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March 5, 2020

Sent via email/eFile

<b>FEI REVELSTOKE PROPANE PORTFOLIO COST AMALGAMATION EXHIBIT A-7</b>
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Canadian Biomass Energy Research Ltd.  
c/o Matthew J. Jackson, Barrister & Solicitor  
Legal Counsel for CBER  
1116-207-207 West Hastings Street  
Vancouver, BC V6B 1H7  
cornelius@biomassenergyresearch.ca; mjackson@jacksonlitigation.ca

**Re: FortisBC Energy Inc. – Revelstoke Propane Portfolio Cost Amalgamation Application – Project No. 1599033 – Information Request No. 1 on Intervener Evidence**

Dear Mr. Jackson:

Further to the February 18, 2020 filing of evidence of Mr. Cornelius Suchy submitted on behalf of Canadian Biomass Energy Research Ltd. (CBER), enclosed please find British Columbia Utilities Commission Information Request No. 1 to CBER. In accordance with the regulatory timetable set out in Order G-13-20, please file your responses on or before Thursday, March 26, 2020.

Sincerely,

*Original signed by:*

Patrick Wruck  
Commission Secretary

/dg  
Enclosure



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

**INFORMATION REQUEST NO. 1 TO CANADIAN BIOMASS ENERGY RESEARCH LTD.**

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**A. ECONOMIC ANALYSIS AND ALTERNATIVE FUELS**

**1.0 Reference: ECONOMIC CONSIDERATIONS**  
**Exhibit C1-4, Section A, pp. 3–4, footnotes 1, 2; Section B, p. 8**  
**Economic Analysis and Alternative Fuels**

On page 3 of Exhibit C1-4, Canadian Biomass Energy Research Ltd.’s (CBER) submission states:

6. Revelstoke is located in climate zone 4 while the majority of Fortis BC’s natural gas clients are located in the Lower Mainland which is climate zone 2. <sup>1</sup>

7. According to long-term weather normals there are 2,775 heating degree days in Vancouver and 4,611 heating degree-days in Revelstoke, i.e. 66% more than in Vancouver. <sup>2</sup>

Where footnotes 1 and 2 read:

<sup>1</sup> BC Building Code 2018, “Appendix C- Climatic and Seismic Information for Building Design in British Columbia”, downloaded on Feb 2, 2020 at [http://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc\\_2018dbac](http://free.bcpublications.ca/civix/document/id/public/bcbc2018/bcbc_2018dbac).

<sup>2</sup> Heating Degree days for Vancouver and for Revelstoke, Canadian Climate Atlas, “1981-2010 Climate Normals & Averages”

1.1 Please provide specific locations in the 2 referenced sources which support CBER’s information on climate zones and heating degree-days.

On pages 3–4 of Exhibit C1-4, CBER’s submission states:

A typical residential natural gas customer in the FEI Mainland and Vancouver Island service area uses on average 90 GJ and a typical residential propane customer in Revelstoke uses on average 50 GJ, i.e. 56% less. <sup>3</sup> Because the climate is harsher in Revelstoke than in FEI Mainland and Vancouver Island, and because the building stock in Revelstoke is older than in those areas, insulation standards and energy efficiency cannot explain this difference.

- 1.2 Please discuss whether there are differences in the ratio of full-time to part-time occupied homes or occupied to empty homes in Revelstoke and Vancouver.
- 1.3 Please explain how unoccupied or part-time occupied homes were considered in CBER's analysis.
- 1.4 Please explain how the percentage of residents without natural gas or propane heating varies between FEI's Revelstoke and Mainland/Vancouver Island service areas.
- 1.5 Please discuss the merits of using residential propane/natural gas usage per capita for comparison between the two service territories instead of the usage per FEI customer, and explain any expected differences between the two methods

On page 8 of Exhibit C1-4, CBER provides Table 4 as shown below:

**Table 4: Residential energy use for heating in Revelstoke**

Average 2012 to 2017	Secondary energy use	
	GJ per year	
Electricity	170,153	
Electricity for heating	28,215	8% <sup>1</sup>
Piped propane	70,179	21%
Estimated oil	63,819	19%
Estimate bottled propane	47,113	14%
Estimate wood	124,712	37%
Estimate district heat	600	0.2% <sup>2</sup>
<b>TOTAL</b>	<b>334,638</b>	<b>100%</b>
<b>Total per dwelling</b>	<b>103</b>	<sup>3</sup>

<sup>1</sup> Assumption that every household uses 900 kWh/month for non-heating electricity, see [https://www.bchydro.com/search.html?site=bchydro-com&client=bchydro-com&proxystylesheet=bchydro-com&output=xml\\_no\\_dtd&q=average+apartment+bill](https://www.bchydro.com/search.html?site=bchydro-com&client=bchydro-com&proxystylesheet=bchydro-com&output=xml_no_dtd&q=average+apartment+bill)

<sup>2</sup> One bed and breakfast at 200 GJ/year and one apartment building with 8 units each 50 GJ/year

<sup>3</sup> 3,250 occupied dwellings according to Census 2016 data

- 1.6 Please discuss whether it is likely that the average customer in Revelstoke uses more than 900kWh/month for non-heating electricity, considering the average size and age of homes in Revelstoke and usage rates of electric appliances.
  - 1.6.1 Please explain what impacts the accuracy of this estimate has on CBER's calculations for electricity used for heating and resultant GHG emission increases.

