



**bcuc**  
British Columbia  
Utilities Commission

**Patrick Wruck**  
Commission Secretary

Commission.Secretary@bcuc.com  
**bcuc.com**

Suite 410, 900 Howe Street  
Vancouver, BC Canada V6Z 2N3  
**P:** 604.660.4700  
**TF:** 1.800.663.1385  
**F:** 604.660.1102

October 25, 2018

Sent via email/eFile

<b>CREATIVE ENERGY BEATTY/EXPO PLANTS CPCN AND REORGANIZATION EXHIBIT A-18</b>
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Mr. Krishnan Iyer  
President and CEO  
Creative Energy Vancouver Platforms Inc.  
Suite 1 - 720 Beatty Street  
Vancouver, BC V6B 2M1  
[Krishnan@creative.energy](mailto:Krishnan@creative.energy); [info@creative.energy](mailto:info@creative.energy)

**Re: Creative Energy Vancouver Platforms Inc. – Application for Certificate of Public Convenience and Necessity for the Expo–Beatty Plants and Reorganization – Project Number 1598962 – BCUC Information Request No. 2**

Dear Mr. Iyer:

Further to your June 29, 2018 filing of the above-noted application, enclosed please find British Columbia Utilities Commission Information Request No. 2. In accordance with the regulatory timetable established by Order G-194-18, please file your responses on or before Thursday, November 8, 2018.

Sincerely,

*Original signed by:*

Patrick Wruck  
Commission Secretary

/dg  
Attachment



Creative Energy Vancouver Platforms Inc.  
Application for a Certificate of Public Convenience and Necessity  
For Beatty-Expo Plants and Reorganization

**INFORMATION REQUEST NO. 2 TO CREATIVE ENERGY VANCOUVER PLATFORMS INC.**

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**A. ASSESSMENT OF THE EXISTING PLANT**

**83.0 Reference: ASSESSMENT OF THE EXISTING PLANT  
Exhibit B-1 (Application), Section 6.2, pp. 18-25; Exhibit B-5, IRs 1.2, 1.2.1, 1.2.2, 1.3,  
Attachment 1.2  
Assessment of boilers and other major equipment Condition of Existing Plant**

In response to British Columbia Utilities Commission (BCUC) Information Request (IR) 1.2 Creative Energy Vancouver Platforms Inc. (Creative Energy) listed significant changes it has made to the Beatty Plant between 2013 and 2017:

- Boiler #2 update of controls and addition to Delta V system;
- Boiler #4 burner management system upgrade;
- 1 new air compressor installed;
- water softener resin replaced in one of the three water softeners;
- new work platform on top of Boiler #3, access to steam flow meter;
- Boiler #6 new oxygen analyzer;
- Boiler #5 new steam flow and drum transmitters;
- new UPS systems for Boilers #2 and #4 and for the Delta V system;
- new operator station and monitors for Delta V system;
- major service of electrical transformer;
- new air header distribution to all boilers; and
- Sofame drain line repipe to plant sump.

83.1 In the absence of the Proposed Project, please discuss any significant changes or work that would be required to maintain the Beatty Plant over the next 5 years.

83.1.1 If Creative Energy has not assessed the work required, please explain why not.

In response to BCUC IR 1.2 Creative Energy provided a copy of the Fosdick & Hilmer 2013 Condition Assessment Report (Attachment 1.2).

In response to BCUC IR 1.2.1, which requested a comparison of the key findings of the 2013 and 2017 Fosdick & Hilmer Condition Assessment Reports, Creative Energy stated: "there are no significant changes."

83.2 Given the significant changes, Creative Energy has undertaken between 2013 and 2017 and the fact that there are "no significant changes" to the key findings of the 2013 and 2017 Condition Assessment Reports, please confirm, or explain otherwise, that the condition of the Beatty Plant has not deteriorated over the period 2013 to 2017.

83.2.1 If confirmed, please explain why, from a technical perspective, the Proposed Project is required at this time.

83.2.2 If not confirmed, please provide information on how the condition of the Beatty Plant has deteriorated over the period 2013 to 2017, such that the Proposed Project is required at this time.

83.2.2.1 Please explain why this deterioration is not addressed in the Fosdick & Hilmer Condition Assessment Report.

In response to BCUC IR 1.3, Creative Energy stated:

Three of the six boilers in the plant are at or near the end of life. Additional benefits from the replacement of these boilers and upgrades to the building and office space

include improving efficiency, reducing GHG emissions, improving local air quality, improving operability of plant, easing future replacement of remaining equipment, maintaining reliability and mitigating risks to staff, the public and customers posed by catastrophic failure.

- 83.3 Please confirm, or otherwise explain, that the reason that the Proposed Project is required at this time is three of the six boilers are at or near the end of life.
- 83.4 Please explain how the conditions of the three boilers have deteriorated.
- 83.5 Please explain why the boilers were not replaced from 2013 to 2017.
- 83.6 Please explain what assessment Creative Energy has undertaken to determine the viability of extending the life of the three boilers.
  - 83.6.1 If no assessments have been undertaken, please explain why.

**84.0 Reference: ASSESMENT OF THE EXISTING PLANT  
Exhibit B-1, Section 9.1, p. 31; Appendices G to A, p. 16; Exhibit B-5, BCUC IR 2.1, 2.2, Attachment 1.2, p. 12; Exhibit B-6, CEC IR 62.9  
Maintain reliable service to customers**

In response to BCUC IR 2.1 Creative Energy stated:

Appendix A of Appendix G of the Application provides a condition assessment of the plant, including Fosdick & Hilmer’s views on the risks of the existing plant.

Page 16 of the 2018 Fosdick & Hilmer Condition Assessment Report provides the following risk level allocation:

CHDL	Risk Level Allocation			
	1	2	3	
<b>Evaluated Disciplines</b>				
Plant Capacity		X		Firm capacity short of peak demand.
Staffing & Operations		X		Good day-to-day management and operations team Heavy dependence on the two boilers connected to the condensing economizer
Environment		X		Future low NOx emission requirements relative to existing burner capabilities; age and materials of construction leave existing fuel oil tanks vulnerable to leak and cleanup hazards
Maintenance	X			No major maintenance items observed.
Control Systems	X			Outdated pneumatic controls on boilers no. 1 and 2. Not all auxiliaries on plant DCS.
General Condition	X			Plant is generally well kept given less than optimal layout of boilers and auxiliaries

Page 12 of the 2013 Fosdick & Hilmer Condition Assessment Report provides the following risk level allocation:

CHDL	Risk Level Allocation			
	1	2	3	
<b>Evaluated Disciplines</b>				
Plant Capacity		X		Firm capacity short of peak demand.
Staffing & Operations		X		Good day-to-day management and operations team Heavy dependence on the two boilers connected to the condensing economizer
Environment		X		Future low NOx emission requirements relative to existing burner capabilities; age and materials of construction leave existing fuel oil tanks vulnerable to leak and cleanup hazards
Maintenance	X			No major maintenance items observed.
Control Systems	X			Outdated pneumatic controls on boilers no. 1 and 2. Not all auxiliaries on plant DCS.
General Condition	X			Plant is generally well kept given less than optimal layout of boilers and auxiliaries

84.1 Given that three of the six boilers in the Plant are at or near the end of life, and with reference to your response to IR 83.4, please explain why the Risk Level Allocation has not changed between 2013 and 2017.

In response to BCUC IR 2.2 Creative Energy stated

Creative Energy has not calculated the probability of steam plant failure. Please see the response to BCUC IR 1.2.1. The consequences of equipment failure could be high because Creative Energy provides service from a single plant with minimal internal redundancy. In the event of a catastrophic plant failure, recovery could take a long time given the lead time for major equipment and difficulty of removal and installation of equipment within the constrained layout of the current plant.

Commercial Energy Consumers Association of British Columbia (CEC) IR 62.9, requested an explanation as to whether Creative Energy has developed any key objectives when negotiating the Trust and Development Agreement. In response, Creative Energy stated:

Creative Energy's primary objectives for the negotiations were to secure major upgrades to the plant and office space at the least possible cost and risk to ratepayers in order to:

- replace equipment at or near end of life equipment,
- maintain reliability,
- reduce risks of catastrophic failure [Emphasis added]

84.2 Given that the probability of steam plant failure has not been calculated, please discuss how Creative Energy assesses, monitors and mitigates the risks associated with steam plant failure.

84.2.1 Please discuss how these risks were addressed in the negotiation of the Trust and Development Agreement.

**85.0 Reference: ASSESMENT OF THE EXISTING PLANT  
Exhibit B-1, Section 6.2 p. 23; Section 10.4.1, p. 41; Exhibit B-5, BCUC IRs 3.3.2, 3.4,  
15.1, Attachment 3.1, pp. 6, 9; Attachment 15.3, p. 3  
Assessment of boilers and other major equipment  
Clear Sky Economizer**

On page 41 of the Application, and with specific reference to the Expo Plant, Creative Energy states: The boiler package will also include primary and secondary economizers, further increasing the efficiency of the steam production.

