



James D Burns*	Duncan J Manson*	Alan A Frydenlund, QC**	Allison R Kuchta*
Jeffrey B Lightfoot*	Daniel W Burnett, QC*	Harvey S Delaney*	James L Carpick*
Christopher P Weafer*	Ronald G Paton*	Paul J Brown*	Patrick J Habert*
Gregory J Tucker, QC* ** ***	Gary M Yaffe*	Heather E Maconachie	Terence W Yu*
Harley J Harris*	Jonathan L Williams*	Michael F Robson*	James H McBeath*
Jennifer M Williams*	Kari F Richardson*	Paul A Brackstone* *	Scott W Urquhart
Scott H Stephens*	James W Zaitsoff*	Pamela E Sheppard*	George J Roper*
David W P Moriarty	Daniel H Coles* *	Jocelyn M Bellerud*	Tony R Anderson
Katharina R Spatzl*	Sameer Kamboj	Heather A. Frydenlund**	Brian Y K Cheng**
Charlene R Joanes	Steffi M Boyce	Patrick J Weafer	Georgia Barnard
Lucky D Johal	Brittney S Dumanowski	Laura A Buitendyk	

PO Box 49130
Three Bentall Centre
2900-595 Burrard Street
Vancouver, BC
Canada V7X 1J5

Telephone 604 688-0401
Fax 604 688-2827
Website www.owenbird.com

Direct Line: 604 691-7557
Direct Fax: 604 632-4482
E-mail: cweafer@owenbird.com
Our File: 23841/0242

December 3, 2020

VIA ELECTRONIC MAIL

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, B.C. V6Z 2N3

Attention: Marija Tresoglavic, Acting Commission Secretary

Dear Sirs/Mesdames:

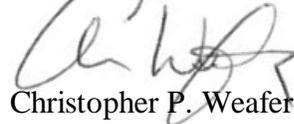
Re: Creative Energy Vancouver Platforms Inc. - Registration of Extension to South Downtown Heating Thermal Energy System

We are counsel to the Commercial Energy Consumers Association of British Columbia (the “CEC”). Attached please find the CEC’s first set of Information Requests with respect to the above-noted matter.

If you have any questions regarding the foregoing, please do not hesitate to contact the undersigned.

Yours truly,

OWEN BIRD LAW CORPORATION


Christopher P. Weafer

CPW/jj
cc: CEC
cc: Creative Energy
cc: Registered Interveners

**COMMERCIAL ENERGY CONSUMERS ASSOCIATION
OF BRITISH COLUMBIA (“CEC”)**

INTERVENER INFORMATION REQUEST NO. 1

**Creative Energy Vancouver Platforms Inc. - Registration of Extension to South
Downtown Heating Thermal Energy System**

December 3, 2020

1. Reference: Exhibit B-3, page 2

With respect to paragraphs (b) and (c), above, we confirm that there is no long-term resource plan in relation to the South Downtown Heating TES, and also that there are no applicable requirements under sections 6 and 19 of the *Clean Energy Act*.

1.1 When does Creative Energy expect to prepare a long-term resource plan that relates to the South Downtown Heating TES?

1.1.1 If never, please explain why not.

2. Reference: Exhibit B-3, page 2 and page 6

The evidence supporting the request for a CPCN for the proposed Extension is in view of the fact that the proposed Extension consists of approximately 140 meters of distribution piping (105 meters underground and 35 meters within the new customer’s building) and an energy transfer station within the below ground parkade of the customer’s building, to connect the existing South Downtown TES (which has a CPCN) to one specific new customer as requested by the new customer. Additionally, Creative Energy considers that it has the obligation to serve this new customer.

3.3.3 Timing

Please refer to the construction and connection schedule below. Please note that Grosvenor has designed the building it is developing at 889 Pacific Street to receive heating service from a district energy hot water system located outside the building. The construction and service connection schedule was reliant upon the TES Guidelines instruction that a CPCN is not required.

2.1 On what basis does Creative Energy undertake an obligation to serve a new customer? Please cite the relevant legislation, regulations, and/or internal protocols.

2.2 Are there any contractual obligations that Creative Energy has with the owners of Grosvenor House that require Creative Energy enter into and/or to complete the project. Please explain.

