹² Source: Canadian Natural Gas Vehicle Alliance.

As the first utility in Canada to offer RNG to its customers, we were enthused to see the government set a target of 15 per cent renewable content in natural gas by 2030.



The government set a 2030 target of 15 per cent of natural gas used in homes to be renewable.

We know the environmental benefits of producing and using this sustainable energy and we are uniquely positioned to help B.C. meet its 2030 target. Since 2010, when we first began injecting RNG into our system, we have grown the program to more than 10,500 customers and five suppliers.

In 2018, we welcomed a new RNG supplier as the Surrey Biofuel Facility officially opened. The facility converts curbside organic waste into RNG to fuel the City's fleet of natural gas powered waste collection and service vehicles, creating a net-zero carbon impact and totally integrated organic waste management system. We are proud to operate the interconnection facility at this project, monitoring gas quality and connecting this source of RNG to customers.

In recognition of the Surrey RNG initiative, we were awarded the Circular Economy Award at the Surrey Board of Trade 2018 Environment and Business Awards. This project utilized a unique contract structure that took advantage of our existing RNG program and infrastructure to allow the City of Surrey to meet its goal of implementing a closed loop system, benefiting multiple stakeholders and helping to reduce waste and GHG emissions.

Another innovative solution helping our customers meet the needs of a low-carbon energy landscape is the use of natural gas for transportation. Natural gas-fuelled vehicles and marine vessels provide a 19 to 30 per cent GHG reduction when compared to fuelling with traditional gasoline or diesel.¹¹ Fleet owners are increasingly turning to natural gas for transportation fuel, saving on fuel costs and reducing emissions.

In May, the first of TransLink's 106 new CNG buses arrived and began serving customers in Surrey, with full roll out of the new clean energy buses continuing throughout 2018. Our vehicle incentive program helped to offset TransLink's purchasing costs, while the CNG buses are expected to reduce provincial GHG emissions, have a longer engine life and have lower fuel costs than diesel buses.¹²

Just a month later, UPS Canada and FortisBC announced the launch of new CNG vehicles and a new custom built natural gas fuelling station in Richmond B.C. Seven CNG highway tractors and 40 delivery trucks were added to the current fleet. Presently, more than 40 per cent of UPS Canada's fleet runs on alternative fuels.

We purchased approximately 178,000 gigajoules of RNG on behalf of our customers. That's equivalent to removing

1,900

cars off the road for one year

We have more than

10,500

RNG customers and five suppliers

Helping to reduce emissions on a global scale

Climate change is a global issue, and we are part of the solution. One of the ways we're doing this is by exploring small-scale exports of LNG to displace high-carbon alternatives like coal to countries that are looking to significantly reduce their GHG emissions and air pollutants.

The world's transition to lower-carbon energy sources presents a unique opportunity for FortisBC, since we have the only two LNG storage facilities on Canada's West Coast. More than just an economic opportunity for Canada, helping countries transition from high-carbon fuels to cleaner and low-cost alternatives such as natural gas demonstrates our commitment to supporting our customers' efforts to achieve their climate action goals and improve air quality on a global scale.

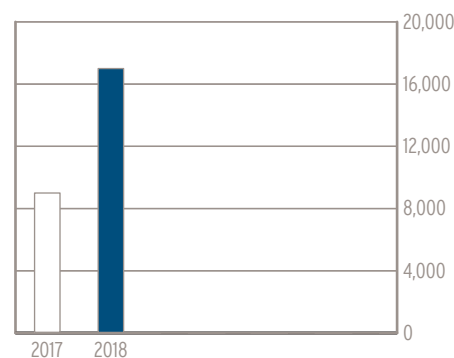
We are continuing to invest in our system to serve domestic customers and reach new customers overseas. One of the ways we're doing this is by expanding our Tilbury LNG storage facility, which is designed to be the cleanest LNG facility for export in the world.

In 2018, we doubled the number of LNG export customers, who all returned for additional orders. We're also in discussion with a number of potential overseas customers who are interested in cost-effective natural gas from Tilbury, which is why we think the future is bright for LNG exports from B.C.

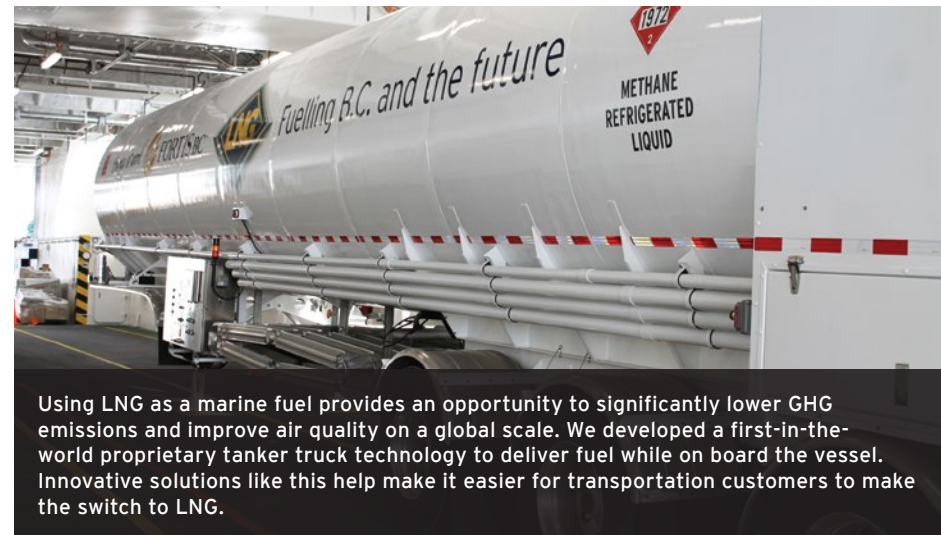
Customers in B.C.'s marine transportation sector are also experiencing the benefits of LNG. With our first-in-the-world tanker truck technology, we can deliver fuel while aboard marine vessels, making it easier for transportation customers to make the switch to LNG. In fact, this year we celebrated our 1,000th bunkering milestone, showcasing B.C.'s leadership on innovative climate action.

Through our relationship with BC Ferries, LNG is fuelling the entire Salish class of vessels (the *Orca*, *Raven* and *Eagle*). In 2018, we commissioned BC Ferries' *Spirit of British Columbia* to be fuelled with LNG. BC Ferries expects to reduce CO₂e emissions by 12,500 tonnes—or the equivalent of taking 2,500 vehicles off the road—every year by using LNG instead of marine diesel.

Seaspan ULC continues to operate two LNG-fuelled vessels, each of which bunker three times per week. Seaspan ULC has also committed to adding two additional LNG-fuelled vessels to their fleet by 2021.



GHG emissions saved from LNG used for marine bunkering



Clean Growth Pathway to 2050

Late last year, the provincial government rolled out CleanBC—its plan to cut GHG emissions and increase energy efficiency. As an active stakeholder, we have supported the development of this plan and we are encouraged by the vision the government has put forward.

