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September 7, 2023

B.C. Sustainable Energy Association
c/o William J. Andrews, Barrister & Solicitor
70 Talbot Street
Guelph, ON
N1G 2E9

Attention: William J. Andrews

Dear William J. Andrews:

Re: FortisBC Energy Inc. (FEI)

**Application for Acceptance of Demand Side Management (DSM) Expenditures
Plan for the Period Covering 2024 to 2027 (Application)**

**Response to the B.C. Sustainable Energy Association (BCSEA) Information
Request (IR) No. 1**

On July 12, 2023, FEI filed the Application referenced above. In accordance with the regulatory timetable established in British Columbia Utilities Commission Order G-178-23A for the review of the Application, FEI respectfully submits the attached response to BCSEA IR No. 1.

For convenience and efficiency, if FEI has provided an internet address for referenced reports instead of attaching the documents to its IR responses. FEI intends for the referenced documents to form part of its IR responses and the evidentiary record in this proceeding.

If further information is required, please contact Sarah Commander, Regulatory Projects Manager, at (250) 469-6081.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Sarah Walsh

Attachments

cc (email only): Commission Secretary
Registered Parties

1 **1.0 Topic: GHG Emissions Reductions**

2 **Reference: Exhibit B-2, Table 1-3: Planned Energy Savings & GHG**
3 **Emission Reductions from DSM, pdf p.11**

4 1.1 Can the GHG emissions reductions shown in Table 1-3 for the years 2023 to 2027
5 be compared apples to apples with BC's legislated GHG emissions reduction
6 targets?

7
8 **Response:**

9 FEI understands this question to be asking whether the GHG emissions savings in Table 1-3 of
10 the Application would reduce the provincial GHG emissions inventory at a comparable basis.

11 FEI determines the GHG emissions savings from FEI's DSM Plan by comparing the gas
12 consumption savings of the DSM program in the years 2023 through 2027 to a counterfactual
13 reference scenario where those savings are not realized (i.e., they represent a combination of
14 both actual customer emissions reductions and avoided emissions). This means that the values
15 calculated in Table 1-3 are not directly comparable to the provincial GHG emissions inventory.
16 Despite this, the GHG savings achieved through FEI's DSM Plan are real and account for GHG
17 emissions reductions based on consumer behavior and technology adoption that would not have
18 feasibly occurred without the incentives in FEI's DSM Plan.

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21
22 1.2 Please confirm, or otherwise explain, that the Lifetime Net GHG Reductions shown
23 in Table 1-3 are not directly comparable with BC's legislated GHG emissions
24 reduction targets.

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26 **Response:**

27 Confirmed. BC's legislated GHG emissions reduction targets are intended to result in an absolute
28 amount of total GHG emissions and are not comparable to the lifetime net GHG reductions shown
29 in Table 1-3 of the Application, which represent the sum of the annual savings avoided by higher
30 energy efficiency equipment and programs. In particular, BC's legislated reduction targets are
31 totals while the values presented in Table 1-3 are net values and are, therefore, not comparable.

32 The GHG emissions savings from energy efficiency incentives in the 2024-2027 DSM Plan still
33 meaningfully contribute towards BC's legislated GHG emissions reduction targets. In particular,
34 the incentives drive lower gas consumption and the resulting reduction of GHG emissions.

35

1 **2.0 Topic: Gas Savings and Reference Case**

2 **Reference: Exhibit B-2, Appendix D, Conservation Potential Review;**
3 **Table 1-3: Planned Energy Savings & GHG Emission Reductions**
4 **from DSM, pdf p.11**

5 The CPR states:

6 “As explained in Section 3.2 Base Year Energy Use Model Development, the
7 reference case begins with the base year values and forecasts natural gas use
8 based on exogenous conditions that follow a “business-as-usual” scenario. The
9 reference case for the CPR is intended to represent the baseline from which
10 calculation of new potential can be calculated. It considers current energy
11 consumption patterns and known future changes, including expected customer
12 growth, current and known future changes to codes and standards, and natural
13 replacement of equipment at end of life. The reference case does not account for
14 potential changes in fuel share or end use saturations, except those that would
15 occur incidentally because of different rates of new construction for different types
16 of buildings or in the different regions.

17 The reference case starts with actual 2019 consumption, which includes all DSM
18 activity up to that point. The subsequent years of the reference case incorporate
19 natural conservation, such as the natural turnover of furnaces and other
20 appliances. It does not include conservation from DSM activities carried out after
21 2019.” [pdf p.244, underline added]

22 2.1 Please confirm, or otherwise explain, that Net incremental gas savings shown in
23 Table 1-3 are in relation to the reference case in the 2021 Conservation Potential
24 Review.

25
26 **Response:**

27 Not confirmed. The net incremental gas savings shown in Table 1-3 of the Application are not
28 related to the reference case in the 2021 Conservation Potential Review (CPR). Instead, these
29 values are calculated in the 2024-2027 DSM Plan using a bottom-up approach. To estimate the
30 net incremental gas savings for each measure in the DSM Plan, the measure’s assumed gas
31 savings are multiplied by the forecast participation in each year for that measure. These savings
32 are then summed to present the incremental gas savings at the program area and portfolio level.

33
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36 2.2 Will the 2024-2027 DSM Plan induce any changes in fuel share or end use
37 saturations, except those that would occur incidentally because of different rates
38 of new construction for different types of buildings or in the different regions?

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1 2.2.1 If so, please explain how such changes reflected in the Planned Energy
2 Savings and associated GHG Reductions shown in Table 1-3?

3 2.2.2 If not, please explain why FEI is confident that the expected gas savings
4 from the 2024-2027 DSM Plan do not include gas savings from
5 participants who would not have been gas customers in the reference
6 case.