- 2.2.1 If yes, please discuss whether or not, if under contractual obligation, the contracts are or were conditional upon BCUC approval, and/or the granting of a CPCN. Please explain.
- 2.2.2 Please provide copies of the relevant contracts with Grosvenor House, in confidence if required.
- 2.2.3 What efforts did Creative Energy make to determine whether or not a CPCN might be required prior to undertaking this project and/or prior to signing any such contracts? Please explain.
- 2.3 Please confirm or otherwise explain that there are no other potential customers that Creative Energy expects will want to connect or be eligible for connection.
- 2.4 Please describe what efforts Creative Energy has undertaken to identify other potential customers for this service.
- 2.5 What will be the impact on Creative Energy if the Commission does not approve the CPCN? Please quantify any cost impacts.
- 2.6 What will be the impact on Grosvenor House if the Commission does not approve the CPCN?
- 2.7 Is Creative Energy expecting to connect any additional customers to its cooling DCS? Please explain.

3. Reference: Exhibit B-3, page 3

2 Applicable BC Energy Objectives

Creative Energy notes that the proposed Extension is to the existing South Downtown TES. In granting the CPCN for the South Downtown TES under Order C-1-19, and in reference to the specific energy objectives listed in the table below, the Panel found that the TES is consistent with most of British Columbia’s energy objectives but conflicts with objective (g), which relates to reducing GHG emissions (refer to pages 24-26 of the Order C-1-19 Reasons for Decision). In addition, the Panel did not find that the TES advances objectives (d) or (i), but concluded that neither does the TES conflict with those objectives.

Reference to Provincial Energy Objectives (Section 2 of <i>Clean Energy Act</i>) in the Order C-1-19 Decision
(d) to use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources
(g) to reduce BC greenhouse gas emissions
(i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently
(k) to encourage economic development and the creation and retention of jobs
(o) to achieve British Columbia’s energy objectives without the use of nuclear power

Creative Energy submits that the same evidence and Panel conclusions necessarily continue to apply. The Extension will support or otherwise not conflict with the applicable energy objectives as reviewed prior. In addition, the Extension will have a beneficial rate impact to existing customers of the system.

3.1 Please confirm, or otherwise explain, that Creative Energy makes no DSM or other incentive programs available to the customers of the South Downtown TES, its Vancouver House customers, and or Grosvenor House and its customers.

4. Reference: Exhibit B-3, page 3

3.1 Project Need, Alternatives and Justification

The developer of the new building at 889 Pacific Street – Grosvenor Americas (**Grosvenor**) – has determined to heat the building by connecting to Creative Energy’s nearby district energy system, the South Downtown Heating TES. Grosvenor has designed its building to receive heating service from a district energy system located outside the building. As such, while Grosvenor would have reviewed other alternative heating options prior to requesting service from Creative Energy and designing its building accordingly, the building design now renders any hypothetical alternatives for heating not feasible. Creative Energy considers that it has the obligation to serve this new customer that has requested service.

By definition, the Extension to serve the new customer connects to Creative Energy’s existing utility system and therefore there are no feasible alternatives available to Creative Energy to serve the customer other than to connect the customer to the existing and approved TES. The grant of a CPCN for the TES under Order C-1-19, necessarily means that there are no better alternatives for Creative Energy to serve the customer. Further there are no practical alternatives to the Extension project that Creative Energy could have considered other than through the design and equipment for the Extension as described further below.

- 4.1 Did Creative Energy consider whether or not to serve Grosvenor House at all? Please explain.
- 4.2 What alternative means of providing service to the Grosvenor House were examined in order to demonstrate that there were no other alternatives for servicing the Grosvenor House, including alternatives other than South Downtown TES service?

