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Utilities Commission

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Sent via email/eFile

FEI REVELSTOKE PROPANE PORTFOLIO COST AMALGAMATION EXHIBIT A-11
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Mr. Doug Slater
Director, Regulatory Affairs
FortisBC Energy Inc.
16705 Fraser Highway
Surrey, BC V4N 0E8
gas.regulatory.affairs@fortisbc.com

Re: FortisBC Energy Inc. – Revelstoke Propane Portfolio Cost Amalgamation Application – Project No. 1599033 – Information Request No. 3 on Rebuttal Evidence

Dear Mr. Slater:

Further to British Columbia Utilities Commission Order G-105-20, enclosed please find BCUC Information Request No. 3 on FortisBC Energy Inc.'s Rebuttal Evidence. In accordance with the regulatory timetable, please file your responses on or before Tuesday, June 2, 2020.

Sincerely,

Original signed by:

Patrick Wruck
Commission Secretary

/dg
Enclosure



**FortisBC Energy Inc (FEI)
Revelstoke Propane Portfolio Cost Amalgamation Application**

INFORMATION REQUEST NO. 3 TO FORTISBC ENERGY INC. ON REBUTTAL EVIDENCE

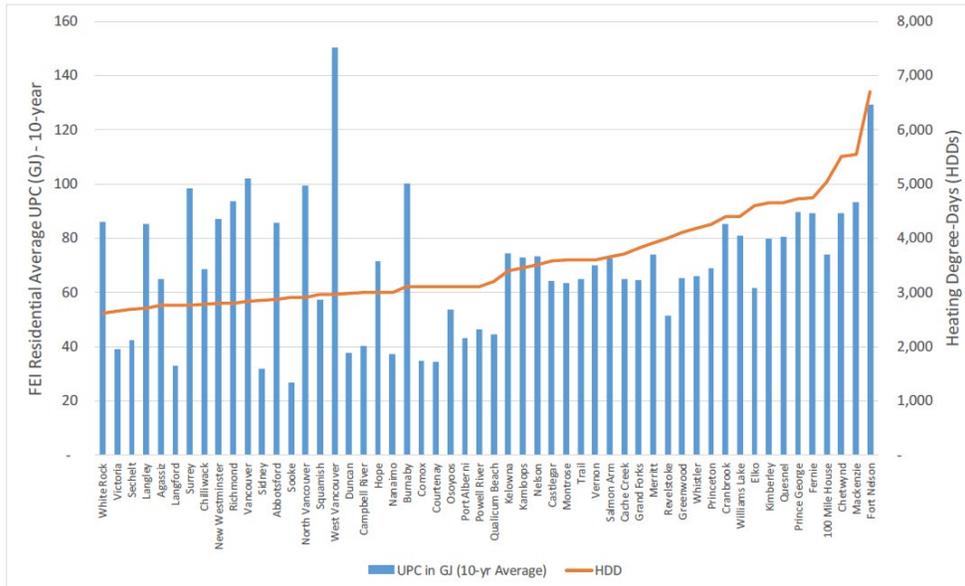
**23.0 Reference: CORRELATION BETWEEN RESIDENTIAL USE PER CUSTOMER (UPC) AND HEATING DEGREE DAYS (HDDs)
Exhibit B-15 (Rebuttal Evidence), pp. 1-3
Propane Consumption of Existing FEI Revelstoke Customers**

On page 1 of FEI’s rebuttal evidence submission, FEI states:

...as defined in FEI’s response to BCUC IR1 5.1, the 90 GJ average consumption figure represents the 10-year average UPC for FEI’s residential customers in service areas that include Lower Mainland, Inland, Columbia, Vancouver Island, and Whistler. The HDDs in these service areas have ranged from 2,000 to 6,000. Therefore, Mr. Suchy is incorrect in using Vancouver’s HDD of 2,775 with FEI’s 10-year average residential UPC of 90 GJ in his estimation of Revelstoke’s UPC by directly proportioning between residential UPC and HDDs.

On page 2 of FEI’s rebuttal evidence submission, FEI provides Figure 1 as shown below:

Figure 1 – Average (10-year) Residential UPC and HDD over 54 Cities in FEI’s Service Areas



- 23.1 Please confirm, or explain otherwise, that Figure 1 shows the average residential UPC in Vancouver was greater than the 90GJ estimate Mr. Suchy used in his estimation of Revelstoke’s UPC.
- 23.2 Please confirm, or explain otherwise, that using FEI’s actual UPC and HDD for residential