85.1 Please explain whether the Beatty Plant will include primary and secondary economizers as part of the Proposed Project.

85.1.1 If so, please provide details of the proposed economizers.

85.1.2 If not, please explain why.

In response to BCUC IR 3.3.2 Creative Energy stated: “The Sofame unit performance expectation is a fuel to water efficiency of 99%, as see [sic] in the two letters provided. Current measurements by operations staff show a typical estimated efficiency of 80%.”

85.2 Please provide the two letters referenced in the response to BCUC IR 3.3.2.

85.3 Please provide the calculations and the data used to estimate the 80 percent efficiency.

In response to BCUC IR 3.4 Creative Energy stated:

Creative Energy does not have specific information on the original design life of the Clear Sky economizer, except that the economizer was installed pursuant to an ESCO-type agreement that expires on December 31, 2019. It is reasonable to assume that the contract term reflects the design life of the unit. Additionally, there is no residual book value for the unit in 2020 as the original cost was paid by the service provider and the unit will be returned at no cost to Creative Energy at the end of the contract term.  
[Emphasis added]

85.4 Please discuss whether Creative Energy also considers it reasonable to assume that the contract term reflects Clear Sky Energy Ltd.’s desired financial rate of return for the unit.

Page 9 of the Energy Services Agreement between Clear Sky Energy Ltd. and Central Heat Distribution Limited (Creative Energy) states:

This contract shall commence on the date of execution hereof and continue until:

(a) December 31, 2019. An additional contract term extension may be made if mutually agreed by the Client and the ESCO.

85.5 Please explain whether, in the absence of the Proposed Project, Creative Energy would extend the contract term with Clear Sky Energy Ltd.

85.5.1 If not, please explain why.

On page 23 of the Application, Creative Energy states: “Creative Energy has not separately costed a new economizer, but based on the cost of the original Clear Sky unit, the cost of a replacement economizer is estimated to be \$1.4 million.”

- 85.6 Please confirm, or explain otherwise, that the capital cost and the installation cost for the existing economizer was the responsibility of Clear Sky Energy Ltd.
- 85.6.1 If not confirmed, please provide the costs borne by Creative Energy.
- 85.7 Please confirm, or explain otherwise, that the estimated cost of \$1.4 million for the replacement of the economizer assumes that Creative Energy would own and operate the new economizer.
- 85.7.1 If confirmed, please discuss why, in the absence of the Proposed Project, an ESCO agreement would not be considered by Creative Energy.
- 85.7.2 If not confirmed, please provide a breakdown for the estimated \$1.4 million replacement costs.

In response to BCUC 15.1, Creative Energy stated:

In the absence of the Proposed Project, at the end of the Clear Sky agreement, Creative Energy would evaluate options for the Clear Sky unit, including:

- a. Leaving the existing unit in service and investing capital to extend its life, restore the performance and maintain or improve the functionality
- b. Replacing the existing unit with a new economizer either of this style or a more conventional technology
- c. Removing the existing unit

The evaluation would consider environmental factors including performance, emissions reductions and water use, as well as economic, technical and operational factors. Significant analysis would be required to confirm a solution which meets the environmental, safety and economical objectives.

Creative Energy has elected to use a baseline with the Clear Sky unit removed at the end of the contract term. Another approach would be to assume the Clear Sky economizer unit would be replaced or capital invested to upgrade the existing unit as part of the baseline, and then treat the avoided capital cost as one of the benefits of the Proposed Project. Either approach could be used as the baseline for comparing the Proposed Project.

- 85.8 Please explain whether option (a) assumes that Creative Energy would extend the existing agreement with Clear Sky Energy Ltd.
- 85.8.1 If so, please explain whether the capital costs required to extend and restore the life of the economizer would be borne by Creative Energy or Clear Sky Energy Ltd.
- 85.8.1.1 If Creative Energy, please explain why.
- 85.9 Please explain whether option (b) assumes that a new economizer would be procured under a similar ESCO type agreement to that of the existing Clear Sky Energy Ltd. agreement.
- 85.9.1 If not, please explain why not.
- 85.10 Please explain the circumstances under which Creative Energy would remove and decide not to replace the existing unit.
- 85.11 Given Creative Energy states that in the absence of the Proposed Project it would “evaluate options for the Clear Sky unit” and that two of the three options identified in response to BCUC IR 15.1 propose to replace the economizer, please discuss whether Creative Energy considers it reasonable for the current plant gate efficiency of 82.7 percent to be used as the Baseline Efficiency for the Application.
- 85.11.1 If not, please explain why.

Page 3 of Fosdick & Hilmer's Efficiency Evaluation for Existing & Future Steam System report states:

Clear Sky Project Impact

The effect of the secondary economizer on the plant gate efficiency was determined based on energy metering provided with this equipment versus plant fuel usage for 2017 on a month by month basis. With this equipment a 2.73 percent fuel savings was realized in 2017.

85.12 Please provide the calculation(s) (in Microsoft Excel) used to determine the 2.37 percent fuel savings.

85.12.1 Please provide the supporting data used in the calculation(s) provided in response to IR 85.12.

**86.0 Reference: ASSESMENT OF THE EXISTING PLANT  
Exhibit B-1, Section 6.3 p. 23; Section 10.5.1, p. 51; Section 12, p. 61; Appendix A of Appendix G, pp. 13-14; Exhibit B-5, BCUC IR 4.4, 4.5, 4.10, Attachment 1.16, p. 12, Attachment 1.22; Exhibit B-5-2, BCUC IR 4.11  
Assessment of boilers and other major equipment  
Contamination**

In response to BCUC IR 4.4 Creative Energy stated:

Please see Attachment 1.16 and Attachment 4.6. In 2013 a Stage 2 site investigation was conducted to assess as to whether or not contaminants exist in the soil and groundwater on the site. No significant contaminants were discovered. [Emphasis added]

Page 12 of the Limited Stage 2 Preliminary Site Investigation report prepared by PHH ARC Environmental Ltd. (Attachment 4.6) states:

Localised, low level arsenic concentrations have been reported above the respective standard within the groundwater. It is considered that further investigation will be required to clarify the source of the arsenic at the time of Site decommissioning and/ or Site redevelopment. Further, investigation of APECs not assessed during this limited Stage 2 PSI, including internally located aboveground storage tanks (ASTs), should also be investigated at this time. [Emphasis added]

86.1 Please reconcile the two statements "[n]o significant contaminants were discovered" and "[l]ocalised, low level arsenic concentrations have been reported above the respective standard within the groundwater."

86.2 Please explain whether Creative Energy has conducted further investigation(s) to clarify the source of the arsenic, as recommended by PHH ARC Environmental Ltd.

86.2.1 If so, please provide the results of the investigation(s).

86.2.2 If not, please provide the anticipated date for conducting further investigation(s).

86.2.3 If Creative Energy does not intend on conducting any further investigation(s), please explain why.

Page 12 of the PHH ARC Environmental Ltd. report further states: It is considered that the Client will be required to obtain a [Certificate of Compliance] from the [Ministry of the Environment], prior to any redevelopment.

86.3 Please confirm that Creative Energy is required to apply for a Certificate of Compliance (CoC) from the Ministry of the Environment (MOE).

86.3.1 If confirmed, please provide the following:

- a) name of party responsible for the application;
- b) actual (or anticipated) application date;
- c) copy of the application, if submitted;
- d) anticipated application processing time;
- e) anticipated approval date;
- f) date by which the approval is required; and
- g) risk to the Proposed Project in the event of a delay.

86.3.2 If confirmed, please explain whether the CoC would be required prior to commencing construction of the Expo Plant.

86.3.3 If not confirmed, please explain why a CoC is not required from the MOE.

In response to BCUC IR 4.5, Creative Energy stated: "The main risk associated with a leaking fuel tank is that the fuel has reached groundwater and migrated. If leaked fuel has migrated off site or under buildings, the costs of remediation will increase significantly."

86.4 In the event of ground contamination from the fuel tanks, please provide the party responsible for the following:

- a) direct costs (e.g. ground remediation);
- b) indirect costs (e.g. delay to schedule, personnel costs etc.)

**87.0 Reference: ASSESMENT OF THE EXISTING PLANT  
Exhibit B-1, Section 6.3 p. 23; Section 10.5.1, p. 51; Section 12, p. 61; Appendix A of Appendix G, pp. 13–14; Exhibit B-5, BCUC IRs 4.4, 4.5, 4.10, Attachment 1.16, p. 12, Attachment 1.22; Exhibit B-5-2, BCUC IR 4.11  
Assessment of boilers and other major equipment  
Fuel oil storage**

BCUC IR 4.10 requests details of any permits or approvals required for the removal of the existing fuel oil storage tanks. In response Creative Energy stated: "In 2008 Central Heat Distribution had a permit in place to remove the existing tanks and replace them with new under-ground fiberglass tanks. Please see Attachment 1.22."

