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April 11, 2014

Via Email
Original via Mail

Commercial Energy Consumers Association of British Columbia
c/o Owen Bird Law Corporation
P.O. Box 49130
Three Bentall Centre
2900 – 595 Burrard Street
Vancouver, B.C. V7X 1J5

Attention: Mr. Christopher P. Weafer

Dear Mr. Weafer:

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 Commercial Energy Consumers Association of British Columbia (CEC) Information Request (IR) No. 1 on FEI Rebuttal Evidence

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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 CEC IR No. 1 on FEI Rebuttal Evidence.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments

cc: Commission Secretary
Registered Parties (e-mail only)

1. Reference: Exhibit B-46, Question 4

- The FEU are unable to replicate Mr. Plunkett and Mr. Chernick's estimate of $401 for the incremental cost of a natural replacement. FEU's estimate of this cost is $977, based on the average of contractor feedback on program applications in the 2012 Furnace Replacement Pilot and validated by contractors attending the January 2013 Program Design workshop.
- Mr. Plunkett and Mr. Chernick do not appear to account for free ridership.
- Mr. Plunkett and Mr. Chernick do not appear to account for program administration costs of $353,000.

1.1 Please provide the dataset for the estimates from the contractor feedback on program applications in the 2012 Furnace Replacement Pilot.

Response:

Attachment 1.1 contains the dataset used to develop the incremental cost between a "code" furnace and high efficiency furnace. This calculation was based on an average of contractor estimates from the 2012 Furnace Replacement Contractor Application forms who responded to the question:

> "Estimate the difference in the installed equipment costs between this high efficiency model (95 AFUE furnace and 94 AFUE boiler) compared to a basic code model (AFUE 90-92)".

1.2 How many contractors attended the 2013 Program Design workshop?

Response:

The FEU invited the top ten contractor companies representing 29 percent of the furnaces installed in the 2012 Furnace Replacement Program and three of these businesses sent representatives. In addition, six manufacturers representing their dealer networks and a distributor were in attendance. Associations including Thermal Energy Comfort Association, Canadian Institute of Plumbing and Heating and the BC Safety Authority attended and provided input into program design and cost benefit inputs. Discussions with representatives from these contractors, manufacturers and associations confirmed that the FEU's cost estimate of the incremental cost of natural gas replacement was representative of their experience in the field.

2. Reference: Exhibit B-46, Question 5

A5: Yes, the FEU's incentive is $800, which is close to the incremental cost of premium efficiency equipment over standard efficiency of $977 dollars. TNS Consumer Research study (April 2013) surveyed participants from the Appliance Service program to determine the incentive level that would result in appliance upgrades. Results suggested that the rebate should remain at $800 at which 29% of participants would upgrade in an early replacement program. Lowering the rebate level to $500 resulted in only 11% participation. Increasing to $1,000 had minimal effect on increasing participating (33%). Refer also to Exhibit B-1, Appendix I-5, p. 4.

2.1 Please explain the incremental cost of premium efficiency.

Response:

The following response addresses CEC Rebuttal IRs 1.2.1 and 1.2.2.

The calculation of the incremental cost of premium efficiency equipment over a standard Base or "Code" furnace is derived as follows:

A. The cost of a High Efficiency Furnace (AFUE ≥95) is $4,365.

B. The cost of a Base "Code" Furnace (AFUE 90-92) is $3,388.

C. The Incremental Cost of a High Efficiency Furnace over a Base "Code" Furnace is therefore $4,365 - $3,388 or $977.

Please also refer to the response to BCSEA IR 1.4.10 (FEI Exhibit B-7).

2.2 Please explain the standard efficiency of $977.

Response:

Please refer to the response to FEI CEC Rebuttal IR 1.2.1. The $977 refers to the incremental cost of premium efficiency over code efficiency.

2.3 Would FEU expect the incremental costs of natural replacement to be increasing, declining or remaining steady over the next five years?

Response:

The following response addresses CEC Rebuttal IRs 1.2.3 and 1.2.3.1.

Through market transformation, one would expect the incremental cost of high efficiency equipment over code effiency equipment to decrease over time. However, in the cost-benefit analysis for the Furnace Replacement Program described in section 3.4.2 of the 2014-2018 EEC Plan found in Appendix I-1 of Exhibit B-1, incremental cost was kept constant in order to be conservative in the forecasts of program cost effectiveness.

2.3.1 Please provide the FEU's estimates for this cost over the next five years, if available.

Response:

Please refer to the response to FEI CEC Rebuttal IR 1.2.3. The FEU have held the incremental cost of high efficiency furnaces over code efficiency furnaces constant in their benefit-cost analysis for the Furnace Replacement Program.