On page 8 of Exhibit C1-4, CBER's submission states:

Because 8% of Revelstoke's heat energy comes from low GHG-emitting hydropower and 37% comes from low GHG-emitting wood, GHG emissions will go up by 46% if all of Revelstoke heat energy were provided by propane, see Table 5 below. Likewise, if the current share of nonpropane heated buildings were to convert to propane, then GHG emissions will go up, on average by 46%.

- 1.7 Please discuss the impacts of particulate emissions from wood heating on residents of Revelstoke.

- 1.8 Please discuss how particulate matter or other non-accounted emissions from wood heating usage should be considered in addition to GHG emissions when evaluating which heating mixture is in the public interest.

## **B. SOCIO-ECONOMIC IMPACTS AND CBER PROPOSED ALTERNATIVES**

### **2.0 SOCIO-ECONOMIC IMPACTS**

#### **Exhibit C1-4, Section C, p. 12, footnote 18, p. 14 Socio-economic Impacts and CBER Proposed Alternatives**

On page 12 of Exhibit C1-4, CBER's submission states: "Few apartment buildings in Revelstoke are serviced by FEI propane.<sup>18</sup>"

Where footnote 18 on page 12 reads: "<sup>18</sup>Visible by the absence of smoke stacks or gas meters at apartment buildings."

- 2.1 Please discuss whether CBER obtained any quantitative data regarding prevalence of FEI propane services at apartment buildings in Revelstoke.
- 2.2 Please explain any steps that were taken to verify the accuracy of CBER's observations on prevalence of FEI propane services at apartment buildings in Revelstoke.

On page 14 of Exhibit C1-4, CBER's submission states:

The FEI amalgamated propane rate proposes a cross-subsidy of approximately \$1.8 million per year, paid for by FEI natural gas rate payers in other parts of BC to FEI propane customers in Revelstoke. The primary recipients of the subsidy would be commercial customers, with small commercial customers at \$601,649 (33%), large commercial customers at \$494,927 (28%) and residential users at \$713,064 (39%).

...it is likely that only a small number of low income residents would benefit from the subsidized amalgamated rate; most of the approximately \$713,000 of the residential portion of the subsidy (see Figure 6 and Table 6 above) would likely be paid to middle and high income residential FEI propane customers. Revelstoke residents of all incomes who heat their homes with other sources of energy will receive no part of the subsidy.

- 2.3 Please discuss whether CBER expects that reducing costs to commercial customers in Revelstoke will result in benefits to low income Revelstoke customers through lower costs of goods and services, increased employment opportunities, or otherwise.
- 2.4 Please discuss whether any consultation was completed with low income residents to support CBER's assertion that only a small number of low-income residents would benefit from the subsidized amalgamated rate.
- 2.5 Please discuss whether providing a single customer class a greater portion of the proposed subsidy relative to their propane usage aligns with FEI's obligation to ensure that public utility rates are not unduly discriminatory or preferential under section 59(1) of the *Utilities Commission Act*.

On page 14 of Exhibit C1-4, CBER's submission states:

An alternative use of an annual \$1.8 million subsidy that would create positive economic impacts for Revelstoke would be to invest that money in a wood to renewable gas facility.

- 2.6 Please confirm, or explain otherwise, that CBER's submission is suggesting a subsidy to a renewable natural gas (RNG) production facility in Revelstoke to be recovered from FEI's natural gas customers outside of Revelstoke.
- 2.7 Please confirm, or explain otherwise, that FEI customers outside of Revelstoke would not receive RNG from a facility in Revelstoke due to the lack of a natural gas pipeline connection to Revelstoke.

On page 14 of Exhibit C1-4, CBER's submission states:

A wood to renewable gas plant consuming 1,000 to 2,000 bdt a year would cost around \$10 to \$20 million whereas a 40,000 bdt-plant would likely require around \$80 million in initial capital investment. <sup>22</sup> By comparison, FEI suggested a liquefied natural gas (LNG) plant in 2016 for Revelstoke at capital cost of \$25 million.<sup>23</sup>

- 2.8 Please explain how many annual bone-dry-tonnes (bdt's) of biomass would be required to support FEI's current propane heating demand in Revelstoke.
- 2.9 Please confirm, or explain otherwise, that FEI has proposed the Revelstoke propane portfolio cost amalgamation as a lower-cost alternative to a Revelstoke LNG plant.
- 2.10 Please confirm, or explain otherwise, that a renewable gas plant is likely to be more costly to FEI customers than their current propane supply when considering the capital costs required to convert FEI's storage, distribution system and customer appliances to operate on natural gas.
- 2.11 Please discuss whether CBER is aware of any consultation with the public or municipality regarding a potential renewable gas plant in the Revelstoke area.
- 2.12 Please discuss what environmental approvals would be required for a renewable gas plant and discuss whether CBER is aware of any progress to-date on environmental approvals.
- 2.13 Please discuss whether CBER is aware of any proposed development or construction of biomass facilities in the Revelstoke area.