87.1 Please confirm, or explain otherwise, whether the tanks were removed and replaced in 2008.

87.1.1 If not confirmed, please explain why.

87.1.2 If not confirmed, please explain whether the 2008 permit provided in Attachment 1.22 is still valid. Please provide the expiry date, if applicable.

87.1.2.1 If so, please explain whether the permit applies to the replacement of the existing tanks as part of the Proposed Project.

87.1.2.2 If not, please explain why a permit was required in 2008 and is not required for the Proposed Project.

In response to BCUC IR 4.11 Creative Energy stated: "BC Fire Code requirements govern fuel oil storage tanks. Otherwise, no permits are expected to be required specifically for the fuel oil storage tanks."

87.1.3 Please provide details of any permits or approvals required under BC Fire Code Requirements.

**88.0 Reference: ASSESMENT OF THE EXISTING PLANT  
Exhibit B-1, Section 6.4 p. 24; Section 9.4, p. 34; Exhibit B-5, BCUC IR 5.2;  
Attachment 5.1, p. 3  
Assessment of boilers and other major equipment  
Air emissions**

Page 3 of Attachment 5.1 to Exhibit B-5 provides Metro Vancouver’s Emission Fee Details for the existing Beatty Plant:

**Emission Fee Details for Permit Number GVA1041**

Effective Date: January 01, 2018 to December 31, 2018

SOURCE	CONTAMINANT	DISCHARGE (t/y)	RATE \$	AMOUNT \$
01 Six boilers	Ammonia	2.793	30.00	83.79
01 Six boilers	Combustion Condensable Particulate Matter	4.956	300.00	1,486.80
01 Six boilers	Combustion Filterable Particulate Matter	1.659	300.00	497.70
01 Six boilers	Combustion Volatile Organic Compound	4.788	100.00	478.80
01 Six boilers	Methane	2.016	30.00	60.48
01 Six boilers	Nitrogen Oxides	243.894	50.00	12,194.70
01 Six boilers	Sulphur Oxides	1.785	100.00	178.50
Total \$				14,980.77

\*Pro-Rated Discharge rounds tonnes per year to 3 decimal places.

88.1 Please explain which contaminants Creative Energy monitors for each boiler.

88.1.1 If Creative Energy does not monitor or measure any of the contaminants listed in the table above, please explain how the discharge rates are estimated and provided to Metro Vancouver.

88.1.1.1 If Creative Energy does not monitor or provide any data to Metro Vancouver for calculation of the Emission Fee, please explain how the discharge rates are estimated.

88.1.2 Please explain whether Metro Vancouver, or any other party, conducts regular or random checks and measurements of the existing plant’s air emissions.

88.2 Please explain whether the Proposed Project will result in a reduction in Emission Fees.

88.2.1 If so, please provide details of the cost savings, providing information on any assumptions.

In response to BCUC IR 5.2 Creative Energy stated:

The current project does not contemplate modifications to the existing boilers. The NOx emissions for each boiler are directly linked to the annual steam contribution and the burner technology installed on each boiler. For the three boilers which will remain at Beatty, the vast majority of the annual steam contribution will come from boiler #6, which is already equipped with a low-NOx burner. Boiler #3 will and boiler #5 have very small annual contributions going forwards, and it is expected that the Beatty plant will be compliant with the Metro Vancouver requirements. Boilers 3 and #5 will be upgraded in time as they reach their replacement years.

- 88.3 Please explain why the Proposed Project does not include the installation of Low-NOx burners and burner management systems at the Beatty Plant.
- 88.4 Please confirm whether Creative Energy proposes to install continuous emissions monitoring at the Beatty Plant.
  - 88.4.1 If not confirmed, please explain why.
- 88.5 Please confirm, or explain otherwise, whether Creative Energy proposes to install Low-NOx burners and state of the art burner management systems at the Expo Plant.
  - 88.5.1 If not confirmed, please explain why.
- 88.6 Please confirm, or explain otherwise, whether Creative Energy proposes to install continuous emissions monitoring at the Expo Plant.
  - 88.6.1 If not confirmed, please explain why.

On page 24 of the Application, Creative Energy states: “Metro Vancouver currently permits the plant to emit nitrogen oxides (**NOx**) at 80 ppm. Metro Vancouver's current general standard is significantly lower at 30 ppm.”

- 88.7 Please confirm, or explain otherwise, whether one permit will be issued for both the Beatty Plant and the Expo Plant.
  - 88.7.1 If not confirmed, please confirm whether two separate permits will be required.
  - 88.7.2 If not confirmed, please explain the permitting process for each plant.
- 88.8 Given that the Proposed Project does not include the installation of Low-NOx burners and burner management systems at the Beatty Plant, please explain how the Beatty Plant will be able to meet Metro Vancouver’s “current general standard” of 30 ppm.
  - 88.8.1 If the Beatty Plant will not be able to meet the 30 ppm standard, please explain the permit process for the Beatty Plant.

## **B. LOAD / RESOURCE BALANCE**

### **89.0 Reference: LOAD/RESOURCE BALANCE Exhibit B-5, BCUC IRs 9.5, 9.5.2, 10.2, Appendix G, p. 6 Ability to meet peak demand**

In response to BCUC IR 10.2, Creative Energy stated that “Creative Energy has opted to use a conservative forecast of peak and energy based on known changes in customers.”

Creative Energy stated in response to BCUC IR 9.5 that “Creative Energy has no basis to generate aggressive or conservative scenarios for peak and relies only on its base case peak demand forecast based on current load and available information about future additions and losses.” Creative Energy further states that “The Proposed Project is intended to provide sufficient capacity to serve existing customers (with the potential for future expansion as needed)...”

Page 6 of the Fosdick & Hilmer 2018 Condition Assessment Report states:

An optimally designed plant will have firm capacity to meet the peak demand with 10 percent reserve capacity and the ability to turn down equipment enough to reliably meet minimum demand requirements. In this case firm capacity is defined as the capacity of the steam plant with the single largest steam generator out of service.

89.1 Please completed the table below (as modified from the one requested in BCUC IR 9.5.2), assuming the conservative peak load forecast is 10 percent less than the base case, and the aggressive peak load forecast is 10 percent more than the base case. Please also provide what is the maximum peak load the system can serve, and express it as a percentage of the base case peak load forecast. Please also provide your response in a functional excel spreadsheet.

Row	#/hr	2018	2019	...	2050
1	Peak Load Forecast – conservative ( -10%)				
2	Peak Load Forecast – base case				
3	Peak Load Forecast – aggressive ( +10%)				
4	Functional Capacity				
5	Supply Reserve (10% of functional capacity in row 4)				
6	Effective Load Carrying Capacity (4-5=6)				
7	Capacity Surplus/Gap – conservative (6-1=7)				
8	Capacity Surplus/Gap – base case (6-2=8)				
9	Capacity Surplus/Gap – aggressive (6-3=9)				
10	Maximum peak load system can serve based on effective load carry capacity (#/hr)				
11	Maximum peak load system can serve based on effective load carry capacity (% of base case peak load forecast)				

89.1.1 Please replicate the table above, assuming the functional capacity excludes boiler #3 in row 4.

89.2 Based on the populated tables above, please confirm, or explain otherwise, that the Proposed Project will have firm capacity to meet the peak demand with a 10 percent capacity reserve.

89.3 In the event the peak demand is near or above the maximum peak load that the system can serve, please discuss the available immediate solutions to Creative to meet any excess peak demand above maximum (e.g. run back-up generation in an alternate fuel source, ability for load curtailment, reduce planning reserve for reliability, ability to increase functional capacity of existing boilers, etc.), and explain approximately how much peak load each option can serve and the pros and cons of each option.

89.4 Please explain the steps involved and the timeline for any potential future expansion, if needed.

Page 6 of the 2018 Condition Assessment Report states further states:

Referring to Figure 1 and Table 1 above, it appears that in the winter months the plant maximum steam load can exceed 600,000 lb/hr going as high as 640,000 lb/hr. If during these load excursions boiler no.4, the highest capacity boiler, is out of service due to an outage, maintenance or for whatever reason, the plant’s firm functional capacity is significantly less than 640,000 lb/hr at 450,000 lb/hr. Moreover, if any of the boilers, not just the higher capacity boilers, were out of service the plant would fall short of satisfying the load.

89.5 Please explain whether in the event of a single boiler outage, the Proposed Project’s firm functional capacity would continue to be able to meet the design peak load (i.e. the plant will have an “n+1” redundancy).