5. Reference: Exhibit B-3, page 4

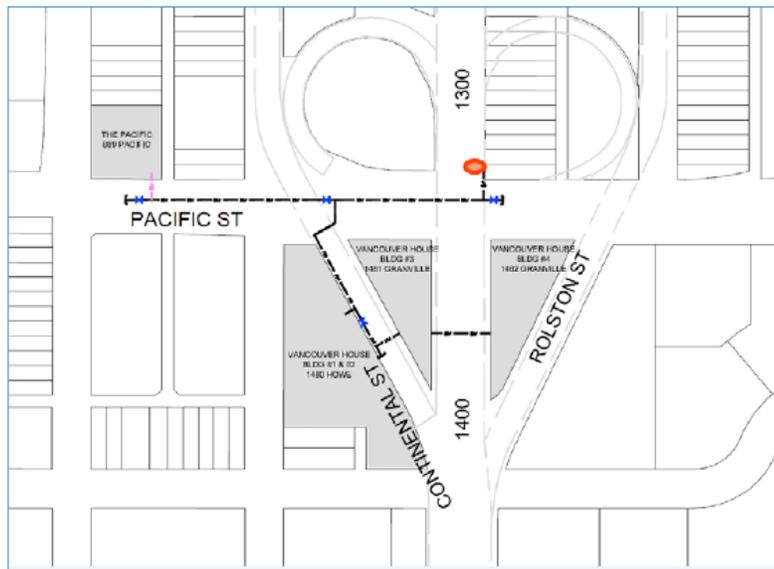
3.2 Consultation

There was no general public consultation in relation to the Extension itself, and none is planned. We continue to engage with the key stakeholder – Grosvenor – as work on the Extension proceeds. Creative Energy obtained required permits and approvals from the City of Vancouver to extend the service on Pacific Street. Traffic was impacted during construction of the distribution piping system (DPS) on Pacific Street. To manage public safety and other possible traffic concerns Creative Energy had traffic control persons in place to manage traffic and pedestrians in the area. In addition, to manage any noise concerns from the steel road plates covering the trench, Creative Energy laid rubber padding under the plates and also welded the plates together to dampen noise and vibration.

While the Commission has now determined that a CPCN for the Extension is required, Creative Energy remains of the view that general public consultation, beyond the engagement with Grosvenor and compliance with the City's requirements, is not required for any other reason. There is no incremental risk of public concern with the underground Extension of the existing system to serve a fifth building nearby.

3.3.1 Description

The Extension comprises an Energy Transfer Station (ETS) in level P2 at 889 Pacific St, Vancouver, connecting to the South Downtown Heating TES through distribution piping in the 700 and 800 blocks of Pacific Street. The DPS consists of approximately 105 meters of underground piping from existing valves on Pacific Street and approximately 35 meters of piping from the building entry to the ETS. A schematic of the system is depicted below, and further details of the design are provided in Attachment 1.



- 5.1 Please confirm or otherwise explain that Creative Energy has had no indication to date that any First Nations may be affected by the project.

6. Reference: Exhibit B-3, page 5 and Exhibit B-4, BCUC 1.1.3 and 1.1.3.2

The table below has been updated accordingly from the information provided in the response to BCUC Staff IR 1.6 to reflect the peak demand design capacity of the Extension of 941kW. The Extension test and rate impact results in section 3.4 reflect this corrected billing determinant also.

The following table illustrates the capacity of the boiler plant to serve the incremental peak demand of the extension under an 85 percent diversification factor. An assumed diversity factor of 85 percent results in excess capacity being available at the boiler plant, which is considered conservative based on the mix of commercial and residential floor area connected to the South Downtown network. Please also note for context that in an operating hot water district energy system, diversity occurs due to slightly different timing of peak demands between buildings, and variance in the transit time for the increased demand to propagate back to the plant through the piping network and controls system(s).

	Building Peak Design Demand (kW)	Demand at plant based on 85% diversity (kW)
Vancouver House B1	841	715
Vancouver House B2	1,230	1,046
Vancouver House B3	246	209
Vancouver House B4	231	196
889 Pacific	941	800
Total	3,489	2,966
Boiler (System) Capacity	3,336	3,336
Excess Capacity	-153	370

- 1.3 Please explain how CEVP determined that application of an 85 percent diversification to determine the peak demand at its boiler plant is reasonable and acceptable in this scenario.

RESPONSE:

There are a number of inputs to this determination, but the primary reference is from the recommendations of the American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE), the foremost technical society in the fields of heating, ventilation, air conditioning, and refrigeration. In the ASHRAE Handbook, "HVAC Systems and Equipment", it is recommended to assume a 70% diversity factor.

For this application, Creative Energy uses 85 percent as a conservative assumption.

- 1.3.2 Please provide any benchmarks or data to support the application of an 85 percent diversification factor, including identifying any heating TES with a similar commercial and residential mix that uses a similar diversification factor.

RESPONSE:

Please refer to the response to IR 1.3. Further, no empirical benchmarks are available for reference;

however, the design engineer, KWL, did confirm that a diversity factor of 85% or greater (i.e. a lower factor in percentage terms) is realistic for this situation.