7
8 **Response:**

9 No, the 2024-2027 DSM Plan does not induce changes in fuel share or end use saturation. FEI
10 is confident that the expected gas savings from the 2024-2027 DSM Plan do not include gas
11 savings from participants who would not have been gas customers in the reference case as the
12 DSM Plan does not include any fuel switching measures (i.e., programs that switch end uses to
13 gas or switch end uses completely away from gas).

14 In new construction programs, the 2024-2027 DSM Plan encourages efficient buildings using dual
15 fuel hybrid systems or gas heat pumps for space and water heating. As such, the goal of FEI's
16 new construction programs is to encourage customers to adopt high-efficiency advanced gas
17 space and water heating equipment and higher steps of the BC Energy Step Code should
18 customers choose gas for those systems.

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22 2.3 Has FEI considered whether the 2024-2027 DSM Plan would change the fuel
23 share or end use saturations, except those that would occur incidentally because
24 of different rates of new construction for different types of buildings or in the
25 different regions?

26
27 **Response:**

28 Please refer to the response to BCSEA IR1 2.2.

29
30

31
32 2.4 Has FEI considered how the customer costs and incentives for natural gas
33 solutions under the 2024-2027 DSM Plan compare with the customer costs and
34 available incentives for electricity solutions?

35
36 **Response:**

37 FEI does not directly compare customer costs for customers participating in FEI's DSM program
38 with projects resulting from other organizations' programs (including those offering electric energy

1 efficiency and electrification incentives). The role of FEI's DSM Plan is to encourage customers
2 that choose gas to use gas more efficiently.

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6 2.5 Can FEI say that the 2024-2027 DSM Plan is not intended to increase the market
7 share of natural gas compared to that of electricity?

8

9 **Response:**

10 Confirmed. The 2024-2027 DSM Plan is not intended to increase the market share of natural gas
11 compared to that of electricity.

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15 2.6 Can FEI say that the 2024-2027 DSM Plan is not aimed at retaining and expanding
16 FEI's customer base?

17

18 **Response:**

19 The 2024-2027 DSM Plan is not designed to retain or expand FEI's customer base. Rather,
20 consistent with the amended DSM Regulation, FEI designed the DSM Plan to continue supporting
21 customers who choose gas to use gas more efficiently and support provincial GHG reduction
22 policies.

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26 2.7 Please confirm, or otherwise explain, that in developing the 2024-2027 DSM Plan
27 FEI did not take into account low-carbon electrification alternatives to the advanced
28 gas DSM measures in the Plan.

29

30 **Response:**

31 Confirmed. In the 2024-2027 DSM Plan, FEI did not take into consideration any electrification
32 measure that resulted in complete fuel switching of a particular end-use (e.g., switching from gas
33 to an electricity-only energy system).

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1 2.8 In estimating the total incremental gas savings and the GHG emissions reductions
2 associated with the 2024-2027 DSM Plan, what assumptions did FEI make
3 regarding whether FEI’s proposed Renewable Gas Connections Program is
4 approved or denied?

5
6 **Response:**

7 The total forecast incremental gas savings and GHG emission reductions in the DSM Plan did
8 not consider the proposed Renewable Gas Connections Program which, at the time of Application
9 filing, remains under review by the BCUC.

10

1 **3.0 Topic: GHG Reduction Standard**

2 **Reference: Exhibit B-2, 1.1 Government Policy and the Demand-Side**
3 **Measures Regulation, pdf p.7; Table 1-3: Planned Energy Savings &**
4 **GHG Emission Reductions from DSM, pdf p.11**

5 FEI states:

6 “The Roadmap introduced the concept of “a GHG emissions cap that will require
7 gas utilities to undertake activities and invest in technologies to further lower GHG
8 emissions from the fossil natural gas used to heat homes and buildings and power
9 some of our industries.”⁸ The Roadmap states that utilities will determine how best
10 to meet the target, including by supporting greater energy efficiency, and that “the
11 B.C. Utilities Commission will have a mandate to review gas utilities’ plans,
12 investments and expenditures to ensure they’re aligned with the GHG emissions
13 cap and cost effective”.⁹ While the GHG emissions cap has not yet been
14 implemented, this policy direction from Government highlights the importance of
15 FEI’s DSM portfolio as a tool to reduce emissions.” [pdf p.7, underline added]

16 In FEI’s 2022 Long-Term Gas Resource Plan, FEI states:

17 “The GHGRS [GHG Reduction Standard] is the first of its kind in Canada, and will
18 mandate FEI to invest in carbon saving technologies and solutions to displace
19 natural gas consumption by 2030. As described in the report, “the cap will be set
20 at approximately 6 Mt of CO_{2e} per year for 2030, which is approximately 47 percent
21 lower than 2007 levels.” The GHGRS would require a GHG reduction of
22 approximately 5.5 Mt of CO_{2e} [per year], which is equivalent to displacing
23 approximately half of the natural gas delivered by FEI.

24 Additionally, the GHGRS imposes a target of a 61 percent emissions reduction in
25 the buildings sector by 2030. This is an aggressive goal that disproportionately
26 impacts FEI, and is more representative of a 2040 target, thereby requiring a more
27 rapid transition in the buildings sector at greater cost and risk.

28 It is anticipated that the GHGRS policy framework will enable FEI to invest in a
29 broad set of GHG-saving actions such as increasing renewable and low-carbon
30 gases and incenting higher levels of energy efficiency and other measures.
31 Although many uncertainties remain for FEI, the 2022 LTGRP provides context
32 around FEI’s approach to addressing the Roadmap. FEI will continue to work with
33 the Province and other stakeholders to further clarify issues and implications for
34 FEI and its customers. [pp. 2-9 – 2-10, pdf pp. 75-76, footnotes removed]

35 3.1 Please provide a version of Table 1-3 that shows the reference case natural gas
36 consumption, the Total Incremental Gas Savings as a percentage of the reference
37 case natural gas consumption, the GHG emissions associated with the reference
38 case, and the GHG Emissions Reductions as a percentage of the reference case
39 GHG emissions.