As a leading energy provider in B.C., we believe we have a significant role to play in helping the provincial government deliver on its climate and energy goals. In 2018, we developed a *Clean Growth Pathway to 2050* strategy that is based on improving efficiency, reducing GHG emissions and driving innovation while supporting economic growth and maintaining affordability and customer choice. This is an important strategic direction for FortisBC and guides many of our initiatives into the future. We're excited to work with our customers and government partners to fulfil climate promises.

By using LNG, BC Ferries expects to reduce CO₂e emissions by

12,500 tonnes

Employees



Barry Page, Crew Leader Communications Protections & Controls (CPC) Network Services, and Sophia Heuston, CPC Technologist Network Services, monitor our electric system from the Kootenay Operations Centre. We monitor our system 24 hours a day, 365 days a year and conduct regular inspections.

Our employees drive the success of our organization. We have more than 2,400 employees across British Columbia. This includes both union and non-union employees.

Our goal is to maintain a workplace that offers a wide range of opportunities and is safe, inclusive, diverse and engaging. We support our employees by developing their career growth, enabling career success and providing challenging and meaningful work assignments.

Putting safety first

Safety is our top priority. This commitment is the backbone of Target Zero, our collective vision of an interdependent safety environment where every one of our employees leaves work without injury or incident each day.

Our focus is on making improvements to our overall safety culture by taking a learning, coaching and mentoring approach. We seek feedback from employees to better understand the effectiveness of our safety initiatives and programs.

In 2018, over 1,900 employees participated in our fourth annual safety perception survey, where results showed an improvement in all safety performance measures. Survey feedback helps us recognize our collective successes and identify gaps for further improvement to strengthen our overall safety culture.



Our 7,260 kilometres of transmission and distribution electrical power lines receive ongoing maintenance. Crews look for damage during the annual drive-by line patrol and twice a year, employees will do an aerial patrol of our transmission lines and harder-to-access distribution lines.

As part of our ongoing commitment to safety and emergency preparedness, we completed five full-scale emergency exercises that involved first responders such as fire, police and local government officials, along with 17 internal exercises. This extensive preparation came in handy throughout the year when our employees were called to provide emergency assistance and respond to natural disasters. During the flooding of Grand Forks, our gas and electricity crews undertook challenging assignments in harsh conditions to ensure that the communities under threat of flooding were made safe for residents.

Our employees were recognized by the Regional District of Kootenay Boundary's Manager of Emergency Programs, Chris Marsh, who noted that "working with organizations like FortisBC who understand the importance of emergency management principles makes our jobs significantly easier" and thanked FortisBC employees for their efforts, which "made a difference in the lives of our residents."

In the final days of 2018, we responded to a Mutual Aid request from BC Hydro to supply electricity crews and equipment as part of the regional response to a windstorm event. Our crews from Oliver and Kelowna travelled to Vancouver Island and worked tirelessly over the holidays to help restore power to thousands of residents, some of whom had been without power for more than seven days. The level of commitment shown by our dedicated employees every day illustrates our fundamental commitment to keep British Columbians safe.

We have more than

2,400

employees across British Columbia

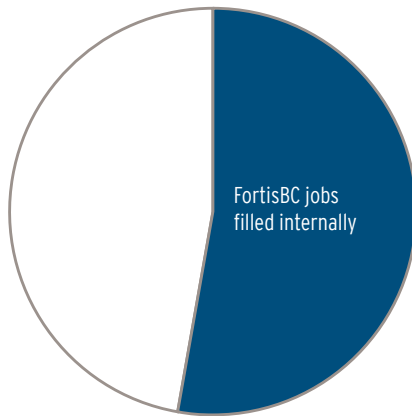
In 2018, over

1,900

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Investing in our employees

Our commitment to employee training and development contributes to professional advancement and a long-term, dynamic career with FortisBC. We want to continuously improve our training opportunities and promote from within our own ranks whenever possible.



Last year, 53 per cent of job postings were filled internally.

Progressing employees increases engagement and communicates to employees that we value their contributions and are invested in their career development.

We continue to invest in development programs as a way of retaining top talent and increasing our leadership capacity. In 2018, employees participated in more than 7,300 training sessions, including trades, compliance, business and leadership development, both in-class and online. Our commitment to employee development has paid off; in 2018, voluntary employee turnover was just 3.9 per cent.



"At FortisBC, I have the opportunity to contribute to a variety of projects and initiatives, build relationships in the community and be part of creative solutions that meet the needs of our customers and partners. The diversity of the work that I do ensures that no two days are the same." Olivia Stanley, Indigenous Relations Manager, pictured above (centre) with Michelle Gonzalez-Ticas, Confidential Assistant, and Matthew Hoover, Community & Indigenous Liaison.

Inclusion and diversity

Our goal is to create an inclusive work environment rooted in the belief that through consideration of different perspectives we make better business decisions and achieve better business outcomes.

Different perspectives come with age, region, ethnicity and gender, among other considerations. The communities we serve include people from many different backgrounds, skills and experiences; ultimately we aspire to have a workforce reflective of the same diversity represented in the communities we serve.

We actively look to bring new perspectives into our organization. We believe that better engagement of our workforce opens a wider world of ideas, values and viewpoints.

We're committed to providing our employees with training and opportunities to participate in cultural learning and experiences. This year, 181 employees completed Indigenous awareness training, which informs employees of the historical background of Indigenous relationships in Canada. Being knowledgeable about the history, experiences and cultures of Indigenous Peoples helps employees to conduct their work in a manner that respects the social, economic and cultural interests of Indigenous communities.

In 2018,

394

employees completed leadership development courses

Voluntary employee turnover was

3.9%

On National Indigenous Peoples Day, our employees celebrated the unique and diverse cultures of Indigenous Peoples at three of our largest locations. In Kelowna, Jordan Coble, Curatorial and Heritage Researcher at the Westbank First Nation Snc̓wips Heritage Museum, opened the lunch with a prayer and the Okanagan Song, while in Prince George, employees enjoyed an Indigenous lunch. In Surrey, there were celebrations and numerous events for employees to mark the week, including an artisan craft fair and a performance by acclaimed hoop dancer Alex Wells of the Lil'wat Nation.

Participating in awareness training and celebrating culture helps us stay connected and strengthens relationships with Indigenous communities throughout the province. Indigenous relationships are one of our enabling initiatives. Internal Indigenous awareness opportunities support a work culture that understands the value of Indigenous relationships and strives to strengthen them, authentically and consistently, throughout the organization.

Giving where we live

Our employees give back to the communities where they live and work, and we are proud to support their efforts. During a United Way campaign sponsored jointly by FortisBC, MoveUP, IBEW and our employee-run Warm Hearts charity foundation, more than \$107,000 was raised to help those most in need throughout the province. We also continued our support of the CKNW Orphans' Fund with a \$5,000 donation and employee participation.



On National Indigenous Peoples Day, employees at our Surrey Operations Centre enjoyed the performance of acclaimed hoop dancer Alex Wells of the Lil'wat Nation.