89.6 Please explain whether the Proposed Project will have the ability to turn down equipment to reliably meet minimum demand requirements.

**90.0 Reference: LOAD/RESOURCE BALANCE  
Exhibit B-5, BCUC IR 11.1  
Load forecast methodology**

In response to BCUC IR 11.1, Creative energy stated that “Creative Energy generates this bottom up forecast using historical trends for each customer and further adjustments based on known or anticipated changes in customer buildings that are derived from discussions with customers.”

Creative Energy further stated that “Creative Energy uses a weather-adjusted load forecast which is derived from observations of historical average demand under a range of weather conditions and judgment where there is a lack of sufficient historical data or there have been major changes recently in building use and characteristics.”

Also, Creative Energy stated in response to BCUC IR 11.1:

For the purposes of the Application, Creative Energy used the actual 2017 peak and weather-adjusted load (derived as above). The year 2017 was the most recent year that Creative Energy’s system had to operate under “design conditions” as described in the response to BCUC IR 1.9.2. Creative Energy then made further adjustments for known additions and losses of load. The adjustments for design peak demand were made in direct proportion to the adjustments in annual energy, which is supported by historical observations.

90.1 Please explain how many years of data has Creative Energy relied on to derive the “historical average demand under a range of weather conditions...” as described in response to BCUC IR 11.1, and explain how Creative has determined the appropriate amount of historical data to reference.

90.2 Please reconcile whether a historical trend analysis was used, or the actual 2017 peak and weather-adjusted load is used to produce the load and peak forecast presented in the Application.

90.3 Please confirm, or explain otherwise, that the demand and peak forecast methodology used for the purpose of this Application differs from the methodology used to produce a demand and peak forecast for other purposes.

90.3.1 If confirmed, please specific what are the other methodologies used, and the purpose of the forecast produced using the various methodologies.

90.3.2 If confirmed, please explain why Creative has chosen to produce a different forecast for this application, rather than updating an existing forecast for other purposes.

**91.0 Reference: LOAD/RESOURCE BALANCE  
Exhibit B-5, BCUC IR 11.5; Creative Energy Vancouver Platforms Inc. 2018-2022  
Revenue Requirements Application (Creative Energy RRA), Exhibit B-12, BCUC  
IR 45.1.1  
Load forecast methodology**

In response to BCUC IR 11.5, Creative Energy stated that “Creative Energy does not have weather normalized historical load.”

When asked in BCUC IR 45.1.1 in the Creative Energy RRA proceeding to provide explanations for variances between 2016 and 2017 Forecast and Actual steam demand (in M#) for Core Steam Customers and NEFC, Creative Energy stated that “The variances were due to weather and in NEFC specifically the timing of customers coming online.”

91.1 Please confirm that Creative Energy undertakes weather normalization analyses to determine annual variances in actual load versus forecast load, and presents this information to the BCUC as part of its filings with the BCUC, such as in its Revenue Requirements Applications.

91.1.1 If confirmed, please explain why it does not have weather normalized historical load.

91.1.2 If not confirmed, why doesn't Creative Energy prepare weather normalization analyses to better understand variances between actual and forecast load?

## **C. PROJECT DRIVERS**

**92.0 Reference: PROJECT DRIVERS  
Exhibit B-1, Section 9.2, p. 32; Section 10.1, p. 35; Section 14, p. 76; Exhibit B-5, BCUC IRs 12.2, 12.3  
Equipment replacement**

In response to BCUC IR 12.2, Creative Energy stated:

The existing fail-safes will remain for the Beatty Plant. As technology has evolved, new boilers incorporate more advanced and precise instruments and fail-safes which perform their function more quickly or with more certainty. By removing the oldest equipment, we are improving the safety of the plant. Further, the equipment installed in Expo will have modern fail-safes.

92.1 Please confirm, or explain otherwise, whether Creative Energy proposes to undertake any upgrade work to the existing fail-safes at the Beatty Plant.

In response to BCUC IR 12.3 Creative Energy stated: The Lost Time Injury Frequency Rate is calculated at 0.000 (calculated against 1 million person hours worked). There are no ongoing safety concerns in the plant that are anything but procedural.

92.2 From a technical perspective, please explain the how the Proposed Project will improve the safety of the equipment which is to remain in-situ at the Beatty Plant.

**93.0 Reference: PROJECT DRIVERS  
Exhibit B-1, Section 9.2, p. 32; Appendix F, p. 8; Exhibit B-5, BCUC IRs 13.1, 13.3, 13.4, Attachment 13.1  
Improve Safety  
Hazardous materials – Beatty Plant**

In response to BCUC IR 13.1 Creative Energy stated:

Creative Energy has worked closely with a local Hazardous Materials abatement firm, Phoenix Enterprises, who is experienced in the abatement of asbestos insulation from steam lines, and the abatement and demolition of industrial boilers. Through the course of this work, a concept of the most practical sequence of abatement and demolition was developed, including laydown areas, hauling points, and general sequence of work. This was not documented in a formal plan, but was the basis for the Phoenix proposal, which is attached in Attachment 13.1.

Attachment 13.1 provides Phoenix Enterprises Ltd.'s quotation for the removal of hazardous materials and asbestos at the Beatty Plant:

Description
<p>As per the below Sequence of Work from Mr. Kieran McConnell, Phoenix Enterprises Ltd. will remove all insulation (asbestos and non-asbestos) from the boilers, ducting, piping etc. including gaskets, adhesives, caulking and spray applied insulation to facilitate plant upgrades. Trucking and disposal included.</p> <p>Sequence of Work:</p> <ul style="list-style-type: none"> <li>a. Boiler #4</li> <li>b. Feedwater piping</li> <li>c. Boiler #2</li> <li>d. Boiler #1</li> <li>e. Steam header</li> <li>f. Remaining piping and fittings within those removal locations.</li> </ul> <p>Note: PEL will work with demolition contractor to remove acm gaskets from valves and ducting during the demolition/deconstruction phase where possible.</p> <p>Note: Air Monitoring and Electrical/Mechanical isolations to be done by others.</p> <p>Note: Lead paint abatement not included in cost other than what is directly related to Sequence of Work.</p> <p>Note: Scaffolding and aerial lifts will be provided by PEL as needed.</p> <p>GST On Sales</p>

93.1 Please explain whether Boilers #3, #5 and #6 contain any hazardous materials or asbestos.

93.1.1 If so, please explain whether Creative Energy proposes to remove the hazardous materials and / or asbestos.

93.1.2 If not, please provide information on any materials that will remain in-situ.

In response to BCUC IR 13.3 Creative Energy stated

We understand the report to be a good representation of the presence of hazardous materials in the plant and are confident that the unknown quantities are captured within the contingency amounts applied to the hazardous materials abatement cost item. [Emphasis added]

93.2 Please provide the contingency amount for the hazardous materials abatement cost item.

In response to BCUC IR 13.4, Creative Energy further stated: "Pursuant to the Trust and Development Agreement, the Developer bears delay, construction cost overrun and safety risks associated with unidentified hazardous materials and the like. Creative Energy does not bear such risks."

93.3 Please identify any instances where Creative Energy could be responsible for any costs related to finding previously unidentified hazardous materials, for example indirect costs attributed to a delay in Creative Energy's scope of work.

**94.0 Reference: PROJECT DRIVERS**  
**Exhibit B-1, Schedule G to Appendix A, p. 1; Exhibit B-5, BCUC IRs 14.1, 14.1.1, 14.3, 25.2**  
**Improve safety**  
**Hazardous materials – Expo Plant**

In response to BCUC IR 14.1, Creative Energy stated that it does not have a Hazardous Building Materials Assessment Report for the Expo Plant, stating that Creative Energy has "requested any such data that PavCo may have and will file if it is available."

94.1 Please explain whether B.C. Pavilion Corporation (PavCo) has a Hazardous Building Materials Assessment Report or similar for the Expo Plant.

94.1.1 If so, please provide the report.

In response to BCUC IR 14.1.1 Creative Energy stated: A review was conducted with BC Place facilities staff and only a single, minor source of Hazardous Building Materials was identified, which is the gasket material in the hot water valves leading to the existing heating coils.

In response to BCUC IR 14.3 Creative Energy stated that, in the event that previously unidentified hazardous materials and asbestos require removal “[t]he risk has been considered in the development of the schedule, and is considered minimal. This risk belongs to the Developer, not Creative Energy.”

The Responsibilities Matrix provided on page 1 of Schedule G to Appendix A in the Application states that Creative Energy is responsible for “Hazmat and Asbestos Removal” with Creative Energy “responsible for \$100,000 of removal costs. PavCo is responsible for all other costs.”

94.2 Please explain whether the \$100,000 includes allowances for any indirect costs that may arise as a result of delays.