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Response:

Please refer to the updated version of Table 1-3 below.

Updated Table 1-3: Planned Energy Savings & GHG Emission Reductions from DSM

Indicator	Year	Total Incremental Gas Savings (GJ / yr)	GHG Emissions Reduction (t CO _{2e} / yr)	Reference Case Natural Gas Consumption (GJ)	Total Incremental Savings as % of Reference Case Consumption	Reference Case GHG Emissions (t CO _{2e} / yr)	GHG Emissions Reduction as Percentage of Reference Case Emissions
Net Incremental Annual Gas Savings and GHG Reductions	2023	1,601,386	82,632	204,654,024	0.8%	10,560,148	0.8%
	2024	860,118	44,382	201,014,384	0.4%	10,372,342	0.4%
	2025	887,737	45,807	199,190,226	0.4%	10,278,216	0.4%
	2026	1,021,299	52,699	197,426,237	0.5%	10,187,194	0.5%
	2027	1,127,874	58,198	195,389,514	0.6%	10,082,099	0.6%
	2024 - 2027	3,897,028	201,087	-	-	-	-
Lifetime Net Gas Savings and GHG Reductions		14,433,377	744,762	-	-	-	-

3.2 Please confirm, or otherwise explain, that 2024-2027 Net Incremental Annual GHG Emissions Reductions of 201,087 t CO_{2e}/yr is equivalent to approximately 0.000201 Mt t CO_{2e}/yr.

Response:

Not confirmed. The 2024-2027 Net Incremental Annual GHG Emissions Reductions of 201,087 t CO_{2e}/yr is equivalent to approximately 0.201 Mt CO_{2e}/yr.

3.3 Please comment on the observation that the amount of GHG reductions from the 2024-2027 DSM Plan is not material in relation to the amount of GHG reductions contemplated in the GHG Reduction Standard.

1 **Response:**

2 FEI does not agree with BCSEA's premise that the GHG reductions in the 2024-2027 DSM Plan
3 are not material in relation to achieving the reductions contemplated in the potential GHG
4 Reduction Standard (GHGRS), which has not yet been legislated.

5 As reported in the 2022 LTGRP Diversified Energy Planning scenario,¹ which indicatively
6 achieves the reductions contemplated by the GHGRS, DSM enables up to approximately 0.9
7 Mt/yr of GHG reductions by 2030. The DSM Plan forecasts GHG emissions reductions of 0.2
8 Mt/yr of GHG by 2027, and many emissions reductions persist past 2030. While further reductions
9 would be needed to achieve the 0.9 Mt/yr potential post-2027, the DSM Plan would achieve over
10 20 percent of the total required abatement from the DSM pillar in the Diversified Energy Planning
11 scenario.

12 The amendments to the DSM Regulation have also reduced the savings potential of FEI's DSM
13 programming to 2027. As a result of these amendments, FEI has proposed to provide incentives
14 that enable and accelerate market transformation toward more efficient technology options that
15 are currently in earlier market adoption phases. For example, dual fuel hybrid heating, deeper
16 retrofits, and other more advanced DSM opportunities will require a ramp-up phase – which is
17 reflected in the lower overall savings across the Plan. Ultimately, however, FEI considers that the
18 investments proposed in the DSM Plan will lead to substantially larger savings required post-2027
19 to achieve the goals that are anticipated under the potential GHGRS.

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23 3.4 In FEI's view, why should the BCUC conclude that the 2024-2027 DSM Plan is
24 aligned with the GHG Reduction Standard?

25

26 **Response:**

27 The GHGRS has not yet been legislated by the Province; nonetheless, FEI expects that DSM is
28 one of the pathways to be enabled by the Province to comply with the GHGRS, and the DSM
29 Plan has been designed to align with provincial emission reduction policies. Please also refer to
30 the response to BCSEA IR1 3.3.

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34 3.5 In developing the 2024-2027 DSM Plan, did FEI consider a total (or partial) ban on
35 new customer connections as a method of contributing to FEI meeting the GHG
36 Reduction Standard? If so, why was this rejected? If not, why not?

¹ Section 9 https://www.cdn.fortisbc.com/libraries/docs/default-source/about-us-documents/regulatory-affairs-documents/gas-utility/220509-fei-2022-ltgrp-ff.pdf?sfvrsn=cbf19584_0.

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2 **Response:**

3 FEI did not consider a total (or partial) ban on new customer connections as such a measure is
4 outside of the scope and purpose of its DSM programming.

5 The purpose of FEI's DSM Plan and subsequent programming is to encourage gas customers to
6 use gas more efficiently. As described in the response to BCSEA IR1 3.3, FEI's DSM
7 programming will form an important component of its overall GHG reduction plan to comply with
8 prospective provincial GHG policies, such as the proposed GHGRS. However, the DSM Plan
9 itself is not intended to be an overall GHG reduction plan. FEI will conduct a broader assessment
10 of the measures and pathways required to achieve the goals of the GHGRS when more detail is
11 provided by the Province.

12 Section 4.4 of the Application presents FEI's guiding principles in developing the utility's DSM
13 programming. The first principle of FEI's DSM portfolio is that "Programs will have a goal of being
14 universal, offering access to energy efficiency and conservation for all residential, commercial,
15 and industrial customers, including low income customers." As all customer segments continue
16 to choose to use gas in new buildings, FEI DSM's activities will continue to encourage customers
17 that choose gas to adopt the highest efficiency gas equipment and improve overall building
18 performance.