Employees gave in a variety of other ways throughout the year, from charitable payroll contributions to participating in food, blanket and holiday toy drives. The Warm Hearts charity foundation raised and reinvested over \$45,000, collected through grassroots fundraising efforts, into numerous local organizations. The foundation, which has been in existence since 1994, has contributed more than one million dollars to the communities across the province.

Fostering innovation

In 2018, we established an Innovation Council, made up of approximately 40 ambassadors from across the company. The Council's mandate is to help solicit and champion employees' ideas that have potential to improve customer engagement, market development, operational productivity and safety.

Our employees' innovation is recognized beyond the walls of our offices as well. This year, our employees were recognized for their ability to think outside the box when we received a Gold Communications Award at the Chartwell's Best Practice Awards. The award recognized our RNG marketing campaign, which was targeted toward millennials and Generation Z, part of our commitment to developing relationships with our existing and future customers.

More than

\$107,000

was raised to help those most in need throughout the province during a United Way campaign sponsored jointly by FortisBC, MoveUP, IBEW and our employee-run Warm Hearts charity

Looking forward

Justin Schwing, Distribution Mechanic, oversees gas line upgrades being made in Prince George.

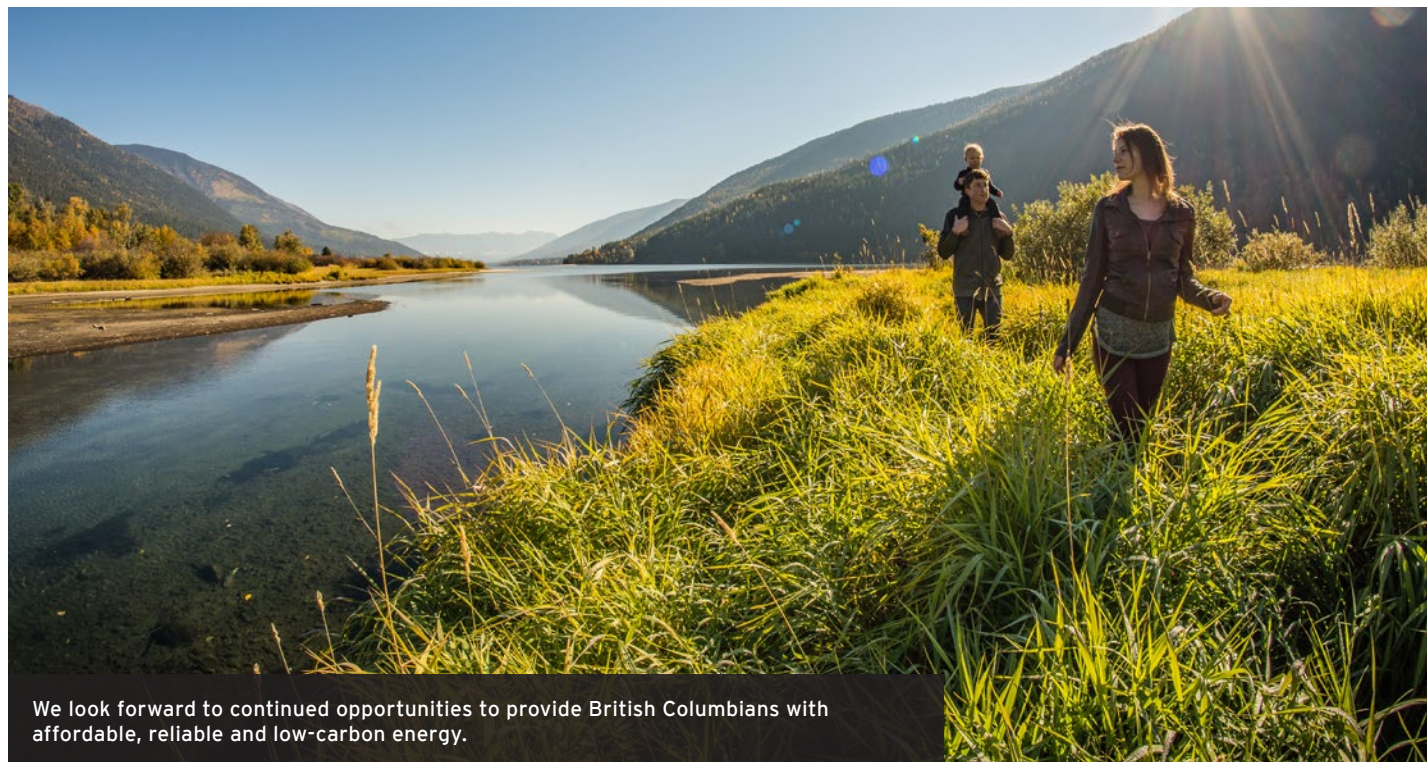
As a leading energy provider in the province, we provide energy solutions to more than 1.2 million customers, safely and reliably every day. We know we have an important role to play in helping B.C. move towards a lower-carbon energy future. We see ourselves as an energy delivery company offering cost-effective, renewable and low-carbon energy solutions in alignment with the provincial government's CleanBC platform.

The diversity of our four sustainability pillars demonstrates how our operational, environmental and social impacts are all interconnected. All facets of our business operations link directly back to our commitment to sustainability.

Customers

Our customers are looking to us to deliver safe, reliable and cost-effective energy while providing innovative energy solutions. These include investment in energy efficiency in customers' homes and shrinking the carbon footprint of B.C. homes and businesses.

FortisBC is seeking to significantly expand energy-efficiency investments in our Conservation and Energy Management portfolio. We received approval from the BCUC to more than double our efficiency investments from current levels commencing in 2019. By 2022, we are committed to investing more than \$108 million annually in the form of energy efficiency incentives and rebates provided to customers. Our efficiency investments from 2019-2022 are expected to realize GHG emission reductions from approximately 54,000 tCO₂e in 2019 to 74,000 tCO₂e in 2022.



We look forward to continued opportunities to provide British Columbians with affordable, reliable and low-carbon energy.

With this increased funding, annual natural gas savings are projected to be approximately one million gigajoules, which will in turn lead to reductions in GHG emissions of approximately 50,000 tCO₂e per year, and save an estimated 32 megawatt hours of electricity per year.

Expanding our conservation and energy management programs will help support our customers with saving energy and money through reduced usage and advance both provincial and federal climate change objectives.

Advanced Metering Infrastructure is a valuable tool in helping our customers across interior B.C. improve energy efficiency in residential and commercial buildings. This technology provides our electricity customers with more control over how they use energy. With advanced meters, customers have the ability to see how much electricity they use through Account Online.

One of the aspirational goals of the Pan Canadian Framework on Clean Growth and Climate Change is for space and water heaters to have efficiency greater than 100 per cent by 2035. To address this goal, we are working to create a gas-fired heat pump opportunity that addresses the creation of affordable technology for adoption by customers.

By 2022, we are committed to investing more than

\$108million

annually into our energy efficiency programs



Thanks to strategically placed charging stations, visitors and locals alike can explore more than 1,800 kilometres of the Kootenay region in an electric vehicle. Projects like this are one of the ways we are meeting our customers' needs for cleaner energy options, especially for transportation.