2.4 The FEU incentive is approximately 80% of the incremental cost of the premium efficiency equipment. Would FEU expect to maintain that ratio in the event that the incremental costs change over time? Please explain why or why not.

Response:

The FEU will evaluate the program on an ongoing basis to determine if the incentive level is effective in inducing furnace early replacement. Based on customer and industry feedback and cost effectiveness results, program design, including incentive level, may change over time.

2.5 The data provided suggests a curve of declining participation for increased incentives. Please confirm the approximate interpolation of the curve as follows or provide better data if there is better data. $1000/33%, $950/32%, $900/31 %, $850/30%, $800/29%, $750/27%, $700/25%, $650/23%, $ 600119%, $550/15%, $$500111 %

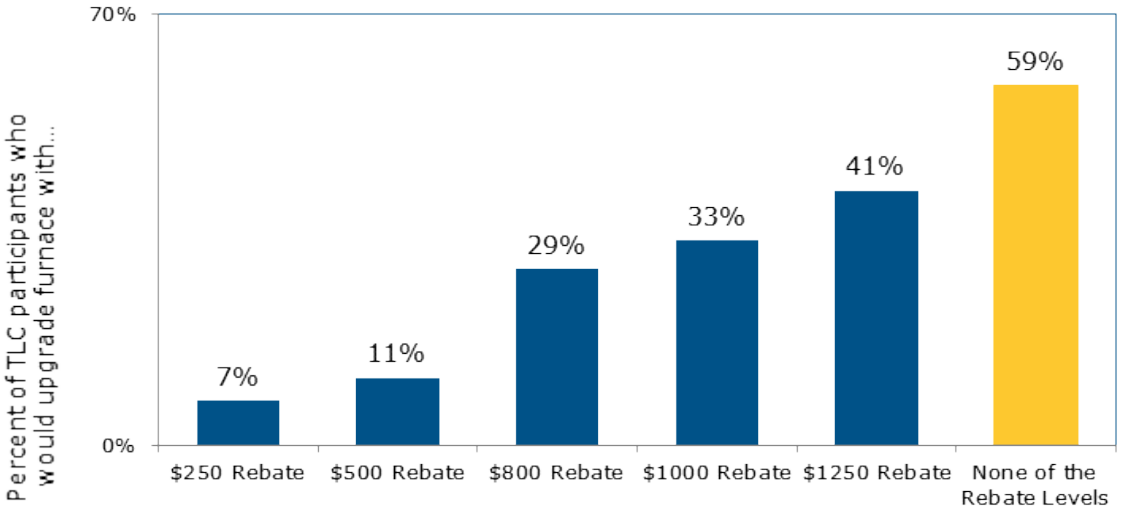
Response:

The following response addresses CEC Rebuttal IRs 1.2.5 and 1.2.6.

Correct. The incentive level analysis conducted by TNS indicated that $800 is the optimal rebate level. There is a diminishing response rate beyond $800 as illustrated in Table 1 and explained further in an excerpt from the report as follows:[1]

> *"Fifty-nine percent of TLC participants would not sign up at any of the rebate levels presented. These participants are either unaffected by a rebate, or do not feel that the highest level offered ($1250) is sufficient. $800 appears to be a natural rebate level – at this level, 29% of participants would upgrade. This conversion rate represents a best-case scenario, in which all participants are aware of the rebate. Lowering the current rebate level may result in a steep drop in upgrade intentions. Increasing it to $1000 has a minimal effect on galvanizing interest. Raising the rebate level to $1250 is needed to truly drive a higher rate of upgrades."*

Figure 1 demonstrates the curve of diminishing returns on increased incentive levels.



[1] TNS Consumer Research Study

2.6 Please provide an explanation as to how FEI has arrived at the choice of $800 as the appropriate level. Has this involved an analytical quantitative analysis?

Response:

Yes. Please refer to the response to FEI CEC Rebuttal IR 1.2.5 and 1.2.7.

2.7 Please confirm that the appropriate trade-off is between the incremental cost of higher incentives and the savings results obtained.

Response:

Correct. The FEU aim to set appropriate incentive levels that are high enough to drive program participation and appliance upgrade decisions and capture cost effective energy savings. Through the studies and consultation activity undertaken, it was determined that $800 would capture the most energy savings per dollar of incentive invested in this program.

2.8 What is the average benefit to customers from an appliance upgrade and the net total cost benefit minus the incentive at the $800?

Response:

The customer impact is demonstrated in the table below for the early replacement scenario of a 4.3 year purchase advancement.