- 6.1 Please provide a simple description of what a 'diversification factor' is and the rationale both for using it generally and in this instance.
- 6.2 Does the ASHRAE Handbook recommend 70% under all conditions, or does it vary by project parameters? Please explain.
- 6.2.1 If it varies by project parameters, please identify the key project parameters that resulted in the 70% recommendation.
- 6.3 Please provide a link to where the ASHRAE information can be located.
- 6.4 Please identify and quantify all the relevant inputs that would normally be included in the calculations of the diversity factor, and explain how they impacted the decision that 70% was appropriate.
- 6.5 Why does Creative Energy use a diversity factor of 85% when 70% was recommended under the ASHRAE Handbook?
- 6.6 Is a 'diversification factor' commonly incorporated into calculations of required design peaks by Creative Energy or by other utilities? Please explain under what conditions a diversity factor is normally incorporated.
- 6.7 Please provide examples of where Creative Energy has factored in a diversity factor in its design peak requirements in any other projects.

6.8 Would including a diversity factor at the planning stage of a project usually, or occasionally, result in lower capital costs? Please explain.

7. Reference: Exhibit B-4, BCUC 1.1.6

On Page 5 of Exhibit B-3, CEVP states:

In the unlikely event that system diversity is less than expected, Creative Energy has a number of options to reduce or manage peak demand. The starting point would be to tune the controls system to spread out the peaks. This can be achieved by adjusting the setbacks at each building so that the 'warming up' of the buildings in the mornings occurs at slightly different time, and the domestic hot water tanks temperatures can be lifted on a predictive fashion immediately before the morning demand spike. Equally, the primary hot water temperatures (in the buried piping) can be increased in the hour before peak demand.

1.6 Given the diversity assumed between space heating and domestic hot water, as discussed in the preamble to the previous IR, please explain, with rationale, how the options noted above that pertain to adjustments on the hot water system will reduce or assist in managing the peak demand.

RESPONSE:

Responding to this question is difficult, as the solution would involve precise modeling of load characteristics from 5 different building, which may only occur for a few minutes each day. This level of system modeling is not reasonable for a district energy system designed on forecast hourly models.

In keeping with the preamble, implementation of measures to reduce domestic hot water peak demand would not likely have a material impact on the peak demand for that building, as we do expect that the dominant factor in the actual system peaks will be the space heating for all the buildings. However, it may be possible that in one or more buildings, the space heating peaks have been over-forecast to a greater degree than the domestic hot water peaks, and the result is that mitigating domestic hot water peaks would have an impact on system peak demand.

7.1 Does Creative Energy now expect that it has over-forecast space heating peaks for the South Downtown TES?

7.1.1 If yes, please explain and provide quantification for the over-forecasting.

7.1.2 If the space heating peaks are over-forecast, please explain, with quantification, if the capital costs could have been reduced.

8. Reference: Exhibit B-3, page 6

As we reported in the application for a CPCN for the South Downtown TES, it was known at the time that the 899 Pacific Street property was slated for redevelopment and Creative Energy therefore designed the TES with some excess capacity to enable provision of service to an additional building. With conservative assumptions around diversity we expect the current installed capacity of the South Downtown TES boiler plant to be sufficient and not risk service interruption. In the unlikely event that system diversity is less than expected, Creative Energy has a number of options to reduce or manage peak demand. The starting point would be to tune the controls system to spread out the peaks. This can be achieved by adjusting the setbacks at each building so that the 'warming up' of the buildings in the mornings occurs at slightly different time, and the domestic hot water tanks temperatures can be lifted on a predictive fashion immediately before the morning demand spike. Equally, the primary hot water temperatures (in the buried piping) can be increased in the hour before peak demand. The temporary boiler plant is designed to accommodate the installation of two additional boilers, but for the reasons discussed we have judged that additional investment in capacity is unnecessary at this time.

- 8.1 Please provide the reference in the CPCN application for the South Downtown TES indicating that the TES was being designed with excess capacity.
- 8.2 Please confirm that Creative Energy was aware that the Grosvenor building was a potential customer during the period of the South Downtown CPCN proceeding.
 - 8.2.1 Please identify where in the proceeding evidence it can be found, or explain why it was not included.