19

1 **4.0 Topic: Collaboration with Electric Utilities and Government Programs**

2 **Reference: Exhibit B-2,**

3 For the Industrial Program Area, the 2024-2027 DSM Plan includes a Strategic Energy
 4 Management (SEM) offer administered in collaboration with BC Hydro as the electric utility
 5 outside of FortisBC’s shared service territory and with FBC within FortisBC’s shared
 6 service territory. [Exhibit B-2, pdf p.67]

7 In relation to the feedback point “Desire for alignment with BC Hydro and Provincial
 8 Program Offers,” FEI states:

- 9 • Proposed to continue to partner with BC Hydro and Ministry of Energy, Mines and
 10 Low Carbon Innovation on Home Renovation Rebate, Continuous Optimization
 11 (i.e. recommissioning), and Strategic Energy Management Programs
- 12 • Proposed to continue to partner with BC Hydro on programs for low income
 13 customers, charities, non-profit housing providers, and Indigenous Communities
- 14 • Proposed to continue to pursue dialogue with other program entities to streamline
 15 offers where possible” [Exhibit B-2, Table 4-1, pdf p.18]

16 4.1 Please identify the ways in which the 2024-2027 DSM Plan includes alignment
 17 with BC Hydro and Provincial program offers.

18 **Response:**

19 In the table below, FEI provides an overview of how the 2024-2027 DSM Plan aligns with BC
 20 Hydro and provincial program offers by program area.

21 **Table 1: 2024-2027 DSM Plan Alignment with BC Hydro and Other Offers**

Program Area	Areas of Alignment
Residential	FEI co-delivers the Home Renovation Rebate (HRR) with FortisBC Inc. (FBC), BC Hydro and the Province to ensure that participation is accessible and consistent across the province for residential customers in existing homes. In alignment with program partners, FEI will continue to encourage whole-home retrofits by offering a suite of incentives including insulation, windows and doors, high-efficiency mechanical systems, and home performance improvements.
Commercial & Industrial	FEI co-delivers the Continuous Optimization offer and the Industrial Strategic Energy Management (SEM) offer with FBC and BC Hydro. When launched, FEI intends to co-deliver the Commercial SEM offer as well.
Low Income	FEI co-delivers the Self Install and Direct Install Programs with FBC and BC Hydro. This partnership enables collaboration on varying aspects of program design and promotion and ensures that program offers for Low Income residential customers are accessible and consistent.
Indigenous	FEI collaborates with FBC, BC Hydro and the Province on program offers for Indigenous communities to ensure consistency and accessibility, where applicable, across the province. This includes exploring opportunities to cost share and/or stack funding for the benefit of maximizing support to communities.
Enabling Activities	FEI will continue to partner with FBC, BC Hydro and the Province on industry capacity building and quality installation training initiatives including support for the Home Performance Contractor Network.

1
2 4.2 In developing the 2024-2027 DSM Plan, did FEI consider a measure to help incent
3 a gas customer to convert from a gas furnace to an electric heat pump for space
4 heating, for example in climate zone 4 or 5, in cooperation with the electricity utility
5 or the government?
6

7 **Response:**

8 FEI did not consider a measure to incent a gas customer to convert from a gas furnace to an
9 electric heat pump (without gas backup) for space heating in developing the 2024-2027 DSM
10 Plan.

11 FEI partners with BC Hydro, FBC, and the Province on the Home Renovation Rebate (HRR)
12 program which includes existing incentives for customers converting from a gas furnace to an
13 electric heat pump (without gas backup) funded by the Province and BC Hydro. FEI will continue
14 to collaborate with partners during the DSM Plan period, including incenting dual fuel hybrid
15 heating systems under the HRR program.

16
17

18
19 4.3 Does the 2024-2027 DSM Plan include only measures that retain the use of gas
20 equipment?
21

22 **Response:**

23 Yes, the 2024-2027 DSM Plan only includes energy efficiency measures that retain the use of
24 gas. However, some energy efficiency measures include incentives for electric equipment when
25 paired with gas equipment.

26
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28
29 4.3.1 Does the Plan include any low carbon electrification measures?
30

31 **Response:**

32 The DSM Plan does not include any measures that promote the adoption of fully-electric
33 appliances, either for retrofits or new construction. However, it does include energy efficiency
34 measures that result in partial electrification, such as dual fuel hybrid systems.

35 FBC also administers some CleanBC low-carbon electrification offers in the FBC electric service
36 territory that are separate from the FBC and FEI DSM Plans.

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4.3.2 Do all of the “advanced DSM measures” involve continuing use of natural gas?

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Response:

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Yes, advanced DSM measures involve the continued use of gas, although several of these measures also include partial electrification. Importantly, these measures also encourage a more efficient use of gas by customers and provide customers with an option where full electrification alternatives are not technically or economically feasible.

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1 **5.0 Topic: Legacy Program Area**

2 **Reference: Exhibit B-1, Appendix A, FEI 2024-2027 DSM Plan Report,**
3 **Chapter 12 Legacy Expenditures, pdf p.91, et seq., Exhibit 21 –**
4 **Legacy Program Area Expenditures [pdf p.92]**

5 In Table 5-5: DSM Plan Compliance with DSM Regulation, FEI states

6 FEI intends to support two types of legacy expenditures:

7 a) Those for customers with written commitments from FEI made prior to December
8 31, 2023 for class B demand-side measures.

9 b) Those for customers participating in DSM programs that do not provide written
10 commitments but meet the program terms and conditions and purchase and/or
11 install a class B demand-side measure before December 31, 2023.

12 These include incentives for residential, low income, Indigenous, and commercial
13 customers primarily related to the installation of conventional high-efficiency space
14 and water heating equipment including furnaces, domestic water heaters, boilers
15 and roof-top units.

16 To comply with this provision of the amended DSM Regulation, FEI is proposing a
17 Legacy Expenditures Program Area that includes the above legacy expenditures.
18 The cost-effectiveness of these measures are subject to the provisions of the pre-
19 June 30, 2023 DSM Regulation,²⁴ including using the TRC and mTRC tests.

20 No new written commitments will be made for class B demand-side measures after
21 December 31, 2023. Class B demand-side measures purchased and/or installed
22 after December 31, 2023 from programs that do not have written commitments will
23 similarly not be eligible for incentives.