Customer Impact (4.3 yr advancement)

	Furnace - Std	Furnace - Mid	Boiler	Program Avg
Direct Cost[1]	$ 4,365	$ 4,365	$ 8,713	
Economic Cost[2]	$ 1,597	$ 1,597	$ 3,315	
Incentive	$ 800	$ 800	$ 800	
Bill Savings (NPV)	$ 1,090.95	$ 599.21	$ 957.67	
Customer Impact	$ 294.32	$ (197.42)	$ (1,557.04)	$ 155.18

[1] The direct cost is the cost the customer pays at the time of installation of the furnace.

[2] The economic cost is the incremental cost of the high efficiency furnace model over the base model, based on the NPV calculation that adjusts for the time value of money due to 4.3 year advancement of the purchase decision.

3. Reference: Exhibit B-46, Question 5 and Exhibit B-11, BCUC 1.222.4.1

A7: Targeting high-users as suggested would add to the administrative costs of the program and is currently not planned by the FEU. However, the Customer Engagement Tool will allow the FEU to target customers more effectively in the coming years. Refer to Exhibit B-11, response to BCUC IR 1.222.4.1 for a discussion of this issue.

Response:

The FEU segment customers when performing market analysis and determining communication strategy but has yet to undertake customer segmentation extensively to the point of tailoring programs to any specific sub segment of the market. Challenges of undertaking extensive customer segmentation include ensuring that FEU remain within its guiding principles of universal and uniform program offerings. In addition, targeted marketing such as direct mail can be expensive and the ability to target bill inserts is limited at this stage of the new FEU billing system. However, it is the FEU's intent to use customer segmentation more in the future such as through the Customer Engagement Tool for Conservation Behaviours Program which will be a means for capturing customer information and segmenting relevant messages.

3.1 Please provide an estimate of the administrative costs that would be added to the program by targeting high-users.

Response:

Please refer to the response to FEI BCSEA Rebuttal IR 1.3.1.

3.2 Please explain whether or not the new FEU billing system could readily target bill inserts to high-users as suggested and please provide an estimate as to when this capability might be available.

Response:

The FEU billing system cannot selectively target bill inserts to high users. Detailed segmentation to target specific groups within a rate class or region is not currently available, nor is it a future planned feature for the FEU billing system.

The Customer Engagement Tool (CET) project, with implementation expected by late 2014, will enable Home Energy Reports to be mailed or emailed to high users. Please refer to the response to FEI BCSEA Rebuttal IR 1.3.1.

Attachment 1.1

2012 Furnace Replacement Program
Contractor Application Form Response to the Question:
"Estimate the difference in the installed equipment costs between this high efficiency model (95 AFUE furnace and 94 AFUE boiler) compared to a basic code model (AFUE 90-92)"

Count of Estimate	
Row Labels	**Total**
BOILER	**45**
$1000	1
1000	3
1500	1
1900	1
2000	10
2000.00	1
2500	2
3000	8
3500	2
400	1
4000	6
4500	1
4900	1
5000	3
6000	2
800	2
(blank)	
FURNACE	**1879**
+/-800 DIFF BET THIS AND BASC MODEL	1
$1000	12
$12000	1
$1500	3
$1500.00	2
$600	1
$600.00	2
0	1
10%	1
100	15
100-1500	1
1000	447
1000-1500	2
1000.00	6
10000	2
1050	3
1100	16
1100.00	5
1154	1
1200	54
1200.	1
12000	1
1250	4
1275	1
1300	5
1300.00	1
1400	23
15%	4
150	1

Copy of Pivot Table

Boiler	45
$1000	1
1000	3
1500	1
1900	1
2000	10
2000.00	1
2500	2
3000	8
3500	2
400	1
4000	6
4500	1
4900	1
5000	3
6000	2
800	2
(blank)	0
FURNACE	1879
+/-800 DIFF	1
$1000	12
$12000	1
$1500	3
$1500.00	2
$600	1
$600.00	2
0	1
10%	1
100	15
100-1500	1
1000	447
1000-1500	2
1000.00	6
10000	2
1050	3
1100	16
1100.00	5
1154	1
1200	54
1200.	1
12000	1
1250	4
1275	1
1300	5
1300.00	1
1400	23
15%	4
150	1