We are working with utilities, associations and manufacturers to reduce costs and build awareness among contractors and customers.

As part of our 2019 pilot program, we will install four gas-fired heat pump units in our service territory. Through this program, we are measuring performance, costs, installation issues and customer acceptance. Our objective is that this program showcases a technology that drives energy savings and is attractive to customers' ability to deliver a reduction in the carbon footprint that their home heating/cooling needs represent.

Partners & communities

We continue to be proactive in our collaboration with stakeholders, communities, Indigenous Peoples and governments at all levels. We'll work closely with all our partners to help them lower their emissions and provide solutions for residents and businesses to save energy and money.

We know that effective engagement is crucial to maintaining mutually beneficial relationships with communities. We will work together and listen to the needs of our partners and the communities we serve. Improved and transparent communication will help us identify interests, concerns and priorities and through innovation, solutions to energy needs.

In partnership with B.C. communities, the provincial government and Natural Resources Canada, we are planning the construction of 12 additional direct-current fast-charging EV stations throughout the southwestern interior of B.C. The expansion of fast-charging EV station networks throughout our service areas ensures that the communities we serve will have the infrastructure they need to support transitioning to electric vehicles.

We will continue to strengthen relationships with Indigenous communities and pursue opportunities for partnerships, and will develop bursaries and scholarships that focus on funding Indigenous Peoples.

As an energy provider, we confront an array of challenges driven by our ever-evolving political, economic and operating environments. One of the keys to FortisBC's ongoing success is our ability to transform challenges into new opportunities.

We are planning to construct

12

additional direct-current fast-charging EV stations throughout the southwestern interior of B.C. in 2019

Environment

We will continue to demonstrate our leadership and commitment to minimizing the environmental impact of our business through our energy solutions offerings and conservation and energy management programs.

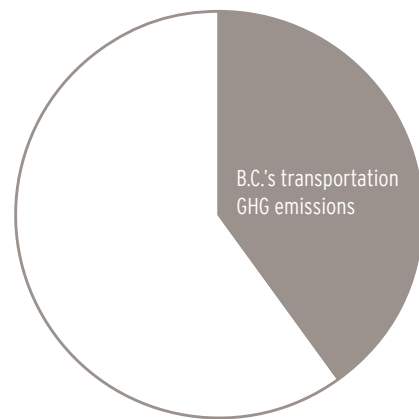
FortisBC's *Clean Growth Pathway to 2050* is our input to the B.C. government's new climate strategy and aligns well with the government's CleanBC plan.

Our Pathway calls for four primary actions to drive change within our energy systems:

- making significant investments in both low and zero-carbon vehicles and infrastructure in the transportation sector
- transitioning from higher carbon energy sources to lower carbon sources by ramping up RNG and other sources of renewable gas to achieve a 15 per cent zero-carbon fuel supply by 2030 and a 30 per cent supply by 2050
- positioning B.C. as a vital domestic and international LNG provider to lower global GHG emissions
- tripling our investment in energy efficiency and conservation programs and developing innovative energy projects in B.C.'s communities



The transportation sector accounts for almost 40 per cent of B.C.'s total emissions, making it the most important sector where we can achieve significant and immediate carbon reductions with technology that is available to us today by encouraging the heavy-duty industry to fuel-switch from diesel to CNG or LNG.



The transportation sector accounts for almost 40 per cent of B.C.'s total emissions

We provide innovative and clean technology that lowers emissions throughout the transportation sector. We believe that the decarbonization of B.C.'s transportation sector will require the use of all tools available including:

- cleaner transportation systems, including increased investment in fuelling infrastructure and clean trade corridors
- cleaner fuels that displace high-carbon fuels with alternative fuels such as natural gas, RNG, biofuels or other forms of renewable gas
- cleaner vehicles that use alternative fuels, electric power or hybrid technologies

Emissions reduction opportunities for FortisBC fall into three categories: i) decarbonizing natural gas with renewable gases and carbon capture and storage; ii) energy efficiency and conservation; and iii) fuel-switching from more carbon intensive energy to natural gas and LNG.

The \$400-million Tilbury LNG storage facility expansion will be in service in 2019. There is also room on the Tilbury site for more enhancements and a separate company, WesPac Midstream, is proposing to build a marine jetty that would provide FortisBC with the means to meet the long-term projected demand for LNG as a cleaner transportation fuel in the marine sector.

LNG is one of the only commercially mature and cost-effective options for international marine shippers to reduce GHG emissions, improve air quality and help the International Maritime Organization (IMO) reach its target of reducing GHG emissions in marine shipping by 50 per cent by 2050.



By converting two vessels to operate on natural gas, which is much cleaner for the environment than marine diesel, BC Ferries expects to reduce CO₂e emissions and reduce fuel costs by millions.

Photo courtesy of BC Ferries.

In January 2020, the IMO will implement a new regulation for a 0.50 per cent global sulphur limit for marine fuels. As a result, many shippers will be looking for alternatives; FortisBC LNG is readily available, cost-effective and the next logical step in the journey to reducing emissions from marine transportation.

Also adding to the growth of LNG for marine transportation is BC Ferries' plan to add one additional Salish Class vessel in 2019, and their desire to convert five major class vessels to LNG over the next three years.

For British Columbians, additional electric vehicle charging infrastructure will be critical to advancing the adoption of EVs in the province. Through the planned deployment of EV charging infrastructure in our service territory, FortisBC is supporting the CleanBC objective of every new vehicle in B.C. being zero-emission by 2030. Further collaboration between the province, local governments and FortisBC and BC Hydro can address this gap.

We will also be working with municipalities, existing refuelling service providers and private landowners to find ways to provide multi-fuel hub, low-carbon refuelling infrastructure to further support the government's CleanBC goals.

Employees

Our ability to achieve our business goals in 2019 and beyond is directly impacted by our ability to continue to attract, train and retain high calibre talent. Engaged employees are a critical component to our success. Attraction and training programs will be a key focus to continue to position the company to meet future demand. We will focus on engaging and developing employees by:

- expanding opportunities for internal transfers, career development and challenging work assignments
- aligning and merging pension plans to ensure they remain an attraction and retention tool
- continuing to foster productive working relationships with our unions

We are committed to furthering an inclusive culture of equality where access to opportunity exists for all qualified candidates. As we move forward, we are evaluating how to improve access to FortisBC careers, provide unconscious bias training and promote awareness around gas and electric trades and engineering qualifications and career opportunities for underrepresented groups.

We will focus on strengthening relationships and will provide all managers, communication and engagement specialists, contractors and employees that work directly or indirectly with Indigenous Peoples with cultural awareness training. We will seek opportunities to train and hire Indigenous Peoples to fill positions, and will work to build a repository of Indigenous businesses on our preferred contractor list and advance other procurement initiatives.

Our values, approach to the sustainable development of our business, and dedicated people position our company for future success and ensure that we remain a trusted energy provider across the province; operating in an environmentally and socially responsible manner.