24 See Section 12 of Appendix A, and Appendix B to the Application, for additional
25 details regarding these expenditures.” [Exhibit B-1, pdf p.36]

26 5.1 Does FEI consider that the amended DSM Regulation requires FEI to include class
27 B demand-side measures in the 2024-2029 DSM Plan?

28
29 **Response:**

30 No, FEI is not required under the amended DSM Regulation to include class B demand-side
31 measures as part of its DSM programming. The inclusion of these measures enables customers
32 who choose gas for space and water heating to use gas more efficiently, ultimately reducing their
33 costs and reducing gas usage.

34

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1 5.2 Is there any reason that FEI could not immediately stop making new written
2 commitments to provide incentives for class B demand-side measures?
3

4 **Response:**

5 FEI could stop making new written commitments to provide incentives for class B demand-side
6 measures before December 31, 2023; however, this would have negative impacts. Please refer
7 to the response to BCUC IR1 11.5 for the consequences of FEI withdrawing legacy commitments
8 earlier than anticipated.

9
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12 5.3 Please provide a version of Exhibit 21 showing Legacy Program Area
13 Expenditures if FEI was to terminate as of the date of the responses to IR1 new
14 written commitments to provide incentives for class B demand-side measures.
15

16 **Response:**

17 The following table is a version of Exhibit 21 assuming FEI stops written commitments as of
18 August 31, 2023. Please note that in this scenario FEI would still honor expenditures for
19 purchases made up until December 31, 2023, given the question's focus on new written
20 commitments from FEI.

21 FEI forecasts that the termination of new written commitments would impact the following Legacy
22 Program Area expenditure programs:

- 23 • Residential New Home;
24 • Indigenous Performance;
25 • Low Income Prescriptive;
26 • Commercial Performance Program – Existing Buildings; and
27 • Commercial Performance Program – New Construction.

28 FEI notes that these programs are being executed under the BCUC accepted 2023 DSM
29 Expenditure Plan Application and the removal of DSM programs from the market requires
30 advanced notification to customers, trade allies, and program partners in order to appropriately
31 manage expectations and introduce successor offers to the market. For these reasons, FEI does
32 not support terminating new written commitments within the Legacy Program Area prior to the
33 end of 2023, as proposed in the Application.

1 **Table 1: Revised Exhibit 21 Showing Legacy Incentives Expenditures if FEI Terminated Written**
 2 **Commitments as of August 31, 2023**

	Incentive Expenditures (\$000s)					Non-Incentive Expenditures (\$000s)					Total Expenditures (\$000s)				
	2024	2025	2026	2027	Total	2024	2025	2026	2027	Total	2024	2025	2026	2027	Total
Legacy Incentives	19,003	8,595	5,393	1,762	34,753	-	-	-	-	-	19,003	8,595	5,393	1,762	34,753
Labour	-	-	-	-	-	825	434	106	43	1,409	825	434	106	43	1,409
Total (\$000s)	19,003	8,595	5,393	1,762	34,753	825	434	106	43	1,409	19,829	9,030	5,499	1,805	36,162

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5.4 With reference to Exhibit 21, Legacy Program Area Expenditures, are type b legacy expenditures exclusively within 2024? If not, please explain.

Response:

10 Legacy Program Area Expenditures are not exclusively within 2024. Legacy Program Area
 11 Expenditures occur throughout the 2024-2027 Plan period and some expenditures in the
 12 Commercial Performance – New Construction program may occur in 2028. Please refer to the
 13 response BCUC IR1 10.2 for additional detail on the timing of Legacy Program Area Expenditures.

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5.5 Does the Legacy Program Area include incentives regarding measures applicable to new construction in addition to retrofits?

Response:

21 Yes, Legacy Program Area incentives are for both retrofit and new construction.

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5.6 Please provide a version of Exhibit 21 that breaks down new construction and retrofits.

1 **Response:**

2 Please refer to the revised Exhibit 21 provided below which breaks down expenditures in the
3 Legacy Expenditures Program Area by retrofits and new construction.

4 **Table 1: Revised Exhibit 21 Showing Breakdown of Legacy Incentives by Retrofits and New**
5 **Construction**

	Incentive Expenditures (\$000s)					Non-Incentive Expenditures (\$000s)					Total Expenditures (\$000s)				
	2024	2025	2026	2027	Total	2024	2025	2026	2027	Total	2024	2025	2026	2027	Total
Legacy Incentives - New Construction	22,451	12,838	6,011	3,600	44,899	-	-	-	-	-	22,451	12,838	6,011	3,600	44,899
Legacy Incentives - Retrofits	12,242	3,195	2,193	1,542	19,172	-	-	-	-	-	12,242	3,195	2,193	1,542	19,172
Labour	-	-	-	-	-	1,507	902	180	125	2,714	1,507	902	180	125	2,714
Total (\$000s)	34,693	16,033	8,204	5,142	64,072	1,507	902	180	125	2,714	36,200	16,934	8,384	5,267	66,785

6

7

8

9 5.7 Does FEI anticipate that the Legacy Program Area will be ended after 2027? If not,
10 please explain.