Locked Copy

Boiler	45
$1000	1
1000	3
1500	1
1900	1
2000	10
2000.00	1
2500	2
3000	8
3500	2
400	1
4000	6
4500	1
4900	1
5000	3
6000	2
800	2
FURNACE	1879
+/-800 DIFF E	1
$1000	12
$12000	1
$1500	3
$1500.00	2
$600	1
$600.00	2
0	1
10%	1
100	15
100-1500	1
1000	447
1000-1500	2
1000.00	6
10000	2
1050	3
1100	16
1100.00	5
1154	1
1200	54
1200.	1
12000	1
1250	4
1275	1
1300	5
1300.00	1
1400	23
15%	4
150	1

Cleaned Data

Boiler	45	**Count**		
$1000				
1000	4	4000		
1500	1	1500		
1900	1	1900		
2000	11	22000		
2000.00		0		
2500	2	5000		
3000	8	24000		
3500	2	7000		
400	1	400		
4000	6	24000		
4500	1	4500		
4900	1	4900		
5000	3	15000		
6000	2	12000		
800	2	1600		
Total	45	127800	Average	$ 2,840
Furnace	1879		Average	$ 977
1000	12	12000		
		0		
1500	3	4500		
1500	1	1500		
600	1	600		
600	2	1200		
		0		
		0		
100	15	1500		
1250	1	1250		
1000	447	447000		
1250	2	2500		
1000	6	6000		
1000	2	2000		
1050	3	3150		
1100	16	17600		
1100	5	5500		
1154	1	1154		
1200	54	64800		
1200	1	1200		
1200	1	1200		
1250	4	5000		
1275	1	1275		
1300	5	6500		
1300	1	1300		
1400	23	32200		
		0		
150	1	150		

	Incremental Cost
Furnace	$ 977
Boiler	$ 2,840

1500	160	1500	160	1500	160	1500	160	240000	
1500-1800	1	1500-1800	1	1500-1800	1	1650	1	1650	
1500-2000	1	1500-2000	1	1500-2000	1	1750	1	1750	
1500.00	5	1500.00	5	1500.00	5	1500	5	7500	
1600	5	1600	5	1600	5	1600	5	8000	
1700	2	1700	2	1700	2	1700	2	3400	
1750	4	1750	4	1750	4	1750	4	7000	
1800	9	1800	9	1800	9	1800	9	16200	
1800.	1	1800.	1	1800.	1	1800	1	1800	
1827.28	1	1827.28	1	1827.28	1	827	1	827	
1900	1	1900	1	1900	1	1900	1	1900	
20%	7	20%	7	20%	7			0	
200	16	200	16	200	16	200	16	3200	
2000	100	2000	100	2000	100	2000	100	200000	
2000.00	3	2000.00	3	2000.00	3	2000	3	6000	
2100	1	2100	1	2100	1	2100	1	2100	
22%	1	22%	1	22%	1			0	
2200	2	2200	2	2200	2	2200	2	4400	
2250	1	2250	1	2250	1	2250	1	2250	
2400	1	2400	1	2400	1	2400	1	2400	
25%	4	25%	4	25%	4			0	
250	9	250	9	250	9	250	9	2250	
2500	9	2500	9	2500	9	2500	9	22500	
28%	1	28%	1	28%	1			0	
30%	3	30%	3	30%	3			0	
30% ENERGY SAVE AND $1200 DISCOUNT	1	30% ENERG	1	30% ENERGY	1			0	
30% ENERGY SAVE AND $1200 FROM BAS	1	30% ENERG	1	30% ENERGY	1			0	
30% ENERGY SAVE AND $800 FROM BASI	1	30% ENERG	1	30% ENERGY	1			0	
300	39	300	39	300	39	300	39	11700	
300-700	1	300-700	1	300-700	1	500	1	500	
300.00	1	300.00	1	300.00	1	300	1	300	
3000	9	3000	9	3000	9	3000	9	27000	
3365	1	3365	1	3365	1	3365	1	3365	
35	2	35	2	35	2			0	
35%	40	35%	40	35%	40			0	
350	4	350	4	350	4	350	4	1400	
36	1	36	1	36	1			0	
36%	6	36%	6	36%	6			0	
36% SAVING $800 DIFF FROM BASIC MOD	1	36% SAVIN	1	36% SAVING	1			0	
37%	1	37%	1	37%	1			0	
37% GAS SAVING AND $1200 FROM BASIC	1	37% GAS S	1	37% GAS SA	1			0	
375	1	375	1	375	1			0	
38%	1	38%	1	38%	1			0	
40%	1	40%	1	40%	1			0	
400	91	400	91	400	91	400	91	36400	
400 - 600.00	1	400 - 600.00	1	400 - 600.00	1	500	1	500	
400.00	1	400.00	1	400.00	1	400	1	400	
4200	1	4200	1	4200	1	4200	1	4200	
43%	1	43%	1	43%	1			0	
4328.60	1	4328.60	1	4328.60	1	4329	1	4329	
445	1	445	1	445	1			0	5 is likely %
45%	1	45%	1	45%	1			0	
450	12	450	12	450	12	450	12	5400	
46%	2	46%	2	46%	2			0	
47%	1	47%	1	47%	1			0	
475	1	475	1	475	1			0	5 is likely %