94.2.1 If not, please explain which party would be responsible for any indirect costs.

94.3 Please provide details of any instances where Creative Energy would be liable for direct costs or costs of delays incurred from finding previously unidentified hazardous materials and asbestos at the Expo Plant.

In response to BCUC IR 25.2, Creative Energy stated: A detailed project schedule has not yet been developed. This will be done as part of the detailed design process.

94.4 Given that a project schedule has not yet been developed, please explain to which schedule the statement “[t]he risk has been considered in the development of the schedule, and is considered minimal” refers.

94.4.1 If a project schedule has been prepared, please provide the schedule.

**95.0 Reference: PROJECT DRIVERS  
Exhibit B-1, Section 9.3, pp. 32–33; Appendix G, pp. 4–5; Section 6.2, p. 23; Exhibit B-5, BCUC IRs 16.2.1, 20.1; Attachment 15.5; Attachment 1.79; Exhibit B-5-2, BCUC IRs 15.3, 15.4, 21.2; Attachment 15.3 p. 2-4; Creative Energy 2016-17 RR & RD proceeding, Exhibit B-11; IR 11.1  
Improve efficiency  
Plant efficiency**

In response to BCUC IRs 15.3 and 15.4 Creative Energy provided the Creative Energy Efficiency Evaluation for Existing & Future Steam System report prepared by Fosdick & Hilmer (Attachment 15.3).

Page 2 of Attachment 15.3 states:

Plant Efficiency

The current plant efficiency was derived based on total sales of steam in 2017 divided by total fuel input for 2017 as an estimate of system efficiency at 74.4 percent. Based on an assumed 90 percent distribution system efficiency this then yields a plant gate efficiency of 82.6 percent.

## Annual Contribution of Each Boiler

Boiler contribution to the annual total plant steam flow was tabulated based on each boiler's steam flow meter. Total per annum steam flow was determined based on the sum of all boiler steam flow meters. This data was tracked for a period of five years from 2013 through 2017 and remained relatively consistent on a year to year basis with regard to each boiler's impact on the annual steam produced.

- 95.1 Please explain why the Plant efficiency was derived based on the total sales of steam over a period of one year and not, for example, over a period of 5 years.

In the 2016-2017 Revenue Requirements Application and Rate Design for North East False Creek Hot Water Service Application (2016-2017 RRA and RD), Creative Energy provided its methodology for calculating the energy consumed by the existing plant to meet its customer demands. In response to BCUC IR 11.1 (Exhibit B-11), Creative Energy provided details of its three step calculation, which included the assumed boiler and distribution efficiency.

### Response:

It should be noted step 2 should be changed to "The estimated demand is then grossed up for boiler and distribution efficiency". Additionally, the order of Step 2 and Step 3 should be switched, as the calculation is properly expressed as:

1. An estimate of demand in M# is first determined;
2. The M# demand estimate is converted to mmBTU by multiplying the conversion factor of 1.196 mmBTU to each M# of steam generated; and
3. The estimated demand in energy units is grossed up for boiler and distribution efficiency.

Switching the order of step 2 and step 3 yields the same result, but more accurately depicts the conversion of fuel energy to steam.

### 2016

1. Customer Demand estimate: 1,073,439M# (inclusive of NEFC)
2. Conversion to energy units:  $1,073,439\text{M\#} * 1.196 \text{ mmBTU} / \text{M\#} = 1,283,833 \text{ mmBTU}$
3. Conversion to fuel input:  $1,283,833 \text{ mmBTU} / 75.3\% = 1,704,248 \text{ MMbtu}$

- 95.2 Please explain the discrepancy between the 75.3 percent system efficiency provided in the 2016-2017 RRA and RD proceeding and the 74.4 percent system efficiency provided in the Application.

- 95.2.1 Please explain why the system efficiency has decreased from 75.3 percent in 2016 to 74.4 percent in 2017.

In response to BCUC IR 16.2.1 Creative Energy stated: "Due to a lack of boiler level metering, Creative Energy does not have access to consistent and accurate daily efficiency information."

Attachments 1.79 (Microsoft Excel) provide the individual boiler steam flow and the calculated plant efficiencies on a daily basis for 2013 to 2017 and on monthly basis for 2017 and up to June of 2018.

- 95.3 Please explain why daily metering was discontinued for 2017 and 2018.
- 95.4 Please explain why Creative Energy does not consider the boiler steam flow data to be "consistent and accurate."
- 95.5 Please explain why the Plant Efficiency was not derived using the total fuel input and the boiler steam flow data.

- 95.6 Please provide the accuracy level of the fuel input meter.
- 95.7 Please provide representative accuracy level(s) of the customer steam meters and the cumulative accuracy for the total customer steam consumption readings.
- 95.8 Given the meter accuracy levels provided in response to IRs 95.6 and 95.7, please discuss the appropriateness of the Plant Efficiency calculation method and the resulting accuracy of the estimated efficiency.

Attachment 15.5 (Microsoft Excel) titled Creative Energy’s ‘Estimate of Plant Gate Efficiency for 2013-2017’ provides the annual Gas Purchased and Steam Sales over the 5 year period. Creative Energy assumes an enthalpy figure of 1198 BTU/lb in its calculations for Steam Sales (MWh).

Attachment 1.79 (Microsoft Excel) titled ‘2017, 2018 Plant Efficiency’ provides the following assumptions in the sheet titled ‘Efficiency’:

	total enthalpy at 185 psig	1198 btu/lb
	total enthalpy at 15 psig	1198 btu/lb
	latent	946 btu/lb
	superheat	36 btu/lb
	sensible	216 btu/lb
	avg temp out of scavenger	150 F
	% of total sales with scavenger	70%
	Load factor for scavengers	50%
	net enthalpy for customers without scavengers	982 btu/lb
	net enthalpy for customers with scavengers	1031 btu/lb
	net weighted enthalpy	1016.3 btu/lb

- 95.9 Please explain why two differing enthalpy figures have been used to calculate the steam sales.
  - 95.9.1 Please confirm the enthalpy figure that is to be used to calculate the steam sales.
  - 95.9.2 Where necessary, please provide updated spreadsheets (Attachments 15.5 and 1.79) as provided in response to BCUC IR 15.5 to reflect your response to IR 95.9.1.

Page 3 of Attachment 15.3 states: The industry standard for new distribution systems of similar size (~15 km) typically yield an efficiency between 90-95 percent as a yearly average. This specific system efficiency is estimated to be 90 percent based on a 50+ year old direct buried steam distribution system.

In response to BCUC IR 20.1, Creative Energy stated: To estimate the distribution losses, other similar systems which meter such losses and are of a comparable size and have similar operating parameters were referenced.

- 95.10 Please provide the data and the source(s) for the similar systems Creative Energy referenced to estimate the distribution losses, including the size and operating parameters.

BCUC IR 21.2 requests the forecast Load Duration Curve (LDC) for the year 2023. In response to BCUC IR 21.2 Creative Energy stated: This information is not available as Creative Energy does not have reliable steam metering that collects or logs steam flows either at specific points within the plant or at the plant gate on less than a monthly basis.

- 95.11 Please confirm, or otherwise explain, whether the Proposed Project will resolve the metering reliability issues.

95.11.1 If not confirmed, please explain why.

95.12 Please explain the metering arrangements for the Proposed Project. In your response please provide information on:

- a) metering arrangements for the Expo Plant; and
- b) metering arrangements for the Beatty Plant.

Page 4 of Attachment 15.3 estimates the plant gate efficiency for the two-plant operation (Proposed Project) to be 84%:

	Est. Gate Efficiency	% Load	Weighted Average
Beatty Street Plant	80.5%	40.0%	32.2%
Expo Plant	86.4%*	60.0%	51.8%
<b>TOTALS</b>		<b>100.0%</b>	<b>84.0%</b>

\*Expo plant gate efficiency is greater due to improved burner efficiency (~ 3%), feedwater economizer (~ 2%), and secondary economizer (~ 1%)

95.13 Please confirm, or otherwise explain, whether upon completion of the Proposed Project, Creative Energy will be able to reliably meter the system efficiency and therefore verify the estimated 84% figure.

95.13.1 If not confirmed, please explain how Creative Energy intends to evaluate the success of the Proposed Project, and its Project Driver to improve efficiency.

95.14 Please confirm, or otherwise explain, whether the 80.5% Estimated Gate Efficiency for the Beatty Street Plant assumes the use of an economizer at the Beatty Street Plant.

95.14.1 If confirmed, please explain why the Proposed Project's scope does not include an economizer at the Beatty Plant.

#### **D. PROJECT DESCRIPTION – EXPO AND BEATTY PLANTS PROJECTS**

**96.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Section 10, p. 35; Exhibit B-5, BCUC IR 19.1  
Project description**

In response to BCUC IR 19.1, Creative Energy stated:

At this stage, as there have been different design teams working on each of the Beatty Plant, Expo Plant and interconnecting piping, there is no single, consolidated site plan showing all the project elements. This will be developed in the detailed design phase.