Leadership team



1. Roger Dall'Antonia President and CEO

Mr. Dall'Antonia is President and CEO of the FortisBC group of companies. Prior to this, he held the position of EVP, Customer Service and Technology at FortisBC. Mr. Dall'Antonia holds over 21 years of experience in the energy industry and joined FortisBC in 2004. He has been trusted in many executive level leadership roles, including finance, strategic planning, regulatory affairs, and most recently, customer service, energy solutions, information systems, business innovation and conservation and energy management. Past senior financial roles include positions with Westcoast Energy and Versacold Income Fund.

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

Ms. Drope has spent her career working in Human Resources and occupational health and safety. Her career has included work in provincial and municipal government, health care and post-secondary education. Ms. Drope joined FortisBC in 2008. In her current role, Ms. Drope is responsible for fleet services, human resources, labour relations and talent development. In addition, Ms. Drope champions environment, sustainability and safety for FortisBC.

3. Michael Leclair Vice President, Major Projects

Mr. Leclair has more than 16 years of experience with FortisBC and its predecessor companies, holding leadership roles including Director, Generation and Compression, Manager, Generation, and Manager, Engineering. He is currently earning a Master's degree in business administration from Athabasca University and holds a professional engineering designation from the University of Victoria.

4. Ian Lorimer Vice President, Finance and Chief Financial Officer

Mr. Lorimer brings 19 years of experience in regulated utility finance roles, including Vice President, Finance and Chief Financial Officer for FortisAlberta and a Director role with FortisBC. Previously, he held finance roles including Senior Manager at Smythe Ratcliffe Chartered Professional Accountants in Vancouver. Mr. Lorimer holds a Bachelor of Commerce degree from the University of British Columbia, is a Chartered Accountant and member of the Institutes of Chartered Accountants of Alberta and British Columbia.

5. Dawn Mehrer Vice President, Customer Service & Information Systems

Ms. Mehrer has more than 14 years of experience in customer service and project management for FortisBC, FortisAlberta and previously in the telecommunications industry. She most recently held the position of Director, Customer Service for FortisBC. She has a Bachelor of Commerce degree from the University of Victoria and project management diploma from the University of British Columbia.

6. Diane Roy Vice President, Regulatory Affairs

Ms. Roy has 14 years of experience with FortisBC and its predecessor companies, holding leadership roles including Director, Regulatory Services, Manager, Regulatory Strategy and Business Analysis, Manager Financial and Regulatory Reporting. Previously, she held finance roles with the Overwaitea Food Group, TELUS and Deloitte & Touche. Ms. Roy holds a Bachelor of Commerce degree from the University of British Columbia and is a Chartered Professional Accountant. Ms. Roy currently serves on the Board of Directors for the Northwest Gas Association.

7. Doyle Sam Executive Vice President, Operations and Engineering

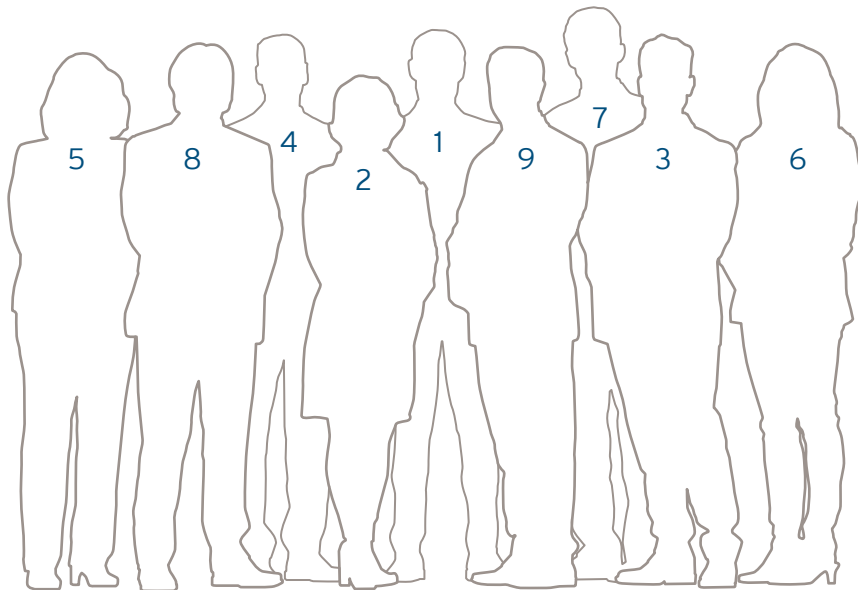
Mr. Sam has worked in the energy industry since 1989 and for FortisBC and its predecessors since 2003. He has operated in a variety of engineering, planning, operations and senior management roles in both electric and gas utilities.

8. Douglas Stout Vice President, Market Development & External Relations

Mr. Stout joined the company in 2001 as Vice President, Gas Supply and Transmission. He has held senior executive roles with Belcorp Industries Inc. and Husky Energy Inc., and has served as Director for Sultran Ltd., Pacific Coast Terminals and Hillsborough Resources. He is past Chair of the Canadian Natural Gas Vehicle Alliance, past Director of the Northwest Gas Association and a current Director of the BC LNG Alliance.

9. Dennis Swanson Vice President, Energy Supply & Resource Development

Mr. Swanson has more than 20 years of experience with FortisBC and its predecessor companies, holding multiple leadership roles including Director, Regulatory Affairs, Manager, Corporate Reporting and Manager Budgeting and Planning. Prior to his current role, Mr. Swanson was responsible for Legal, Information Services, Internal Audit and Corporate Services as the Vice President, Corporate Services. Mr. Swanson also managed the acquisition of the City of Kelowna's electrical distribution assets in 2013. Mr. Swanson currently serves on the Board of Directors for the Northwest Gas Association.



Board of directors



Tracey C. Ball

Ms. Ball (FCPA, FCA, ICD.D) is a corporate director and the former Executive Vice President & CFO of Canadian Western Bank. She currently serves as a member of the Board of Directors of Fortis Inc. and as Chair of its Audit Committee, and previously served as both Board Chair and Audit Committee Chair of FortisAlberta. Ms. Ball has additionally served on several private and public sector boards including Canadian Direct Insurance, Canadian Western Trust Company, the Audit Committee of the Province of Alberta, the CA School of Business and Financial Executives Institute Canada.



Ida J. Goodreau

Ms. Goodreau is the Chair of the Board of Directors of FortisBC Inc. and FortisBC Energy Inc. and is a Corporate Director serving on the Boards of Fortis Inc., Pharmasave Drugs International, Genome BC, the Streetohome Foundation and the Canada West Foundation. Previously, Ms. Goodreau held positions including Adjunct Professor, Sauder School of Business, University of British Columbia, President and CEO of LifeLabs Medical Laboratory Services and President and CEO of the Vancouver Coastal Health Authority.