11

12 **Response:**

13 Please refer to the response to BCUC IR1 10.4.

14

1 **6.0 Topic: Dual fuel hybrid heating**

2 **Reference: Exhibit B-2, Appendix A, p. 35, pdf p. 84**

3 Posterity describes dual fuel hybrid heating as follows:

4 “A dual fuel hybrid heating system consists of a gas and electric heating system
5 that is sequentially operated to meet heating needs to reduce costs and GHG
6 emissions for building owners. Using hybrid heating systems claims to reduce the
7 number of hours that electric heat pumps are required to operate at lower
8 efficiencies during colder days, leading to reduced electric peak demand. The
9 system also supports annual system efficiencies greater than 100% and resulting
10 in less GHG emissions.” [Exhibit B-2, Appendix A, p. 35, pdf p. 84]

11 FEI uses various terms including: dual fuel heating systems [pdf p.6], dual fuel hybrid
12 systems [pdf p.8], dual fuel hybrid heating systems [pdf p.17], dual fuel hybrid heat pump
13 [pdf p.17], dual fuel hybrid systems [pdf p.17]; dual fuel hybrids [pdf p.21], residential and
14 commercial dual fuel hybrid heating [pdf p.22], dual fuel hybrid heating [pdf p.24], dual fuel
15 heat pump system [pdf p.34], dual fuel heating system [pdf p.35]

16 BCUC IR1 8.8 asks:

17 “Please provide a list of definitions of the various types of dual fuel systems,
18 including FEI’s views on which may be included or excluded from the meaning of
19 a class B demand side measure. For example, please explain the differences
20 between a dual fuel heating system, and an integrated, split or hybrid gas heat
21 pump system.” [Exhibit A-3, pdf p.13]

22 6.1 If not covered in the response to BCUC IR1 8.8, please discuss whether the
23 different terms – dual fuel systems, dual fuel hybrid systems, etc. – have materially
24 different meanings.

25
26 **Response:**

27 No, there is no difference in meaning between the various terms FEI uses in the Application,
28 including references to dual fuel and dual fuel hybrid systems.

29
30

31
32 6.2 Does FEI agree that dual fuel hybrid heating systems, gas heat pumps and gas-
33 fired hybrid heating systems require more sophisticated maintenance and
34 operation relative to conventional gas heating equipment in order to achieve their
35 optimum results? If so, how does FEI address this need for more sophistication?
36

1 **Response:**

2 FEI addresses the maintenance and operation requirements of dual fuel hybrid heating systems,
3 gas heat pumps and gas-fired hybrid heating systems in turn below.

4 First, with respect to maintenance, FEI does not agree that the installation of dual fuel hybrid
5 heating systems, gas heat pumps, or gas heat pump hybrids will generally require more
6 *sophisticated* maintenance. A customer's overall maintenance requirements may or may not
7 increase and will, ultimately, vary significantly based on the customer's existing system and the
8 proposed retrofit. For example:

- 9
- 10 • A residential customer with a gas furnace and AC unit will likely require similar
11 maintenance to operate a high efficiency dual fuel hybrid heating system.
 - 12 • A customer with a gas furnace who is upgrading to a dual fuel hybrid heating system will
13 likely require additional maintenance over the life of the heating system as they are adding
14 an additional piece of equipment to the system (electric heat pump). However, the
15 associated maintenance will not be more sophisticated and can be handled by qualified
16 HVAC contractors.
 - 17 • A customer who has a furnace and replaces it with a gas heat pump will no longer require
18 maintenance on the furnace but will instead be required to maintain the gas heat pump
19 unit and companion components (air handler) which a certified gas contractor can perform.
20 The annual maintenance requirements include:
 - 21 ○ Changing the gas heat pump's filters, cleaning coils, checking burners and
22 reviewing glycol levels in air handlers.
 - 23 ○ Annual maintenance on residential gas heat pumps have yet to be observed and
24 will be captured through FEI's pilot programs.
 - 25 • Based on FEI's field experience specific to commercial gas absorption heat pumps, the
26 maintenance on these systems is no different than that of a condensing boiler. Customers
27 can expect to utilize their existing gas contractor for annual maintenance similar to their
28 conventional boiler systems.

28 FEI intends to offer maintenance support for all dual fuel hybrid heating systems through the
29 residential appliance maintenance program. FEI supports optimization of all commercial systems
30 through the recommissioning offer under the Commercial Performance Program – Existing
31 Buildings.

32 Second, with respect to the operation of dual fuel hybrid heating systems, gas heat pumps and
33 gas-fired hybrid heating systems, FEI expects there to be little to no difference for residential
34 customers when using a smart thermostat. While the operation of these systems may be more
35 complex for commercial customers, as with maintenance, this will vary as customer system
36 configurations vary greatly. For example:

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- 1 • A dual fuel hybrid heating rooftop unit that is packaged has a factory-supplied internal
2 controller that will sequence the heating stages using predetermined algorithms for the
3 building operator to control.
- 4 • Adding an additional electric or gas heat pump to an existing gas system in commercial
5 buildings may require a more advanced sequence of operations, commonly requiring the
6 use of a Building Automation System and more complex piping and pumping configuration
7 to maximize system efficiency.
- 8 FEI intends to continue developing training and education materials for dual fuel hybrid systems
9 and gas heat pumps. For example, FEI recently completed a best practices guide for gas heat
10 pumps that included maintenance and control considerations and has delivered training for trade
11 allies and consultants.
- 12

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1 **7.0 Topic: Indigenous Program Area**

2 **Reference: Exhibit B-2, Table 4-4, p. 17, pdf p. 22; Appendix A,**
3 **Indigenous Program Area, pp. 24-25, pdf pp. 73-74**

4 FEI states in Table 4-4, p. 17:

- 5 “• The increasing expenditures in this Program Area are driven by forecast
6 expenditures in dual fuel hybrid systems, increased incentives for New
7 Construction Indigenous offers, and the continuation of conventional high-
8 efficiency gas space and water heating equipment where allowable until the end
9 of the plan period.
- 10 • Additional expenditures include the Indigenous-focused Strategic Energy
11 Management offer and increased support in the other existing Programs.”

12 FEI/Posterity states on p. 25:

13 “The Indigenous Program Area is a proposed new program area in response to
14 the amended DSM Regulation. FortisBC has previously offered programs for
15 Indigenous customers within the existing Residential, Commercial and Low
16 Income Program Areas.” [footnote removed]

17 7.1 Does the 2024-2027 DSM Plan offer more, less or about the same levels of DSM
18 incentives and planned savings to Indigenous customers under the new
19 Indigenous Program Area, as compared to the programs offered to Indigenous
20 customers within the existing Residential, Commercial and Low Income program
21 areas? Please provide a quantitative response.