96.1 Please identify the party responsible for preparing the consolidated site plan.

96.2 Please provide the anticipated start date for the detailed design phase.

96.3 Please provide the anticipated end date for the detailed design phase.

**97.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Section 10, p. 35; Exhibit B-5, BCUC IR 19.5  
Project description**

In response to BCUC IR 19.5, Creative Energy stated:

The interconnection lines - steam, condensate and fuel oil would be routed from the

upper elevations of the Expo plant, across Expo Boulevard at the underside of the BC Place plaza above Expo Boulevard, into the parkade of the Beatty Street redevelopment. Within the Beatty Street redevelopment the lines would run East-West within a trench below the P3 slab and then extend vertically and tie into the main steam header.

97.1 Please confirm, or otherwise explain, whether the only public work required for the Proposed Project is the interconnection lines.

97.1.1 If not confirmed, please provide details of any other public works.

**98.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Section 10, p. 35; Exhibit B-5, BCUC IR 56.2.1, Attachment 31.3a  
Project Description  
Design report**

Attachment 31.3a provides WSP’s Preliminary Design Report.

98.1 Please explain if a Preliminary Design Report for the Beatty Plant will also be prepared.

98.1.1 If so, please provide the report.

98.1.2 If not, please explain why.

**99.0 Reference: PROJCT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Section 10, p. 35; Section 13.2, p. 68; Appendix A of Appendix G, p. 4;  
Exhibit B-5, BCUC IR 20.1; Exhibit B-5-2, BCUC IR 21.2  
Steam generation capacity**

In response to BCUC IR 20.1 Creative Energy provided the following table:

Annual Efficiencies and Capacities	Current plant with Clear Sky Economizer	2023 plant with no Economizer	Proposed Project
Estimated aggregate Boiler Efficiency	84.4%	82.4%	86.1%
Functional Boiler Capacity	630,000 PPH	630,000 PPH	740,000 PPH
Plant Load at peak demand	18,000 PPH	18,000 PPH	18,000 PPH
Efficiency at Plant Gate	82.4%	80.5%	84.0%
Steam Capacity net of plant load	612,000 PPH	612,000 PPH	722,000 PPH
Distribution Efficiency	90%	90%	90%

On page 68 of the Application, Creative Energy states that for the Proposed Project, O&M costs will increase as a result of “higher electricity consumption (increase of 1,339 MWh per year) due to replacement of some steam-powered equipment with electricity-powered equipment.”

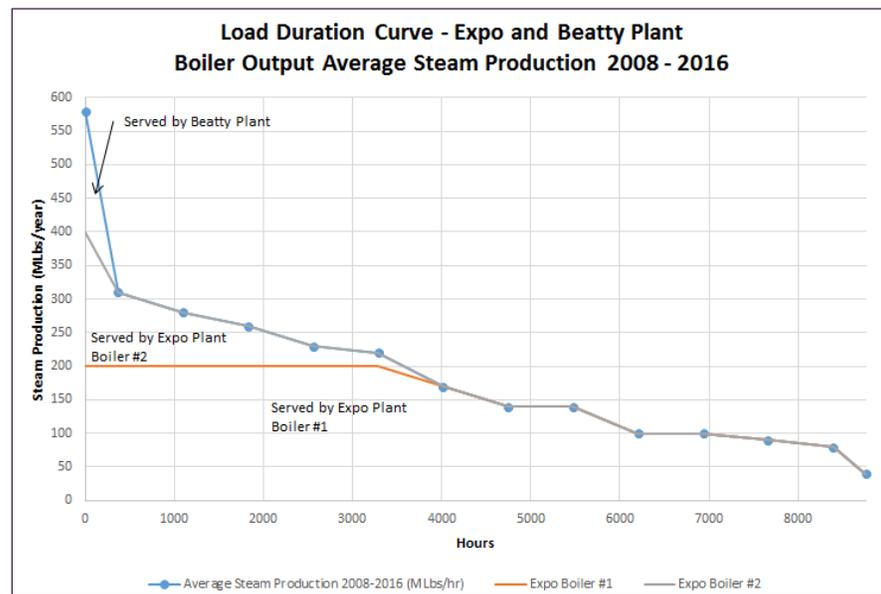
99.1 Please discuss how the replacement of some steam-powered equipment with electricity-powered equipment will impact the ‘Plant Load at peak demand’.

99.1.1 If the replacement is anticipated to impact the ‘Plant Load at peak demand’, please provide the updated figure.

- 99.1.1.1 Please explain how the figure was calculated and provide all assumptions made.
- 99.1.2 If the replacement is not anticipated to impact the Plant Load at peak demand, please explain why.
- 99.1.3 Please provide an updated table to reflect the information provided in response to IR 99.1.1.

BCUC IR 21.2 requested that Creative Energy provide the forecast Load Duration Curve (LDC) for the year 2023 showing the estimated system demand and the proposed dispatch of the boilers for the Proposed Project. In its response, Creative Energy stated: This information is not available as Creative Energy does not have reliable steam metering that collects or logs steam flows either at specific points within the plant or at the plant gate on less than a monthly basis.

Based on the information provided on page 4 of the 2018 Fosdick & Hilmer Condition Assessment Report (Appendix A of Appendix G to the Application), BCUC Staff prepared the following chart in a Microsoft Excel spreadsheet (see Attachment).



- 99.2 Please review the chart and supporting assumptions and confirm, or explain otherwise, whether the LDC is representative of the Proposed Project.
  - 99.2.1 If not confirmed, please discuss any expected variances from the above LDC.
  - 99.2.2 If not confirmed, please provide a revised LDC, explaining any revisions made.
  - 99.2.3 Please provide Creative Energy’s proposed operating strategy for the two plants, explaining how base and peak loads will be serviced while maintaining an N+1 standby capacity.
- 99.3 Please confirm, or otherwise explain, whether the Beatty Plant will be used primarily for meeting peak demand.
  - 99.3.1 If confirmed, please explain the state of the Beatty Plant when peaking demand is not required (i.e. hot standby, cold standby, minimum of one boiler firing etc.).
    - 99.3.1.1 If the state of the Beatty Plant will vary depending on load, season or weather, please provide details (for example, if the Beatty Plant will be called upon if

the outdoor temperature falls below a certain set point, or if the load increases beyond a certain PPH of steam etc.)

99.3.2 If not confirmed, please explain the operating strategy for the Beatty Plant boilers, providing information on the state of the plant when it is not required (i.e. hot standby, cold standby, minimum of one boiler firing etc.). If the state of the Beatty Plant will vary depending on load, season or time of year, please provide details.

99.4 Please explain whether Creative Energy expects the annual plant load to be higher for the Proposed Project compared to the current plant, given the Proposed Project comprises of two plants and with reference to your response to IR series 99.3.2.

**100.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Section 10.5.1, p. 48; Exhibit B-9, Panel IR 4.0  
Boiler abatement and demolishing**

Page 48 of the Application provides the following table outlining the major pieces of existing equipment which are to remain in-situ, be demolished or be relocated over the course of the Beatty Plant renovation.

**BOILERS**

<b>Installed</b>	<b>Boiler ID</b>	<b>Decommission Plan</b>
1967	Boiler #1	Abate & demolish
1968	Boiler #2	Abate & demolish
1969	Boiler #3	Retain
1973	Boiler #4	Abate & demolish
1983	Boiler #5	Retain & relocate
1991	Boiler #6	Retain

In response to Panel IR 4.0 Creative Energy stated: “Beatty Plant Shutdown #1 largely involves two major pieces of work: A) abating and demolishing Boiler #1, Boiler #2 and Boiler #3, and B) relocating the gas service to the Beatty Plant.” [Emphasis added]

100.1 Please confirm which boilers are being retained and which are being demolished as part of the Proposed Project.

**101.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-6, CEC IR 1.3  
Plant expansion**

CEC IR 1.3 requests clarification as to whether the \$5.25 million expenditure is effectively a payment for the additional space reserved for expansion. In its response, Creative Energy stated: “Not exactly. The expandability of the new plant is a function of both space as well as sizing of interconnections, flues and other ancillary equipment.”

101.1 Please provide the design criteria (e.g. capacity) against which the interconnection, flues and other ancillary equipment have been designed.

101.1.1 Please explain the reasons for selecting the design criteria.

101.1.2 Please confirm, or otherwise explain, whether in the event Creative Energy decides to

expand the plant beyond the design criteria, the interconnection, flue and other ancillary equipment would require upgrading.

101.1.2.1 If not confirmed, please explain what other options have been considered for expansion beyond the design criteria.