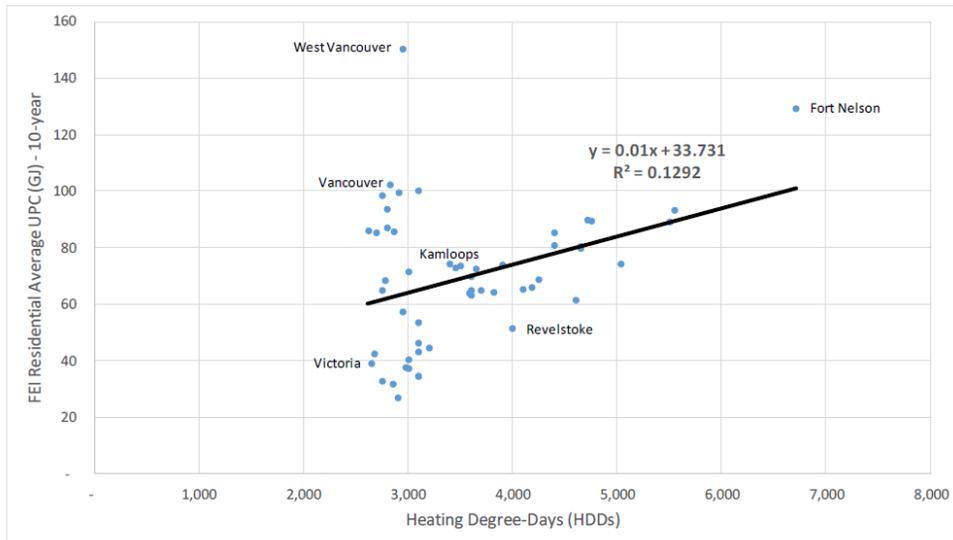
customers in Vancouver with Mr. Suchy's estimation methodology would result in a higher estimated UPC in Revelstoke than Mr. Suchy's original estimate.

On page 2 of FEI's rebuttal evidence submission, FEI states:

Figure 2 shows the linear regression between the 10-year average residential UPC and HDDs over these 54 cities. The regression demonstrates that only a small portion of the variance in UPC can be explained by differences in HDDs with the coefficient of determination (R^2) between these two variables of approximately 13 percent. This further indicates that the use of HDDs to calculate the residential UPC for Revelstoke is flawed.

On page 3 of FEI's rebuttal evidence submission, FEI provides Figure 2 as shown below:

Figure 2 – Linear Regression between FEI's Residential UPC and HDD over 54 Cities in FEI's Service Areas



- 23.3 Please provide a linear regression analysis of UPC per HDD similar to Figure 2 for only the cities included in FEI's dataset outside of the Vancouver Island, Lower Mainland, and Fort Nelson areas.
- 23.3.1 Please discuss whether FEI considers that this dataset is more representative of municipalities similar to Revelstoke than the dataset of 54 cities used in Figure 2.
- 23.3.2 Please provide the coefficient of determination shown by this dataset and explain what implications this has on Revelstoke's status as an outlier in UPC per HDD.
- 23.4 Please discuss whether FEI expects that Revelstoke's relatively low UPC per HDD is due in part or in whole to its historically higher price of heating energy.
- 23.4.1 Please discuss any other factors that may account for this variance.
- 23.5 Does FEI expect that Revelstoke's UPC per HDD would tend toward the line of best fit over time if the propane portfolio cost amalgamation (PPCA) were approved? Please elaborate.
- 23.6 Please discuss whether FEI maintains data or has access to estimated heating area per customer in Revelstoke and its other service territories.
- 23.6.1 If confirmed, please provide a plot similar to Figure 2 showing HDDs vs Usage Per Customer per square meter.

- 23.7 Please discuss whether FEI is able to propose a more accurate method than Mr. Suchy’s model to illustrate the effects that historically higher gas prices have had on gas usage per customer in Revelstoke compared to other FEI service areas.
- 23.7.1 If yes, please provide such methodology and explain how the results of this model compare to Mr. Suchy’s model.
- 23.7.2 If no, please explain why not.

**24.0 Reference: POTENTIAL IMPACT TO GREENHOUSE GAS EMISSIONS
Exhibit B-15, pp. 6-7; Exhibit C1-4, p. 4
Economic Analysis and Alternative Fuels**

On page 6 of FEI’s rebuttal evidence submission, FEI states:

Mr. Suchy assumes that all residential buildings currently using heating sources other than propane will be converted to propane as a result of FEI’s proposed cost amalgamation. This assumption is flawed as it ignores the financial and technical challenges associated with conversions, as well as customers’ individual preferences and circumstances.

On page 7 of FEI’s rebuttal evidence submission, FEI provides Table 3 and states:

Table 3 – Annual Cost Savings and Simple Payback Period of each Conversion Type

Line	Particulars	Reference	Conversion to Propane Furnace from:					RCEC
			Oil Furnace	Air-source Heat pump	Electric heat resistance	Cordwood	Wood Pellets	
1	Equipment Cost	Mr. Suchy Evidence, Table 2, Propane Furnace	\$ 4,400	\$ 4,400	\$ 4,400	\$ 4,400	\$ 4,400	\$ 4,400
2	Installation Cost	Mr. Suchy Evidence, Table 2, Propane Furnace	1,000	1,000	1,000	1,000	1,000	1,000
3	Oil Tank Removal	Mr. Suchy Evidence, Table 2, Propane Furnace	1,475	-	-	-	-	-
4	Other Conversion Costs	Mr. Suchy Evidence, Table 2, Propane Furnace	1,150	1,150	1,150	1,150	1,150	1,150
5	Service Line Costs	\$15; Assuming less than 30 meters of FEI's Main	15	15	15	15	15	15
6	Total Capital	Sum of Line 1 to Line 5	\$ 8,040	\$ 6,565	\$ 6,565	\$ 6,565	\$ 6,565	\$ 6,565
7								
8	Annual Energy Consumption (GJ)	FEI's Revelstoke RS 1 UPC	50	50	50	50	50	50
9	Assumed Propane Appliance Efficiency		80%	80%	80%	80%	80%	80%
10	Annual Heating Demand (GJ)	Line 8 x Line 9	40	40	40	40	40	40
11								
12	Original Fuel - \$ per GJ of Heating Load	Mr. Suchy Evidence, Table 1	41.50	14.70	37.80	16.20	24.80	17.60
13	Original Fuel - Annual Heating Bill	Line 10 x Line 12	\$ 1,660	\$ 588	\$ 1,512	\$ 648	\$ 992	\$ 704
14								
15	Effective Propane Residential Rate - \$ per GJ of Heating Load	Mr. Suchy Evidence, Table 1	\$ 18.30	\$ 18.30	\$ 18.30	\$ 18.30	\$ 18.30	\$ 18.30
16	Propane - Annual Heating Bill	Line 10 x Line 15	732	732	732	732	732	732
17								
18	Annual Savings (\$)	Line 13 - Line 16	\$ 928	\$ (144)	\$ 780	\$ (84)	\$ 260	\$ (28)
19	Simple Payback (yrs)	Line 6 / Line 18	9	(46)	8	(78)	25	(234)

From a technical perspective, Mr. Suchy’s analysis ignores the capital cost and difficulty associated with conversion from electric resistance heat where it is necessary to retrofit ductwork for a new forced-air propane furnace. As such, FEI believes the likelihood that reduced propane prices will encourage customers to switch from electric to propane heating is low given the renovation work required to install the necessary ductwork of a new forced-air propane heating system. As discussed in response to BCUC IR2 17.4, the price of the commodity is only one of the many factors that influence a customer’s decision to convert from electric to propane end uses.

- 24.1 Please confirm that, in FEI’s view, the capital cost estimates provided in Table 3 do not accurately capture all capital costs associated with switching from other heat sources to propane heating.
- 24.1.1 If confirmed, please provide FEI’s estimates for the entire capital costs of conversion to a propane furnace from other heating sources, if such estimates are available.
- 24.2 Please discuss the availability and capital costs of propane stove/fireplace inserts and space heaters and explain whether these heating technologies could allow Revelstoke residents to

increase their usage of propane for heating with lower capital costs than those indicated in Table 3.

- 24.3 Please discuss what heating sources are most commonly selected for new residential and commercial construction in Revelstoke and why these heating sources are selected.
- 24.4 Please discuss whether FEI expects that new construction projects in Revelstoke will be more likely to select propane as their primary heating fuel under FEI's proposed PPCA as compared to the status quo.
- 24.4.1 If yes, please identify which alternative heating sources FEI expects would be most impacted by the selection of propane as a main heating fuel in new construction.
- 24.5 Please discuss whether FEI is able to model how the number of propane customers in Revelstoke would be expected to change over time under the proposed PPCA as compared to the status quo.
- 24.5.1 If yes, please explain the basis for FEI's model(s) and provide a summary of expected results.
- 24.5.2 If not, please explain why not.

On page 7 of FEI's rebuttal evidence submission, FEI states:

Based on Table 3 of this rebuttal evidence and the discussion above related to electric resistance heating, FEI believes the only likely fuel source that will convert to propane is heating oil given the savings in annual operating costs as well as other non-economic factors related to heating oil as discussed in FEI's response to BCUC IR2 16.5.

On page 4 of Mr. Suchy's intervenor evidence submission on behalf of Canadian Biomass Energy Research Ltd. (CBER), Mr. Suchy states:

With respect to the lower amalgamated cost of propane inducing residents with oil heating to convert to FEI propane, heating oil is already significantly more expensive than propane, see Figure 1. Rational consumers using heating oil would have switched already to lower cost propane to save money, unless installation costs are too high or the propane network too far away.

A further reduction in price of propane is unlikely to induce many heating oil dwellings to convert to propane, since it is already rational for consumers to make that choice based on fuel costs alone... To the extent that there are heating oil customers who could be induced to fuel switch to save money, the amalgamated propane rate would make it more likely for heating oil customers to switch to propane rather than to a low-GHG emitting wood stove, whereas at current rates wood stoves are cost competitive with propane. Propane would also become more cost-competitive with low-GHG emitting heat pumps, increasing the likelihood of heating oil users to switch to a propane furnace rather than a heat pump.

- 24.6 Please explain why or why not, in FEI's view, most rational consumers of heating oil in Revelstoke would have already switched to propane as their primary heating source with existing propane prices and incentives.
- 24.7 Please discuss how the likelihood of heating oil customers switching to propane heating instead of electric heat pumps, wood stoves, or electric baseboard heating will change under the proposed PPCA.