9. Reference: Exhibit B-3, page 6

3.3.3 Timing

Please refer to the construction and connection schedule below. Please note that Grosvenor has designed the building it is developing at 889 Pacific Street to receive heating service from a district energy hot water system located outside the building. The construction and service connection schedule was reliant upon the TES Guidelines instruction that a CPCN is not required.

Schedule	Start	Complete
DPS construction and commissioning (100% complete)	July 2, 2020	October 14, 2020
ETS construction (50% complete)	Sept 1, 2020	February 2021
ETS Commissioning	March 2021	March, 2021
Construction Heat	March 2021	October 2021
Occupancy Heat	October 2021	n/a

- 9.1 Is Creative Energy still on track for the proposed timeline?
 - 9.1.1 If no, please explain how this timeline has varied.

10. Reference: Exhibit B-3, pages 9-10

4 Other Applicable Matters in Section 2.4.2 of the TES Guidelines

The following table presents the concordance of evidence to the TES Guidelines at section 2.4.2.

TES Guidelines Section 2.4.2	Evidence or Explanatory Note
i. Evidence that the design energy capacity of the system has been appropriately determined and verified by a qualified person.	Please refer to the Design Review Memo at Attachment 2
ii. Anticipated construction build-out and TES operation schedule.	Please refer to section 3.3.3
iii. Load Analysis and Energy Demand Forecast for the Project:	As follows
a. description of methodology used to forecast peak load and energy demand including key inputs and assumptions;	Please refer to section 3.3.2 and Attachment 2
b. forecast of floor area by building archetype (e.g., high rise, mid-rise, row house, retail, etc.) including data sources and assumptions;	High-rise residential strata; 22,858 square meters of floor space
c. map of the TES Provider’s service territory for the Project with identification of buildings connected;	Please refer to section 3.3.1
d. thermal energy end uses (e.g., space heat, domestic hot water, space cooling);	Space heat and domestic hot water
e. energy use intensities (EUIs) by thermal energy end use for peak load (W/m ²) and energy demand (kWh/m ²), including data sources and assumptions;	Please refer to Attachment 2
f. summary table of development schedule by year and building archetype or building including total sales (MWh) and peak (MW) for each year of the development schedule; and	Please refer to section 3 and Attachment 2
g. future expansion of the Project that is contemplated. Provide specifications concerning the size and location of the potential expansion.	Not applicable to the Extension and no further extensions to the TES are planned or contemplated at this time.
iv. The amounts and sources of any contributions (developer), grants and other funding.	Not applicable. The Extension has a forecast beneficial rate impact and no customer contribution is required.
v. Forecast and treatment of Capital Reserve Fund balances and impacts.	A capital reserve fund will not be maintained for the TES for the reasons discussed and addressed in the CPCN for the South Downtown TES and as approved

TES Guidelines Section 2.4.2	Evidence or Explanatory Note
	by Order C-1-19. The Extension raises no incremental impact nor concern in this matter.
vi. Annual operating budget specifying major cost components.	Please refer to section 3.4 above
vii. A description of emergency repair fund sourcing, size rational and access protocol.	A separate emergency repair fund will not be maintained for the TES for the reasons discussed and addressed in the CPCN for the South Downtown TES and as approved by Order C-1-19. The Extension raises no incremental impact nor concern in this matter.
viii. A description of sustaining/replacement capital fund sourcing, size rational and access protocol.	A sustaining/replacement capital fund will not be maintained for the TES for the reasons discussed and addressed in the CPCN for the South Downtown TES and as approved by Order C-1-19. The Extension raises no incremental impact nor concern in this matter.
ix. Any additional fees or liabilities of any kind.	Not applicable
x. Financial projection for various build-out scenarios to assess risk and required level of revenue requirements	Not applicable to the Extension

- 10.1 In section d, Creative Energy indicates that the project will include space heating and domestic hot water heating only. Please explain whether or not 889 Pacific will have cooling and, if so, how the building at 889 Pacific will be cooled, to the best of Creative Energy’s knowledge.
- 10.2 In section v, Creative Energy states that a capital reserve fund will not be required for the reasons addressed in the CPCN for the South Downtown TES. Please identify where that information can be found in the South Downtown CPCN proceeding and provide a working link.
- 10.3 In section vii, Creative Energy states that a separate emergency repair fund will not be maintained for the reasons addressed in the CPCN for the South Downtown TES. Please identify where that information can be found in the South Downtown CPCN proceeding and provide a working link.
- 10.4 In section viii, Creative Energy states that a separate sustaining/replacement capital fund will not be maintained for the reasons addressed in the CPCN for the South Downtown TES. Please identify where that information can be found in the South Downtown CPCN proceeding and provide a working link.
- 10.5 Please provide the equivalent table addressing CPCN guidelines.