22
23 **Response:**

24 The 2024-2027 DSM Plan proposes higher incentive expenditures and energy savings for
25 Indigenous customers and communities under the new Indigenous Program Area. Over the last
26 several years, FEI has invested between \$1.2 and \$1.5 million annually towards energy efficiency
27 for Indigenous customers through existing offers in other program areas, such as the Low Income
28 and Enabling Program Areas.

29 The 2024-2027 DSM Plan proposes increased incentive levels of \$2.2 million in 2024, \$3.7 million
30 in 2025, \$4.9 million in 2026, and \$5.9 million in 2027.

31
32

33

34 FEI/Posterity states on p. 24:

35 “Working collaboratively with Indigenous communities, the energy efficiency
36 programming focusses on improvements for existing homes and new construction.
37 Program design and eligible measures are based upon non-Indigenous retrofit and

1 new construction program eligibility criteria but with enhanced rebates and
2 modified application processes and marketing approaches. Support is also
3 provided for community outreach and education, energy efficiency construction
4 and building maintenance training and community member capacity building.”

5
6 7.2 Please describe any collaboration or coordination on DSM planning and/or housing
7 policy that FEI is engaged in with BC Hydro and other utilities, with the BC
8 government, and with Indian and Northern Affairs Canada and other federal
9 agencies.

10
11 **Response:**

12 As explained in the response to BCSEA IR1 4.1, FEI collaborates with various stakeholders for
13 the purpose of DSM planning, including the following examples:

- 14 • **FBC and BC Hydro:** FEI co-delivers the Direct Install Program to Indigenous
15 communities. Whenever appropriate, FEI jointly funds Commercial Energy Specialist
16 positions and capacity funding with FBC and BC Hydro in their respective service areas.
- 17 • **The Province of British Columbia:** Where possible, FEI has coordinated offers with the
18 provincial Income Qualified Program (IQP) and enabled the stacking of rebates. FEI works
19 with the IQP program implementor to cross promote offers and foster community
20 relationships.
- 21 • **Natural Resources Canada:** FEI was active in the program design efforts for the Canada
22 Greener Homes Program, specifically for Indigenous communities. FEI has continued to
23 play a role in fostering community relationships by introducing multiple Bands to the
24 Canada Greener Homes Program administrators.
- 25 • **Indian and Northern Affairs Canada:** While FEI does not actively coordinate with INAC,
26 it has provided assistance, including writing letters of support, to Indigenous groups that
27 have applied for funding.

28
29
30
31 7.3 Please describe any strategic approach that FEI is taking in the Indigenous DSM
32 Program Area, e.g., assessment of the general situation and scope of work,
33 identifying high level goals and targets, and identifying timelines and strategies to
34 achieve goals and targets.

35
36 **Response:**

37 FEI has worked directly with individual Indigenous community housing teams on a consistent
38 basis over the last number of years to identify barriers to housing and community-building energy

1 efficiency improvements. FEI's strategic approach has been to support each community on what
2 it identifies its needs are, based on internal capacity and available funding levels. FEI's budgets
3 and high-level goals have been set based on the identified Indigenous communities' planned and
4 shared projects. Timelines have also been somewhat reactive, as much depends on the individual
5 community's needs and internal capacity.

6 FEI and FBC have also partnered with BC Hydro to conduct barrier research and have begun
7 coordinating with First Nation Housing and Infrastructure Council (FNHIC), First Nation Energy &
8 Mining Council (FNEMC), and Fraser Basin Council, among others, to identify and support energy
9 efficiency improvement opportunities, and budget allocations on a broader scale.

10 FEI is also working closely with FBC, BC Hydro, and the Province to coordinate program offers.
11 The goals, budget, and timelines for that combined effort are expected to be set in early 2024.

12
13

14

15 7.4 What are the most critical needs FEI has identified regarding the energy efficiency
16 of the building stock that is subject to the Indigenous DSM Program Area?

17

18 **Response:**

19 The most critical needs FEI has identified regarding energy efficiency of the building stock in the
20 Indigenous DSM Program Area are internal Indigenous community capacity (i.e., grant writing to
21 secure additional funds), project management to implement improvements, maintenance, and
22 housing team training regarding best practices in energy efficiency.

23

24

25

26 7.4.1 What energy efficiency and conservation goals and targets does FEI
27 think are most appropriate for the Indigenous DSM Program Area?

28

29 **Response:**

30 FEI has identified forecast expenditures and savings goals in Section 6 of the 2024-2027 DSM
31 Plan (Appendix A to the Application). These targets are significantly greater than those achieved
32 in the 2019-2022 DSM Plan period and reflect the anticipated growth in Indigenous residential
33 and community building retrofits, new construction projects, and improved coordination between
34 funding agencies.

35

36

37

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1 7.4.2 What are the most critical barriers that FEI has identified to achieving
2 these goals and targets?
3

4 **Response:**

5 The most critical barriers that FEI has identified to achieving these goals and targets are the
6 individual Indigenous community's internal capacity challenges (i.e., gaps in expertise and
7 knowledge of energy efficient construction), limited capacity to secure adequate levels of funding,
8 project management, and challenges securing local contractors to do the retrofit work.

9

1 **8.0 Topic: Savings Cost by Program Area**

2 **Reference: Exhibit B-2, Table 1-1: FEI DSM Expenditures – 2024-1**
 3 **2027 Forecast; Table 1-2: FEI DSM Savings – 2024-2027 Forecast**

4 8.1 Please provide a table of cost per GJ annual gas savings for the program areas of
 5 the DSM Expenditures Plan.

