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April 11, 2014

Via Email
Original via Mail

British Columbia Utilities Commission
Sixth Floor
900 Howe Street
Vancouver, B.C. V6Z 2N3

Attention: Ms. Erica M. Hamilton, Commission Secretary

Dear Ms. Hamilton:

Re: FortisBC Energy Inc. (FEI)

**Application for Approval of a Multi-Year Performance Based Ratemaking Plan
for 2014 through 2018 (the Application)**

**Response to the British Columbia Utilities Commission (BCUC or the
Commission) Information Request (IR) No. 1 on FEI Rebuttal Evidence**

On June 10, 2013, FEI filed the Application as referenced above. In accordance with Commission Order G-9-14 setting out the Amended Regulatory Timetable for the review of the Application, FEI respectfully submits the attached response to BCUC IR No. 1 on FEI Rebuttal Evidence.

If further information is required, please contact the undersigned.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc (e-mail only): Registered Parties

FortisBC Energy Inc. (FEI or the Company) Application for Approval of a Multi-Year Performance Based Ratemaking Plan for 2014 through 2018 (the Application)	Submission Date: April 11, 2014
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1 **1.0 Reference: Exhibit B-46, p.1; Exhibit C4-8, p. 39, footnote 11**

2 **Furnace Replacement Program**

3 FortisBC Energy Utilities (FEU) state in Exhibit B-46, page 1: “At this time, the FEU are
4 unable to put forward a cost-effective Furnace Replacement Program that targets natural
5 gas replacement as suggested by Mr. Chernick and Mr. Plunkett.”

6 The British Columbia Sustainable Energy Association and the Sierra Club British
7 Columbia (BCSEA) state in Exhibit C4-8, page 39: “TRC benefits and costs discounted
8 at a real discount rate of 4.08%; PAC values discounted at the real discount rate of
9 4.93%.”

10 1.1 Please discuss the key criteria used by FEU to determine that FEU’s proposed
11 Furnace Replacement Program, targeted at early life replacement, should be
12 funded through demand side management (DSM) while BCSEA’s proposed
13 Furnace Replacement Program, targeted at end of life replacement should not
14 (for example, mTRC result, UCT result, customer satisfaction, customer
15 participation, etc.).

16
17 **Response:**

18 Cost effectiveness results were the key criteria used by the FEU.

19 The scenario analysis conducted in the 2012 Furnace Replacement business case analysis
20 (please refer to the response to FEI BCSEA Rebuttal IR 1.1.8) indicates that an early
21 replacement program outperforms a natural replacement program.. Results filed as Confidential
22 Attachments in the response to BCSEA IR 2.1.5.3 (FEI Exhibit B-20-1) with inputs based on
23 2012 pilot results suggest:

- 24 • Natural replacement program results in a TRC of 0.5, an MTRC of 1.0 and a UCT of 0.2
- 25 • Early replacement program results in a TRC of 0.7, an MTRC of 1.5 and a UCT of 0.9

26 From these results, the FEU conclude that the early replacement program design is more cost
27 effective.

28 BCSEA’s methodology for calculating cost effectiveness for their end of life replacement uses a
29 different baseline than product conforming with minimum efficiency standards in BC, which is
30 what the FEU have used in our analysis.



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1
2 1.2 Do FEU consider that the codes and standards for replacement furnaces/boilers
3 in BC are (i) set at optimal levels and (ii) complied with? If not, do FEU consider
4 that an Energy Efficiency and Conservation (EEC) program could be designed to
5 address these issues (for example, to support the development of new codes
6 and standards and/or enforcement of the code)? Please explain.

7
8 **Response:**

9 The B.C. Ministry of Energy and Mines and Natural Resources Canada are both responsible for
10 setting minimum efficiency standards for gas appliances in B.C. The Utility, through DSM,
11 education and other initiatives, supports these regulations. A major goal of EEC programs is to
12 help accelerate market transformation and expedite the introduction of higher efficiency
13 equipment, technologies, and eventually regulation.

14 The FEU believe that furnace standards are at optimal levels and that the market is
15 transforming to higher efficiency models. This is evidenced by 2012 Furnace Replacement Pilot
16 results that demonstrate, after committing to a furnace upgrade, that 59 percent of participants
17 would have purchased a higher efficiency model. A boiler regulation requiring condensing
18 boilers and minimum 90 percent AFUE ratings is being introduced in late 2014 for new
19 construction which will be instrumental in initiating transformation in the boiler market. For
20 retrofit replacement boilers the minimum efficiency allowed by the Federal Energy Efficiency
21 Regulation is 82 percent AFUE (the B.C. Provincial Energy Efficiency Standards Regulation
22 mandates a minimum 80 percent AFUE).

23 The FEU have no evidence to suggest that the numbers of customers installing sub-optimal
24 furnaces/boilers in B.C. is of any significance. However, there are some technical challenges
25 related to venting and condensate removal that affect the homeowner's ability to install a high
26 efficiency condensing furnace; the FEU have no information about the numbers of customers
27 that might be affected by venting issues.

28
29

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31 1.2.1 Do FEU consider that there are non-price related market barriers (for
32 example permit requirements, financing or lack of information on the
33 costs/benefits of alternatives) which result in customers installing sub-
34 optimal furnaces/boilers in BC at the end of their life? Please explain
35 why, or why not.