48%	1	48%	1	48%	1			0
4850	1	4850	1	4850	1	4850	1	4850
5	1	5	1	5	1			0
5%	2	5%	2	5%	2			0
50%	2	50%	2	50%	2			0
50% CHEAPER	1	50% CHEAF	1	50% CHEAPE	1			0
500	156	500	156	500	156	500	156	78000
500 - 800.00	1	500 - 800.00	1	500 - 800.00	1	650	1	650
500 OR MORE	1	500 OR MOI	1	500 OR MOR	1	500	1	500
500-800	1	500-800	1	500-800	1	650	1	650
500.00	2	500.00	2	500.00	2	500	2	1000
500+	1	500+	1	500+	1	500	1	500
5000	1	5000	1	5000	1	5000	1	5000
53%	1	53%	1	53%	1			0
530	1	530	1	530	1	530	1	530
55%	1	55%	1	55%	1			0
550	4	550	4	550	4	550	4	2200
60	2	60	2	60	2	60	2	120
60%	2	60%	2	60%	2			0
600	84	600	84	600	84	600	84	50400
600.00	5	600.00	5	600.00	5	600	5	3000
620	1	620	1	620	1	620	1	620
638	1	638	1	638	1	638	1	638
65	1	65	1	65	1			0
650	5	650	5	650	5	650	5	3250
655	1	655	1	655	1			0
700	67	700	67	700	67	700	67	46900
700.00	1	700.00	1	700.00	1	700	1	700
700+	1	700+	1	700+	1	700	1	700
720	1	720	1	720	1	720	1	720
75	1	75	1	75	1	75	1	75
750	9	750	9	750	9	750	9	6750
76%	1	76%	1	76%	1			0
766	1	766	1	766	1	766	1	766
784	1	784	1	784	1	785	1	785
800	185	800	185	800	185	800	185	148000
800 -1000.00	1	800 -1000.0	1	800 -1000.00	1	900	1	900
800 DIFF BET THIS AND BASIC MODEL	1	800 DIFF BE	1	800 DIFF BET	1			0
800.00	6	800.00	6	800.00	6	800	6	4800
820	1	820	1	820	1	820	1	820
850	4	850	4	850	4	850	4	3400
859	1	859	1	859	1	859	1	859
8800	1	8800	1	8800	1			0
890	1	890	1	890	1	890	1	890
900	84	900	84	900	84	900	84	75600
92.6% AFUE	1	92.6% AFUE	1	92.6% AFUE	1			0
920	1	920	1	920	1	920	1	920
95%	4	95%	4	95%	4			0
95% AFUE COST $950MORE THAN 92.1%	1	95% AFUE (	1	95% AFUE C	1			0
95% REPLACEMENT OR HIGHER	2	95% REPLA	2	95% REPLAC	2			0
950	6	950	6	950	6	950	6	5700
96.2	1	96.2	1	96.2	1			0
96.3%	1	96.3%	1	96.3%	1			0
96%	1	96%	1	96%	1			0
964	1	964	1	964	1	964	1	964
97.7%	1	97.7%	1	97.7%	1			0

97%	3	97%	3	97%	3			0
AFUE 96.2%	1	AFUE 96.2%	1	AFUE 96.2%	1			0
AFUE 96.3%	1	AFUE 96.3%	1	AFUE 96.3%	1			0
N/A	2	N/A	2	N/A	2			0
NO DIFF THIS WAS A BASIC 95% AFUE	1	NO DIFF TH	1	NO DIFF THI	1	0	1	0
NO DIFF WAS BASIC EXPECT 30% SAVINC	1	NO DIFF W/	1	NO DIFF WA	1	0	1	0
NOT SURE	1	NOT SURE	1	NOT SURE	1			0
RECYCLING CENTER	1	RECYCLING	1	RECYCLING	1			0
TWICE AS MUCH AS BOILER	1	TWICE AS M	1	TWICE AS M	1			0
TWICE AS MUCH AS BOILER SYSTEM	1	TWICE AS M	1	TWICE AS M	1			0
Y	6	Y	6	Y	6			0
(blank)		(blank)	0	(blank)	0			0
(blank)								
(blank)							1744	1703857