11. Reference: Exhibit B-4, BCUC 1.2.1 and Exhibit B-1, page 3 of 7

2.1 In a format similar to the table provided below, please provide a detailed breakdown reconciling the initial forecast of \$855,000 to the New Capital and Development Costs forecasted at \$1,110,000. Please identify which costs are actual and which costs are forecasted.

Please refer to the following table with summary level detail of the within category budget items as between ETS and DPS.

Category	Initial Cost Estimate, as provided in Exhibit B-1	New Capital and Development Costs, as provided in Exhibit B-3		Variance Initial Cost Estimate vs New Capital and Development Costs
		Actual	Forecast	
Engineering	88,800	75,000	86,000	(2,800)
ETS	32,000	27,000	32,000	Negotiated lower cost
DPS	56,800	48,000	54,000	
Equipment	60,800	60,000	65,000	4,200
ETS	60,800	60,000	65,000	Costs higher then original quote on major equipment due to COVID impact (e.g. on exchange rates)
DPS	-	-	-	
Materials	98,000	120,000	155,000	57,000
ETS	38,000	40,000	60,000	Materials costs vary in relation to equipment and construction costs, plus higher than forecast backfill requirements and costs for trench filling
DPS	60,000	80,000	95,000	
Construction	472,000	466,000	610,000	138,000
ETS	118,000	93,000	150,000	Higher than forecast labour costs due to labour market effects
DPS	354,000	373,000	460,000	DPS complete – forecast based on estimate of remaining invoices, and City costs (road restoration, permitting)
CPCN/Legal	4,700	-	30,000	25,300
BCUC	n/a	n/a	10,000	CPCN regulatory process not included in original forecast of third-party costs
Legal	4,700	-	20,000	
Internal Management	74,800	50,000	111,000	36,200
ETS	19,000	9,000	19,000	CPCN regulatory process not included in original forecast of internal management time
DPS	53,000	34,000	53,000	
Predevelopment /Legal	2,800	2,000	2,000	
CPCN	n/a	5,000	37,000	
Contingency	55,900		53,000	
	7% applicable to each category		5% applicable to each category	Contingency is lower due to partial completion of project
Total	855,000	771,000	1,110,000	

11.1 Please elaborate on the materials variance of \$57,000.

11.2 Please elaborate on the labour market effects that caused the construction of the ETS to be \$32,000 higher than anticipated.

11.3 Please elaborate on the \$104,000 increase in the DPS costs over the original estimate.

12. Reference: Exhibit B-1, page 3 of 7

Rate Impacts				
Please provide the impact to current rates including calculations and schedule showing current rates and forecast rates over time resulting from the proposed extension. Include a schedule of any deferral accounts that may be used as rate mitigation.	(Must be less than a 10% aggregate increase to use this form. If greater than 10% increase, a CPCN application is required.)			
	When will the TES Provider file an updated rates application?			
No Extension				
	2020	2021	2022	2023
Total Annual Fixed and Operating Costs (\$)	388,178	428,382	436,950	445,689
Total Capacity (kW)	2,548	2,548	2,548	2,548
Annual Fixed Rate (\$/kW)	\$152.35	\$168.12	\$171.49	\$174.92
With Extension				
	2020	2021	2022	2023
Total Annual Fixed and Operating Costs (\$)			528,547	539,118
Total Capacity (kW)			3,898	3,898
Annual Fixed Rate (\$/kW)			\$135.59	\$138.31
Rate Change (%)			-20.9%	-20.9%
Note:				
<ul style="list-style-type: none"> • Fixed rates under 'No Extension' are approved on an interim basis for 2020 (\$141.68/kW). The rates shown from 2020 through 2023 are indicative pending a final rates application to be filed later this year. • An updated rates application for the extension will be filed in 2021. • Variable fuel costs for electricity and natural gas are flow-through charges of the BC Hydro and FortisBC invoices for fuel use and are allocated to each customer based on actual energy consumption. These costs are independent of the extension. 				

12.1 Please update the above table, found in Exhibit B-1, to reflect the increase in costs.