36



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1 **Response:**

2 Please refer to the response to FEI BCUC Rebuttal IR 1.1.2. The FEU have no information
3 suggesting that customers are installing sub-optimal furnaces/boilers.

4
5

6
7 1.2.1.1 If yes, do FEU consider that an EEC program specifically
8 addressing these barriers (for example, providing incentives to
9 contractors only and/or information to customers) could be
10 cost effective in encouraging efficient replacement of end-of
11 life furnaces/boilers? Please explain and describe any such
12 programs FEU currently have in place.

13
14 **Response:**

15 Please refer to the response to FEI BCUC Rebuttal IR 1.1.2.1 that indicates the FEU have no
16 evidence to suggest that there is significant non-compliance with furnace minimum efficiency
17 standards.

18
19

20
21 1.2.1.2 To what extent, if any, would FEU be concerned with taking on
22 any non-incentive based program targeting end of life furnace
23 replacement on the basis that energy savings may be 'hard to
24 measure'? Please explain.

25
26 **Response:**

27 The FEU are not concerned about taking on non-incentive based programs generally, for all
28 appliances, such as contractor and customer education and support for codes and standards.
29 The FEU currently provide customer education and contractor training generally through a
30 number of channels including the Contractor Program, builder education, and Conservation,
31 Education and Outreach activities. Since heating provides the greatest opportunity for
32 conservation, these activities will continue to be conducted in support of the Furnace Program.

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1 1.3 What level of incentive did FEU consider would be required for an end of life
2 furnace program? Please calculate the proposed customer incentive as a
3 percentage of customer incremental costs for both the early replacement furnace
4 program and an end of life furnace replacement program, and explain any
5 significant differences. Please show all assumptions used.

6

7 **Response:**

8 Because the FEU do not consider an end of life program to be cost effective, due to existing
9 minimum equipment efficiency standards, they have not developed differing scenarios for
10 incentive values.

11

12

13

14 1.3.1 Please estimate the mTRC and UCT of both the early replacement
15 furnace program and an end of life furnace replacement program
16 assuming customer incentives as a percentage of customer incremental
17 costs were the same for both programs. Please undertake this
18 calculation assuming: (i) FEU discount rates; and (ii) BCSEA discount
19 rates. Please explain all assumptions made

20

21 **Response:**

22 Please refer to the Table below which provides a comparison of cost-effectiveness results for a
23 Furnace Program based on early replacement methodology to natural replacement or “end of
24 life” replacement. In fulfilling the request to “assume customer incentives as a percentage of
25 customer incremental costs were the same for both programs” the FEU calculated the following
26 incentive amounts:

27 • Early Replacement Program - \$800 incentive which represents about 50 percent of
28 \$1,597 (Economic cost)

29 • Natural Replacement Program - \$500 incentive which represents about 50 percent of
30 \$977 (Direct cost)

31 The discount rates utilized were:

32 • The FEU discount rate of 7.9 percent. This value was used in BCSEA IR 2.1.5.3,
33 Confidential Attachments 1.5.3A and 1.5.3B (FEI Exhibit B-20-1) demonstrating cost
34 effectiveness of the 2012 program. Please also refer to the responses to BCUC IR
35 2.370.2 and 2.370.3 (FEI Exhibit B-24) which discuss the discount rate.



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- 1
 - BCSEA discount rate of 4.08 percent as requested in the IR.
- 2 Results of cost benefit tests and all assumptions used for the analysis are presented in the
- 3 Table below in order to derive a comparison of the two methodologies. The early replacement
- 4 methodology is more cost effective than a natural replacement scenario.

	Natural (End of Life) Replacement Program		Early Replacement based on 4.3 yr Adv.	
	\$500 Incentive		\$800 Incentive	
	FEU Discount Rate 7.8%	BCSEA Discount Rate 4.08%	FEU Discount Rate 7.8%	BCSEA Discount Rate 4.08%
Cost Benefit Results				
TRC	0.5	0.6	0.7	0.8
MTRC	0.9	1.1	1.5	1.9
UCT	0.3	0.4	0.9	1.1
RIM	0.1	0.2	0.4	0.5
PCT	1.8	1.8	1.4	1.4
Assumptions for Cost Benefit Analysis				
Annualized GJ savings				
Standard to High	3		10.0	
Mid to High			5.5	
Boilers	7.4		8.8	
Customer Incentive	\$ 500		\$ 800	
Installed Costs	Direct		Economic	
Furnace	\$977		\$1,597	
Boilers	\$2,840		\$3,315	
Alternate Energy Savings - Blower Fan				
Furnace	1 GJ Equivalent			
Boilers	N/A			
Measure Life				
Furnace	18 years			
Boilers	18 years			
Average Installed where AFUE >=95	Average AFUE 96.1			
Free Rider Rate				
Free Rider Rate	43% - Based on 2007 Furnace Program Evaluation, Sampson and Habart		Early Replacement Methodology: Period 1: FRR of 8% for participants with repairs >\$1,000; Period 2: Savings estimates adjusted for 59 percent "free ridership" to account for the fact that only 41 percent stated that they purchased the higher efficiency furnace in response to the program. (Please see BCSEA IR 2.1.2)	
Non-Incentive Costs			\$353,000	
Program Participation	3031 Total which was comprised of 2391 Std to High: 561 Mid to High: 79 Boilers			

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