**102.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT**  
**Exhibit B-1, Section 10.1, p. 35; Section 10.2, pp. 35–36; Appendix G, p. 8; Exhibit B-5, BCUC IR 23.1**  
**Plant staffing**

Page 8 of the Fosdick & Hilmer Condition Assessment Report (Appendix G to the Application) provides a staffing breakdown as of 2013:

Department	Number of staff	Budgeted \$'s (2013)	Constituents
Management & office	8	\$532,375	President & GM, CFO, Accounting Mgr, Dir. Engr & Planning, Construction Mgr, Service Line Mgr, Admin Asst, Chief Engineer – 1 <sup>st</sup> class
Steam plant	11	\$927,435	Shift Engineers- 2 <sup>nd</sup> & 4 <sup>th</sup> class (8), Relief Engineers – 2 <sup>nd</sup> class (2), Maintenance– 4 <sup>th</sup> class (1)
Service lines	4	\$426,975	Service Engineers – 3 <sup>rd</sup> class (4)
<b>Totals</b>	<b>23</b>	<b>\$1,886,785</b>	

102.1 Please provide the current staffing breakdown for the existing plant and the proposed staffing for the Beatty and Expo Plants. Please present the information in the following table. If additional roles are required, please add extra rows and update the table as necessary.

102.1.1 If the staffing requirements vary based on seasonal requirements (for example summer / winter), please provide multiple tables as necessary.

Department	Role	Number of Staff Existing Plant	Number of Staff Proposed Project Beatty Plant	Number of Staff Proposed Project Expo Plant
<b>Management &amp; Office</b>	President & GM			
	CFO			
	Accounting Manager			
	Director Engineering & Planning			
	Construction Manager			
	Service Line Manager			
	Admin Assistant			
	Chief Engineer – 1 <sup>st</sup> Class			
<b>Steam Plant</b>	Shift Engineer – 2 <sup>nd</sup> Class			
	Shift Engineer – 4 <sup>th</sup> Class			
	Relief Engineer – 2 <sup>nd</sup> Class			
	Maintenance – 4 <sup>th</sup> Class			
<b>Service Lines</b>	Service Engineers 3 <sup>rd</sup> Class			
<b>Total</b>				

In response to BCUC IR 23.1, Creative Energy stated: “The Expo plant will require full time staffing when being operated, under the overall supervision of a First Class Power Engineer, the Chief Engineer.”

102.2 Please define “full time staffing when being operated”. In your response please provide the following:

- a) Number of hours that constitutes “full time” (e.g. 24 hours / 7 days)
- b) Number of staff, and their respective roles, required on-site.

102.3 Please confirm, or explain otherwise, whether the Beatty Plant will require “full time staffing” as defined in your response to IR 102.2.

102.3.1 If not confirmed, please explain the staffing requirements.

102.4 Please provide examples of circumstances where staffing would not be required at the Expo or the Beatty Plant.

In response to BCUC IR 23.1.1 Creative Energy stated that “[e]xact details of staffing have yet to be determined.”

102.5 Given that the exact details of staffing have yet to be determined, please explain how the staffing costs for the Proposed Project have been estimated and provide reference to the financial model.

102.5.1 Please detail all assumptions.

102.6 Please provide a comparison, in table form, of the operation and maintenance (O&M) requirements for the current plant compared to the O&M requirements for the Proposed Project. In your response please address each of the following items:

- i. staffing requirements;
- ii. staffing costs;
- iii. equipment / spares;
- iv. equipment costs;
- v. external contractor costs;
- vi. annual O&M costs for current plant; and
- vii. estimated annual O&M costs for Proposed Project.

102.6.1 If Creative Energy does not anticipate a change in annual O&M costs, please explain why.

**103.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Sections 10.4.2,10.4.3, p. 42; Exhibit B-5, BCUC IRs 24.1, 24.1.1.1  
Location of Expo Plant  
Plant controls**

In response to BCUC IR 24.1.1, Creative Energy stated: “There will be control rooms at both plants, but each control room will display information from both plants.”

103.1 Please explain whether one of the control rooms will be considered the “main” control room and will control the other plant.

103.1.1 If so, please state which control room will be designated the “main” control room.

Creative Energy further stated: “The plants will be operated under a single control system, which oversees both plants.”

103.2 Please discuss the safety risks associated with operating two interconnected plants in two different locations.

103.2.1 Please discuss the consequences and Creative Energy’s proposed mitigation strategies.

103.3 Please explain whether Creative Energy has reviewed the safety requirements for the Proposed Project with Technical Safety BC.

103.3.1 If so, please provide an overview of the issues raised.

103.3.2 If so, please explain whether Technical Safety BC’s requirements will impact the following:

- i. Staffing requirements; and
- ii. Control philosophy.

103.3.3 If not, please explain why.

**104.0 Reference: PROJECT DESCRIPTION AND BEATTY PLANTS PROJECT  
Exhibit B-1, Section 5.1, p. 13; Section 11.1, pp. 56–57; Exhibit B-5, BCUC IR 25.2  
Construction milestones**

On pages 56 and 57 of the Application, Creative Energy provides Table 7 – Construction Milestones:

Table 7 - Construction Milestones

1	BCUC Approval	Dec. 31, 2018
2	Order Expo boilers	Dec 2018
3	Start of Expo Plant construction	Jan 2019
4	Early works (new fuel tanks & interconnection)	May 2019
5	Completion of Expo Plant and early works	Oct 2019
6	Phase 1 commissioning	Nov-Dec 2019
7	Relocation of office staff	Jan 2020
8	Shutdown #1 of Beatty Plant <ul style="list-style-type: none"> <li>• Abatement and demolition of Boilers #1, #2 and #4</li> <li>• Relocation of gas service</li> <li>• Relocation of feedwater pumps</li> </ul>	April 2020
9	Restart #1 of Beatty Plant	Oct 2020
10	Demolition and excavation of east area	Oct 2020 – April 2021
11	Shutdown #2 of Beatty Plant <ul style="list-style-type: none"> <li>• Relocation of BC Hydro service</li> <li>• Temporary water service</li> <li>• Install temporary flue for Boiler #3</li> </ul>	April 2021
12	Restart #2 of Beatty Plant	Oct 2021
13	Below grade to L4 slab (below flues)	Oct 2021-April 2022
14	Shutdown #3 of Beatty Plant <ul style="list-style-type: none"> <li>• Extend breeching to L18</li> <li>• Connect boilers to breeching</li> <li>• Remove temporary flues</li> <li>• Reinstate permanent water service</li> </ul>	
15	Restart #3 of Beatty Plant (final)	Oct 2022
16	Complete office tower development	2023

In response to BCUC IR 25.2 Creative Energy stated: “A detailed project schedule has not yet been developed. This will be done as part of the detailed design process.”

104.1 Please provide the start date for the detailed design progress for the Expo Plant.

104.1.1 Please provide an update on the detailed design process, including percentage complete and the anticipated date of completion.

- 104.2 Please explain whether the start date for the detailed design process for the Expo Plant is dependent on the Certificate of Public Convenience and Necessity (CPCN) application process.
  - 104.2.1 If so, please confirm, or otherwise explain, that the detailed design will not commence prior to approval of the CPCN application.
  - 104.2.2 If not, please confirm, or otherwise explain, that the detailed design will be complete prior to approval of the CPCN application.
- 104.3 Please explain whether the start date for the detailed design process for the Expo Plant is dependent on the rezoning application process.
  - 104.3.1 If so, please confirm, or otherwise explain, that the detailed design will not commence prior to approval of the rezoning application.
  - 104.3.2 If not, please confirm, or otherwise explain, that the detailed design will be complete prior to approval of the rezoning application.
- 104.4 Please indicate by when a detailed project schedule for the Expo plant will be developed.
- 104.5 Please provide an outline of the major activities for the Expo Plant project and their associated timing.
  - 104.5.1 Please discuss any other activities that are required to be completed in advance of Expo Plant construction and their anticipated completion date.
- 104.6 Please provide the start date for the detailed design progress for the Beatty Plant.
  - 104.6.1 Please provide an update on the detailed design process, including percentage complete and the anticipated date of completion.
- 104.7 Please explain whether the start date for the detailed design process for the Beatty Plant is dependent on the CPCN application process.
  - 104.7.1 If so, please confirm, or otherwise explain, that the detailed design will not commence prior to approval of the CPCN application.
  - 104.7.2 If not, please confirm, or otherwise explain, that the detailed design will be complete prior to approval of the CPCN application.
- 104.8 Please explain whether the start date for the detailed design process for the Beatty Plant is dependent on the rezoning application process.
  - 104.8.1 If so, please confirm, or otherwise explain, that the detailed design will not commence prior to approval of the rezoning application. If not, please confirm, or otherwise explain, that the detailed design will be complete prior to approval of the rezoning application.
- 104.9 Please indicate by when a detailed project schedule for the Beatty plant will be developed.

