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July 18, 2019

British Columbia Utilities Commission Suite 410, 900 Howe Street Vancouver, B.C. V6Z 2N3

Attention: Mr. Patrick Wruck, Commission Secretary and Manager, Regulatory Support

Dear Mr. Wruck:

Re: FortisBC Energy Inc. (FEI)

Natural Gas Demand-Side Management (DSM) - 2018 Annual Report (the Report)

Response to the British Columbia Utilities Commission (BCUC) Staff Information Request (IR) No. 1

On March 29, 2019, FEI filed the Report referenced above. On June 27, 2019, BCUC staff responded by Email with BCUC Staff IR No. 1.

FEI respectfully submits the attached response to BCUC Staff IR No. 1.

If further information is required, please contact Ken Ross, Manager, Integrated Resource Planning and DSM Reporting at 604-576-7343.

Sincerely,

FORTISBC ENERGY INC.

Original signed:

Doug Slater

Attachments



FortisBC Energy Inc. (FEI or the Company)	Submission Date:
Natural Gas Demand-Side Management (DSM) 2018 Annual Report (the Report)	July 18, 2019
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1	1.0	Reference: Carbon Capture Pilot Project				
2		FEI 2018 Annual DSM Report, p. 43				
3		Demand-Side Measures Regulation, B.C. Reg. 117/2017				
4		On page 43 of the FEI 2018 Annual DSM Report, FEI provides the summary below for				
5		FEI partnered with CleanO2 to test and demonstrate energy efficiency and GHG reduction for 10 carbon capture Pilot Project Carbon Capture Pilot Project FEI partnered with CleanO2 to test and demonstrate energy efficiency and GHG reduction for 10 carbon capture and conversion technology installations in the Lower Mainland and Vancouver Island. The pilot will test if the CleanO2 Carbon Capture Technology can meet the energy conservation and greenhouse gas (GHG) reduction objectives of commercial and small business clients. Pilot results expected Q4 2019. Participants				
6		Total 10				
7		Under the DSM Regulation, "technology innovation program" means a program:				
8 9		(a) to develop, use or support the increased use of a technology, a system of technologies, a building design or an industrial facility design that is				
10		(i) not commonly used in British Columbia, and				
11 12		(ii) the use of which could directly or indirectly result in <u>significant</u> reductions of energy use or <u>significantly</u> more efficient use of energy,				
13 14 15		(b) to do what is described in paragraph (a) and to give demonstrations to the public of any results of doing what is described in paragraph (a), or				
16 17		(c) to gather information about a technology, a system of technologies, a building design or an industrial design referred to in paragraph (a).				
18		[Underlining added]				
19 20 21		1.1 Please confirm that the primary objective of carbon capture is to reduce GHG emissions, rather than reductions in energy.				

Response:

 The objective of the carbon capture pilot is to evaluate and quantify the reduction of natural gas through energy efficiency improvements as well as GHG emission reductions through carbon sequestration. The energy efficiency improvements are from recovering heat from the flue gas and the exothermic reaction caused from the carbon sequestration process and using that heat to preheat water for the domestic hot water (DHW) system. The manufacturer claims approximately 10 percent gas savings, which will be measured as part of the pilot deliverables. The carbon sequestration process involves the interaction of the CO₂ in the flue gas with sodium hydroxide (NaOH) to produce sodium bicarbonate (NaHCO₃). The manufacturer claims that each capture unit can produce up to 6 metric tonnes of carbonates per year of which slightly



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- 1 less than half of this volume (2.7 percent) would account for captured carbon dioxide when
- 2 using sodium hydroxide as the capture medium. The amount of carbon captured and by-
- 3 product produced will also be measured as part of the pilot deliverables.
- 4 The expenditures and costs associated with the energy efficiency improvements are included in
- 5 FEI's DSM budget, while the expenditures and costs associated with evaluating the carbon
- 6 sequestration activities are separate in FEI's O&M. Please see the table below that breaks out
- 7 the Non-Labour and Labour expenditures for 2018 by DSM and O&M.

Expenditure Type	DSM	O&M
Non-Labour	\$ 123,861	\$ 112,312
Labour	\$ 20,160	\$ 47,496
Total	\$ 144,021	\$ 159,808

Response:

1.1.1

Yes, FEI considers carbon capture to have a significant potential energy conservation opportunity if the technology proves to be successful. The manufacturer of the carbon capture device claims energy savings of up to 10 percent associated with recovering heat to preheat the cold-water inlet to the DHW system. The savings estimate depends on factors like the boiler's efficiency and the BTUs needed to heat the building's water consumption. The technology is ideal for buildings with standard to mid-efficient boilers that have year-round DHW load. The manufacturer also claims that the system can work with the optimization of condensing boilers by increasing the return DHW temperature. Once pilot results are available, FEI will review and determine the feasibility for inclusion in the suite of DSM rebate offerings.

technology proves to be successful.

 1.1.1.1 Please provide any high-level analysis of energy savings that FEI estimates could be achievable from the Carbon Capture Pilot Project.

Please explain what energy conservation opportunities FEI considers

could be realized from carbon capture. Please discuss if FEI considers

these opportunities to be "significant," if the application of the



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Response:

- 2 FEI estimates natural gas savings of approximately 167 GJ/yr based on a hot water size of
- 3 greater than 440,000 btu/hr with an estimated baseline consumption of 2,000 GJ/yr for hot water
- 4 heating. This translates to a reduction of approximately 8.4 percent attributed to the amount of
- 5 heat recovered to preheat the DHW system.

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9 1.2 Please outline the costs of the Carbon Capture Pilot Project incurred by FEI in 2018.

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Response:

13 Please refer to the response to BCUC IR 1.1.1.

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1.3 Please explain why the Carbon Capture Pilot Project is being funded through FEI's DSM budget.

18 19 20

Response:

21 Please refer to the response to BCUC IR 1.1.1.

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