Peter Blake

Mr. Blake (FCPA, FCA) is a corporate director, also currently serving as a member of the Board of Directors of Toromont Industries Ltd. He is the former CEO of WesternOne Inc. (2014-2018) and former CEO (2004-2014) and CFO (1997-2004) of Ritchie Bros. Auctioneers, a leading global industrial auctioneer. Mr. Blake also serves as the Board Chair of West Point Grey Academy and on the Board of Adam's Apples Foundation. He is a former director of Ritchie Bros. Auctioneers, British Columbia Institute of Technology Foundation, Junior Achievement of BC and BC Women's Hospital Foundation.



David G. Hutchens

Mr. Hutchens is the Executive Vice President, Western Utility Operations, of Fortis Inc. and is the President and CEO of Tucson Electric Power (TEP) and its parent company, UNS Energy Corporation. He has held continuously progressive positions within TEP, advancing to President in 2011, COO in 2013 and to his current role as TEP's top executive in 2014. Mr. Hutchens is a member of the Boards of Edison Electric Institute, Western Energy Institute, Southern Arizona Leadership Council, Salpointe Catholic High School, Sun Corridor, Inc. and the University of Arizona Foundation.



Roger A. Dall'Antonia

Mr. Dall'Antonia is the President and CEO of FortisBC Inc. and FortisBC Energy Inc. Prior to this, he held the position of Executive Vice President, Customer Service & Technology and he has held continuously progressive operational, financial and business development executive positions within the Fortis group of companies and its predecessor companies since 2004. Mr. Dall'Antonia is a member of the Corporate Committee of the Western Energy Institute, Customer Council of the Canadian Electricity Association, the Canadian Gas Association and the Executive Advisory Council of CS Week. He has also served on the Board of Directors of the Down Syndrome Research Foundation.



Tracy Medve

Ms. Medve is President of the KF Aerospace Group of Companies in Kelowna, B.C., and has had an extensive executive career in the Canadian aviation and aerospace industry which spans more than 30 years. She serves on the boards of the Canadian Association of Defense and Securities Industries, the UBCO External Community Advisory Council and is a current Member of the Transportation Appeal Tribunal of Canada. She has a law degree from the University of Saskatchewan and an Aviation MBA from Concordia University.



Michael L. Mosher

Mr. Mosher is the President and CEO of FortisAlberta Inc. He has held continuously progressive positions for over 25 years within the utility and energy industry including his most recent position of President and CEO of Central Hudson and prior position of Vice President, Regulatory Affairs of Central Hudson. Mr. Mosher served as a member of the Board of Directors of Newfoundland Power Inc. He holds a Bachelor of Science degree in Electrical Engineering from Union College in New York state.



Christopher F. Scott

Mr. Scott is a Corporate Director, Consultant and the past Chief Operating Officer of Osoyoos Indian Band Development Corporation. He has extensive business and community interests in the Okanagan Valley and is a past recipient of both the Exporter of the Year award in B.C. and the Entrepreneur of the Year award for Penticton. He currently serves as an advisor to a number of First Nation communities in B.C. He serves as Director of the Lower Nicola Indian Band Development Corporation, Tzeachten First Nation Development Corporation, Lower Nicola Site Services and Ogilvie Mountain Holdings Inc.



Barry V. Perry

Mr. Perry is the President and CEO of Fortis Inc. His career with the Fortis Group spans nearly 20 years and he was previously Vice President of Finance and Chief Financial Officer. He joined the Fortis organization in 2000 as Vice President, Finance and Chief Financial Officer of Newfoundland Power. In addition to the FortisBC Board, Mr. Perry serves on the Board of Directors of Fortis Inc. and Fortis Utilities UNS Energy and ITC Holdings. He is Co-Chair of the Edison Electric Institute's (EEI) International Programs Trans-Atlantic Regional Advisory Committee and Co-Chair of EEI's CEO Policy Committee on Energy Delivery. Mr. Perry also serves on the Advisory Board of Canada's Top 40 Under 40.



Janet P. Woodruff

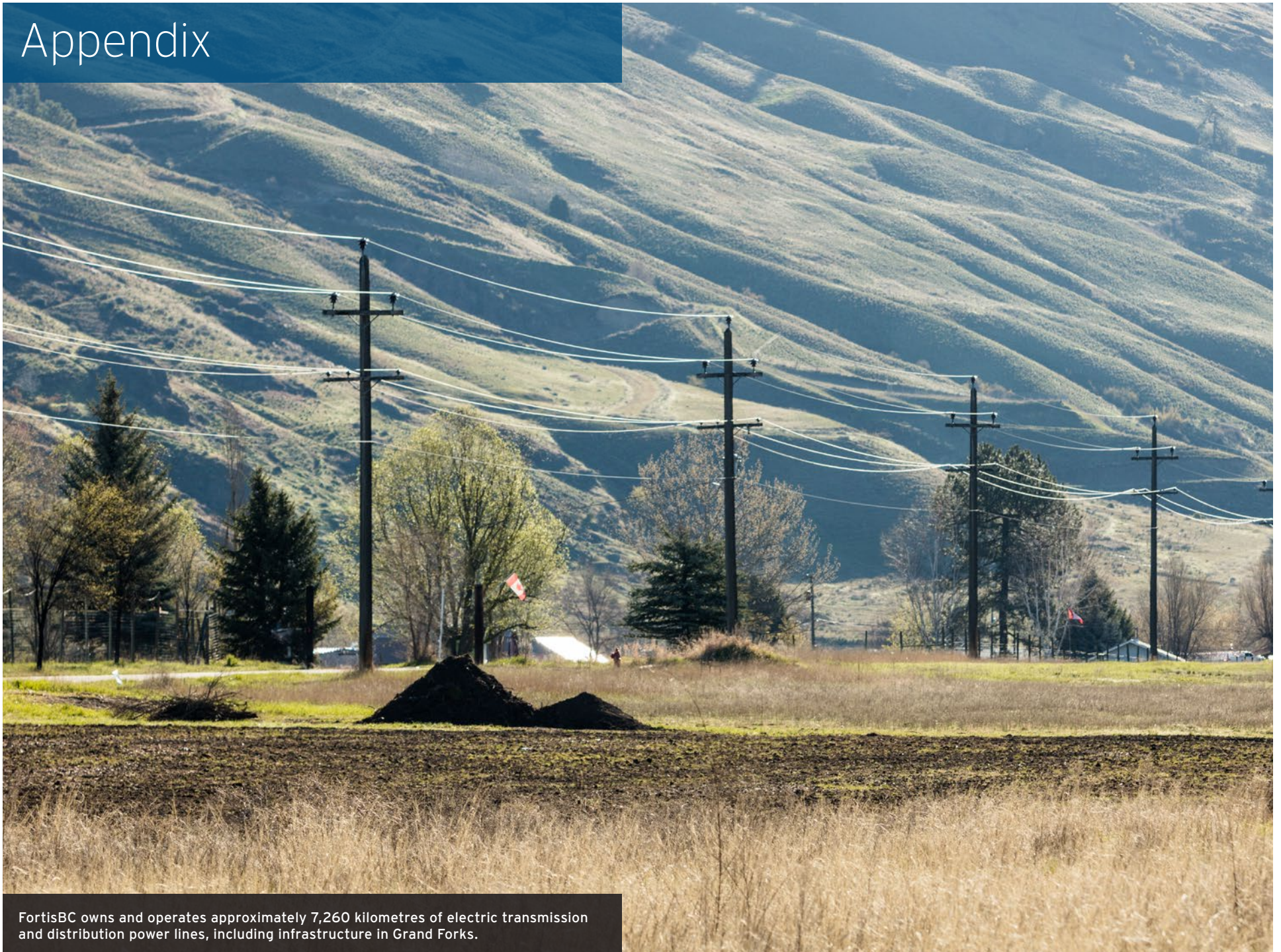
Ms. Woodruff (FCPA, FCA) is a Corporate Director and former executive with over 30 years of experience in the North American energy, transportation and health sectors. Ms. Woodruff serves as a Director of Keyera Corporation, Altus Group, Capstone Infrastructure Corporation and Ballard Power Systems Inc. She was a former director and acting CEO of Transportation Investment Corporation in addition to other public and non-profit boards.