6
 7 **Response:**

8 The table below provides the cost per GJ annual gas savings for the program areas of the DSM
 9 Plan.

10 **Table 1: Cost per GJ Annual Gas Savings by Program Area**

Program Area	2024-2027 DSM Plan Total Expenditures ² (\$000s)	2024-2027 DSM Plan Total Annual Natural Gas Savings (GJ)	Natural Gas Savings \$ / GJ (\$)
Residential	177,973	795,562	224
Commercial	59,753	640,373	93
Industrial	33,977	1,750,526	19
Low Income	44,120	247,843	178
Indigenous	18,759	94,959	198
Conservation Education and Outreach	57,898	110,000	526
Innovative Technologies	88,190	-	-
Enabling Activities	48,742	-	-
Portfolio Activities	21,111	-	-
Legacy Expenditures	66,785	257,765	259
Total	617,307	3,897,028	158

11
 12 The Industrial and Commercial program areas have lower cost per GJ annual gas savings when
 13 compared to the Residential, Low Income, and Indigenous program areas. Industrial and
 14 commercial energy efficiency projects tend to be larger, and more expensive, but result in
 15 proportionately more savings than projects in residential buildings. FEI requires higher incentives
 16 per GJ in the Residential, Low Income, and Indigenous program areas to encourage market
 17 adoption. In addition, FEI's administration expenses tend to scale with number of participants and
 18 FEI administers considerably more customer projects in the Residential, Low Income, and
 19 Indigenous program areas as compared to the Industrial and Commercial program areas. The
 20 net impact of higher incentives per GJ and higher administration expenses results in a higher total

² Note that these expenditures do not include inflation.

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1 cost per GJ in the Residential, Low Income, and Indigenous program areas as compared to the
2 Industrial and Commercial program areas.

3
4

5

6 8.2 Please discuss any material differences in the cost per GJ annual gas savings
7 between the program areas.

8

9 **Response:**

10 Please refer to the response to BCSEA IR1 8.1.

11

1 **9.0 Topic: Building Envelope Improvements**

2 **Reference: Exhibit B-2, 1.1 Government Policy and the Demand-Side**
3 **Measures Regulation**

4 FEI notes that the *CleanBC Roadmap to 2030* “calls for enhanced energy efficiency
5 programs, including more support for building envelope improvements and high-efficiency
6 heat pumps, including gas heat pumps and dual fuel hybrid heating systems.” [pdf p.7,
7 underline added]

8 9.1 Please describe how the 2024-2027 DSM Plan provides more support for building-
9 envelope improvements.

10
11 **Response:**

12 The 2024-2027 DSM Plan provides more support for building-envelope improvements as follows:

13 ***Residential Program Area***

14 As discussed in the response to RCIA IR1 6.2, the Whole Home Performance and Whole Home
15 Performance Support measures are intended to incent and increase adoption of building-
16 envelope measures in the Residential Program Area. Further, FEI is proposing increased
17 incentives for insulation measures.

18 ***Commercial Program Area***

19 As discussed in the response to BCUC IR1 5.2, starting in 2024, FEI is proposing to incent the
20 identification and implementation of stand-alone building envelope measures for commercial
21 buildings through the Performance – Existing Buildings Program. While building envelope
22 measures were sometimes eligible for the program incentives in the past, the previous cost-
23 effectiveness rules created a barrier to incenting building envelope measures. With the Utility Cost
24 Test (UCT), FEI anticipates increased program participation.

25 ***Low Income and Indigenous Program Areas***

26 In the Low Income and Indigenous program areas, the Direct Install Program and Prescriptive
27 Program will continue to support building envelope measures. In the Direct Install Program, there
28 will be a focus on addressing limitations to enable more envelope measure installations. In the
29 Prescriptive Program, there will be incentives available for residential low income customers and
30 in the Non-profit Bundled measure. FEI anticipates that the new cost effectiveness rules (i.e.,
31 utilization of UCT) will increase program participation.

32

33

34

1 9.2 In FEI's view, does the amended DSM Regulation enable more DSM measures for
2 building envelope efficiency to be cost effective, in absolute terms or relative to
3 DSM measures for space and water heating equipment?
4

5 **Response:**

6 Yes, it is FEI's view that the amended DSM Regulation has enabled more building envelope
7 efficiency measures to be cost-effective.

8 Prior to the amended DSM Regulation, many building envelope efficiency measures did not pass
9 the TRC/MTRC cost-effectiveness test. With the amended DSM Regulation, building envelope
10 efficiency measures pass the UCT. In addition, the amended DSM Regulation defines DSM
11 measures and programs within Low Income and Indigenous program areas as class A measures
12 (previously referred to as specified DSM). Individual programs and measures, such as building
13 envelope efficiency, under these areas do not need to be cost-effective. These changes resulted
14 in FEI offering additional support for building envelope efficiency in the DSM Plan to increase
15 participation and support market transformation.

16
17

18
19 9.3 Does the 2024-2027 DSM Plan aim to achieve proportionately more building
20 envelope DSM measures relative to previous FEI DSM expenditure plans?

21 9.3.1 If not, why not?

22 9.3.2 If not, is this an area where FEI's DSM Expenditures Plan fails to support
23 the objectives of the CleanBC Roadmap to 2030?
24

25 **Response:**

26 Yes, the 2024-2027 DSM Plan aims to achieve proportionately more building envelope DSM
27 measures relative to previous FEI DSM expenditure plans.

28

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1 **10.0 Topic: Oil Fire Heating**

2 **Reference: Exhibit B-2**

3 10.1 How does the 2024-2027 DSM Plan address switching people off oil heating?

4

5 **Response:**

6 The 2024-2027 DSM Plan does not have incentives to promote fuel switching from oil heating.
7 FEI already separately administers the Connect to Gas program with expenditures coming from
8 FEI’s O&M budget. Through this program, FEI encourages customers to convert their primary
9 space heating from oil to gas.

10