Jocelyn Perry

Ms. Perry (FCA) is the Executive Vice President, Chief Financial Officer of Fortis Inc. She has extensive experience in the utility business, having worked at Fortis utility Newfoundland Power for the past 13 years in a variety of capacities, including Chief Financial Officer, Chief Operating Officer and President and Chief Executive Officer. Ms. Perry has considerable community and professional board and volunteer experience in Newfoundland and Labrador, including the Healthcare Foundation, C-CORE and Provident10 (formerly the Public Service Pension Plan Corporation). She currently serves on the Board of Fortis utility Central Hudson.

Appendix



FortisBC owns and operates approximately 7,260 kilometres of electric transmission and distribution power lines, including infrastructure in Grand Forks.

Performance summary

For 2018, we identified 52 indicators across our four sustainability pillars. These indicators demonstrate our continued commitment and performance in the social, environment and economic aspects of sustainability performance.

Customer Pillar¹

Indicator	2017	2018
Operational safety and system reliability		
Number of incidents with significant safety, environment or service disruption consequences (gas) ²	0	0
Number of confirmed B.C. Mandatory Reliability Standards violations with penalty (electric) ³	0	0
Gas line damage incidents per 1,000 BC One Call requests ⁴	8.31	7.39
Energy use		
Amount of energy delivered, gas and electricity ⁵	64,700 GWh or 233 PJ	62,100 GWh or 224 PJ ¹⁰
Customers		
Number of customers, gas	1,008,000	1,029,500
Number of customers, electric	172,000	175,900
Customer satisfaction index—gas ⁵	8.4	8.7
Customer satisfaction index—electric ⁶	8.2	8.3
Number of cybersecurity incidents ⁷	0	0
Economic		
FortisBC investment in Conservation & Energy Management programs ⁶	\$41.3 million	\$42.8 million
Emergency calls responded to within one hour—gas	97.8 per cent	97.8 per cent
Emergency calls responded to within two hours—electric	93 per cent	94 per cent
System Average Interruption Index (SAIDI) ⁸	4.05	3.15
System Average Interruption Frequency Index (SAIFI) ⁹	1.78	1.73
Customers who achieve resolution in one contact with our Customer Contact Centres	80 per cent	82 per cent

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

² Number of incidents with significant safety, environment or service disruption consequences in accordance with the FortisBC Energy Inc. Integrity Management Policy.

³ Number of confirmed B.C. Mandatory Reliability Standards violations with penalty in accordance with the British Columbia Utilities Commission Rules of Procedure.

⁴ BC One Call requests increased in 2018; 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 and the threat to public safety resulting from the uncontrolled release of natural gas. Reducing damage also prevents added GHG emissions.

⁵ 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.

⁶ As reported to the BCUC.

⁷ A cybersecurity incident is defined as an incident where digital systems are compromised materially, or data is lost or stolen and that is reportable to the BCUC.

⁸ SAIDI depicts the average outage duration for each customer served, indicated in minutes per customer.

⁹ SAIFI depicts the average number of interruptions that a customer would experience, indicated in units of interruptions per customer.

¹⁰ Amount of energy delivered, electric—3,250 GWh. Amount of energy delivered, gas—212 PJ.

Performance summary

Partners & Communities Pillar¹

Indicator	2017	2018
Economic		
Community events participated in	505	429
Communities that received investment	85	75
Number of Indigenous communities who received training from the First Nations Emergency Services Society	126	120
Economic value generated ¹¹	\$1,580 million	\$1,578 million
Economic value distributed		
• Operating costs	\$177 million	\$187 million
• Employee wages and benefits	\$265 million	\$287 million
• Payments to providers of capital	\$471 million	\$501 million
• Payment to government	\$410 million	\$350 million
• Community investment ¹²	\$2.1 million	\$1.8 million
Indigenous		
Indigenous rights incidents ¹³	0	0
Taxes paid when on reserve land (gas and electric) ¹⁴	\$2.1 million	\$2.2 million
Safety		
Number of emergency exercises ¹⁵	18	22

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

¹¹ Revenues as reported per external financial statements for FortisBC Energy Inc. and FortisBC Inc.

¹² Includes investments into the communities including donations, in-kind contributions and sponsorships.

¹³ Defined as incidents that have been substantiated by a court of law.

¹⁴ 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 powers to implement a property taxation system.

¹⁵ 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. The number of emergency exercises is driven by several factors such as due diligence, business need, regulatory, community request, etc. Annually, more or less exercises is not indicative of performance.

Performance summary

Environment Pillar¹

Indicator	2017	2018
Emissions		
Direct GHG emissions (Scope 1) ¹⁶	153,000 tCO ₂ e	130,000 tCO ₂ e
Indirect GHG emissions (Scope 2) ¹⁷	5,300 tCO ₂ e	7,200 tCO ₂ e
GHG emissions saved from natural gas used for transportation ¹⁸	48,000 tCO ₂ e	45,000 tCO ₂ e ²
GHG emissions saved from LNG used for marine bunkering	9,000 tCO ₂ e	17,000 tCO ₂ e ²
GHG emissions saved from Renewable Natural Gas ¹⁹	7,700 tCO ₂ e	8,900 tCO ₂ e ²
Reduction in criteria air contaminants (CAC) released to the environment through the use of LNG and CNG by customers ²⁰	249 tonnes CAC	269 tonnes CAC
Lifetime energy saved from Conservation and Energy Management Programs ²¹	292,000 tCO ₂ e	334,000 tCO ₂ e ²
Class 3 spills²²		
Number of spills by FortisBC	0	0
Number of spills by contractors	3	0
Waste		
Amount of hazardous waste disposed of in accordance with regulatory requirements ²³	170 tonnes	270 tonnes
Penalties		
Number of environmental fines and penalties	0	0

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

¹⁶ Scope 1 emissions, as defined under the Greenhouse Gas Protocol, are direct emissions from owned or controlled sources. For 2018, this includes externally verified Scope 1 GHG emissions as reported to the BC Ministry of Environment of 114,000 tCO₂e and 4,8000 tCO₂e for FEI and LNG Operations, respectively.

¹⁷ Scope 2 emissions, as defined under the Greenhouse Gas Protocol, are indirect emissions from the generation of purchased electricity for own use. Not included is externally verified Scope 3 GHG emissions for FBC as reported to the BC Ministry of Environment in 2018 of 77,000 tCO₂e.

¹⁸ 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 BC Government for the purposes of reporting under that regulation.

¹⁹ Renewable 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).

²⁰ The CAC value includes NOx and SOx but excludes particulate matter. The formation of particulate matter is related to the concentration of NOx and SOx in the exhaust. Given the decrease in NOx and SOx emissions for the use of natural gas versus diesel, a decrease in particulate matter is expected.

²¹ The lifetime energy saved is based on the Net Present Value estimates on energy savings from gas and electric programs that commenced in the reporting year as published in FortisBC's Conservation & Energy Management filings to the BCUC as well as lifecycle GHG emission factor for gas using models adopted by the BC Government. Total Net Present Value since inception of the Conservation & Energy Management programs for gas and electric exceeded 1.85 million tCO₂e in 2018. Calculations reported in FortisBC's 2017 Sustainability Report have been revised to forecasted future savings associated with programs implemented per year.

²² 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.

²³ Hazardous waste as reported on the Movement Document / Manifest form which is required for the movement of all hazardous waste by the BC Ministry of Environment Hazardous Waste Regulation. This includes 165 tonnes attributed from capital equipment decommissioning.

Performance summary

Employees Pillar¹

Indicator	2017	2018
Health and safety		
Discrimination incidents ²⁴	0	0
Respect in the workplace incidents ²⁵	3	4
Percentage of job postings filled internally	56 per cent	53 per cent
Overall in-class and online training attendance, including trades, compliance, business and leadership development		
• Number of courses	5,300	7,400
• Number of participants	14,800	24,600
All injury frequency rate (AIFR) ²⁶	1.3 injuries/100 workers	1.7 injuries/100 workers
Injury severity rate (ISR) ²⁷	17.6 lost work days/100 workers	25.3 lost work days/100 workers
Number of fatalities	0	0
Number of employees	2,130	2,403
Voluntary turnover rate ²⁸	3.3 per cent	3.9 per cent
Employees in unions or associations ²⁹	1,538	1,577
Women in workforce	35 per cent (813)	34 per cent (827)
Women in senior management	27 per cent (68)	29 per cent (75)
Women on the board of directors	36 per cent (4)	45 per cent (5)

Note: FortisBC is focused on efforts to increase awareness and understanding on the value of inclusion in the workplace. Diversity performance indicators are under review.

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

²⁴ Incidents include both discrimination and harassment complaints resulting in policy breaches. Policy includes compliance with all applicable legislation.

²⁵ Incidents include respect in the workplace complaints. Policy includes compliance with all applicable legislation.

²⁶ AIFR per 100 workers is for a combined gas and electric result (annual).

²⁷ Depicts the number of lost work days experienced per 100 workers.

²⁸ Excludes retirements. The voluntary turnover rate includes high turnover departments such as Customer Service, not present in other industry comparators. Values are aligned with industry comparators. The data includes regulated and non-regulated companies as well as temporary employees. Employees on long-term disability are excluded.

²⁹ Includes members from the International Brotherhood of Electrical Workers (IBEW) and MoveUp.

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
Number of incidents with significant safety, environmental or service disruption consequences (gas)	Indicator demonstrates resilient infrastructure	G4-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories and GRI 102-30: Effectiveness of risk management and processes GG4-PR2: Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their lifecycle, by types of outcomes G4-LA6: Type of injury and rates of injury, occupational diseases, lost days and absenteeism and total number of work-related facilities, by region and by gender G4-LA7: Workers with high incidence or high risk of diseases related to their occupation G4-EN24: Total number and volume significant spills	9	Yes ⁵
Number of confirmed B.C. Mandatory Reliability Standards violations with penalty (electric)	Indicator demonstrating resilient infrastructure	GRI-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories and GRI 102-30: Effectiveness of risk management and processes G4-PR2: Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their lifecycle, by type of outcomes	9	Yes ⁵

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Customers Pillar

Indicator	Indicator definition/intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
Create value for our customers, employees and shareholders				
Emergency response time—calls responded to within one hour (gas) and within two hours (electric)	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
Customers who achieve resolution in one contact with our Customer Contact Centres	Highlights customer satisfaction	G4-PR5, GRI 102-44: Key topics and concerns raised	12	n/a ⁴
FortisBC investment in Conservation & Energy Management programs	Depicts investment in customer-facing programs to increase energy efficiencies and conservation measures	GRI 302-2: Energy consumption outside of the organization	11	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 electricity	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
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				
Gas line damage incidents per 1,000 BC One Call requests	Indicator demonstrating public-facing resource to encourage reduced damage of gas lines and associated GHG emissions	G4-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories	9	n/a ⁴

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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
Number of Indigenous communities who received training from the First Nations Emergency Services Society	Indicator depicts the importance of engaging with and training local Indigenous communities on the health and safety of our products and services	G4-PR1, GRI 416-1: Assessment of the health and safety impacts of product and service categories	9	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 GRI 411-1: Rights of Indigenous Peoples	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

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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 (Scope 1)	Indicator highlights emissions from owned and/or controlled sources	G4-EN15, GRI 305: Direct (Scope 1) GHG emissions	7	Yes ⁵
Indirect GHG emissions (Scope 2)	Indicator highlights emissions from the generation of purchased electricity	G4-EN16, GRI 305-2: Energy indirect (Scope 2) GHG emissions	7	Yes ⁵
GHG emissions saved from the use of natural gas	Indicator depicts emissions saved through the use of natural gas for transportation, LNG for marine bunkering, RNG and conservation and energy management initiatives	G4-EN19, GRI 305-5: Reduction of GHG emissions	7	Yes ⁵
Reduction in Criteria Air Contaminants (CAC) 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
Lifetime energy saved from Conservation & Energy Management programs	Indicator depicts the lifetime energy saved based on the Net Present Value estimates on energy savings from gas and electric programs	G4-EN19, GRI 305-5: Reduction of GHG emissions	7	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

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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 workplace	Indicator depicts diversity in the workplace	G4-LA12, GRI 405-1: Diversity of governance bodies and employees	5	n/a ⁴
Number of women in senior management	Indicator depicts women in leadership positions	G4-LA12, GRI 405-1: 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 405-1: Diversity of governance bodies and employees	5	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 respect in the workplace incidents	Depicts number of respect in the workplace incidents that occurred	G4-HR3, GRI 406-1: Incidents of discrimination and corrective actions taken	3	n/a ⁴

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Employees Pillar

Indicator	Indicator definition/intent	Global Reporting Initiative (GRI) ¹	UNSDG ²	TCFD ³
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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