On page 13 of the Application, Creative Energy provides Table 1 – Organisations supporting the Application.

**Table 1 - Organisations supporting the Application**

<b>Role</b>	<b>Individual / Firm</b>
Application Lead	President & CEO of Creative Energy
Application Counsel	Lawson Lundell LLP
Project Director	Director of Engineering and Innovation, Creative Energy
Project Manager	Manager, Utility Design and Construction, Creative Energy
Construction Managers	<ul style="list-style-type: none"> <li>• EllisDon (Beatty Plant)</li> <li>• To be determined (Expo Plant)</li> </ul>
Engineering	<ul style="list-style-type: none"> <li>• Fosdick &amp; Hilmer (Beatty Plant)</li> <li>• WSP (Expo Plant)</li> <li>• Vibrattech (interconnection)</li> </ul>
Air quality	Gradient Wind
Controls	Spartan Controls
Financial Modelling	Reshape Infrastructure Strategies

- 104.10 Please provide evidence of the technical capacity of each party and / or persons involved in the Proposed Project to undertake and operate the project.
- 104.11 Please provide the organizational chart of the project team, including the names of the Project Manager(s).
- 104.12 Please explain the project delivery method for the Proposed Project (for example, Design and Build, Contract Management at Risk etc.) from present day up to project completion in 2023.
- 104.13 Please explain and provide specific details of the internal resources
- 104.14 Please explain whether an external party will be engaged to project manage the Proposed Project.
- 104.14.1 If so, please provide details of the party’s responsibilities.
- 104.15 Please confirm the parties responsible for the following:
- i. overall schedule for the Proposed Project;
  - ii. schedule for the Expo Plant; and
  - iii. the schedule for the Beatty Plant.

**E. CONSTRUCTION OF THE PROJECT**

**105.0 Reference: CONSTRUCTION OF THE PROJECT  
Exhibit B-1, Section 11.3, p. 59; Transcript, Volume 1, p. 86; Exhibit B-5, BCUC IRs 28.1, 28.1.4  
Management of project risks**

In response to BCUC IR 28.1, Creative Energy states:

If necessary, a pre-arranged mobile steam boiler plant would be delivered to the site and operated to provide steam to customers to supplement the generation capacity of the Expo plant. The sizing of the mobile steam plant would be determined based on the

extent of the expected delay and the forecast peak demand during that period.

The boiler plant would be sited on the 701 Expo lot where the land is available throughout the first shutdown of the Beatty Plant.

- 105.1 Please explain whether temporary boilers will be available at all times for the duration of the Proposed Project.
- 105.1.1 If not confirmed, please explain the stages of construction during which the temporary boilers will be available.
- 105.2 Please provide details of the “pre-arranged mobile steam boiler plant” and the party responsible for arranging the mobile plant.
- 105.2.1 Please confirm, or otherwise explain, whether the party identified in your response to IR 105.2 will enter in to a contractual agreement for the mobile steam boiler plant prior to the commencement of construction.
- 105.2.1.1 If confirmed, please provide details of the proposed agreement.
- 105.2.1.2 If not confirmed, please explain the mechanism for pre-arranging the mobile steam boiler plant.

In response to BCUC IR 28.1.4, in which Creative Energy was asked whether it ever needed to employ a temporary truck-mounted steam boiler, Creative Energy stated: “Yes, on several occasions but at a smaller scale for partial system shut-downs.”

- 105.3 Please confirm, or otherwise explain, whether Creative Energy employed temporary truck-mounted steam boilers for planned outages.
- 105.3.1 If confirmed, please provide details on any planned outages since 2013. For each planned outage, please provide details on the following:
- i. date of planned outage;
  - ii. reason for planned outage;
  - iii. duration of planned outage;
  - iv. number of temporary truck-mounted boiler(s);
  - v. capacity of temporary truck-mounted boiler(s);
  - vi. date of request for temporary truck-mounted boiler(s);
  - vii. date of delivery of temporary truck-mounted boiler(s);
  - viii. date of temporary truck-mounted boiler(s) commissioning.

If dates for temporary truck-mounted boiler(s) are unknown, please provide the lead time in number of days.

- 105.4 Please confirm, or otherwise explain, whether Creative Energy employed temporary truck-mounted steam boilers for unplanned outages.
- 105.4.1 If confirmed, please provide details on any unplanned outages since 2013. For each unplanned outage, please provide details on the following:
- i. date of unplanned outage;
  - ii. reason for unplanned outage;
  - iii. duration of unplanned outage;
  - iv. number of temporary truck-mounted boiler(s);
  - v. capacity of temporary truck-mounted boiler(s);

- vi. date of request for temporary truck-mounted boiler(s);
- vii. date of delivery of temporary truck-mounted boiler(s);
- viii. date of temporary truck-mounted boiler(s) commissioning; and
- ix. mitigation strategies implemented by Creative Energy during unplanned outage.

If dates for temporary truck-mounted boiler(s) are unknown, please provide the lead time in number of days.

**106.0 Reference      CONSTRUCTION OF THE PROJECT**  
**Exhibit B-1, Section 13.1, p. 63; Section 15, p. 83; Schedules F and G of Appendix A;**  
**Exhibit B-5-2, BCUC IRs 51.1, 51.6;**  
**Project risks – costs**

BCUC IR 51.1 requested clarification on whether “costs associated with/cost increases due to/costs arising” are limited to costs which are within Creative Energy’s scope of responsibility (as defined in Appendix A, Schedule G) or includes costs which may be incurred within the Developer’s scope of responsibility but are as result of Creative Energy schedule delays, design amendments or change orders.

In response to BCUC IR 51.1 Creative Energy stated: “Creative Energy believes that it is will not be liable for costs within the Developer’s scope of responsibility.”

106.1 Please elaborate on the response provided to BCUC IR 51.1, confirming whether or not Creative Energy is liable for any costs within the Developer’s scope of responsibility irrespective of “Creative Energy schedule delays, design amendments or change orders.”

In response to BCUC IR 51.6 Creative Energy provides an illustrative scenario for schedule delays and resulting cost overruns: “An illustrative scenario for schedule delays and resulting cost overruns that could be caused by Creative Energy is related to the delivery of boilers to the Expo Plant.”

106.2 Using the illustrative example provided in BCUC IR 51.6, where the delivery of the boilers to the Expo Plant causes schedule Developer delays and resulting cost overruns, please explain what costs would be the responsibility of Creative Energy (e.g. payment to contractors, personnel costs, contract penalties.)

**107.0 Reference:      CONSTRUCTION OF THE PROJECT**  
**Exhibit B-1, Schedule G to Appendix A, pp. 1-2; Exhibit B-9, Panel IR 4.0;**  
**Project risks**

Page 1 of Schedule G to Appendix A provides the Responsibilities Matrix in which Creative Energy is responsible for all items identified for the Expo Plant.

	Description	Location / Level	Management of Design/ Specifications/ Permitting	Management of Construction	Comments
Expo Plant	Hazmat and Asbestos Removal	Expo Boulevard Level 1	Creative Energy	Creative Energy	CE responsible for up to \$100,000 of removal costs. PivCo responsible for all other costs.
	Demolition and Modifications to shell space is required	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Exterior Façade of Expo Plant	Expo Boulevard Level 1	Creative Energy with the approval of the Developer	Creative Energy	Developer is required to approve the façade design of the Expo Plant due to the proximity to the 720 Beatty Redevelopment
	Major Equipment Inside Expo Plant - Boiler #1 (200,000 pound per hour steam boiler) / Boiler #2 (200,000 pound per hour steam boiler)	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Secondary Equipment Inside Expo Plant - Water softeners / Feed water pumps / Chemical treatment equipment / Deserator / Condensate receiver	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Electrical Distribution Inside Expo Plant - Medium voltage (600V) electrical distribution	Expo Boulevard Level 1	Creative Energy	Creative Energy	Electrical Power to be taken from Substation C within BC Place.
	Life Safety Inside Expo Plant - Emergency Generator (1000 kW)	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Ancillary Spaces Inside Expo Plant - Control Room / Staff Lunch Room / Staff Washroom	Level 2	Creative Energy	Creative Energy	
	Flues and Piping Outside of Expo Plant - 2 x Boiler flues (routed out upper concourse) / Relief piping (routed out upper concourse)	Level 3 and above	Creative Energy	Creative Energy	

In response to Panel IR 4.0 Creative Energy provided information on Scenario 1:

### Scenario 1

If the Developer abandons or is incapable of completing the Developer’s project before the Expo Plant is commissioned, then work on the new Beatty Plant would not yet have commenced and the full generating capacity of the existing plant would remain available to service customers.

Creative Energy would not yet have made its first payment to the Developer as this payment is not due until the Expo Plant is in service.

107.1 Please explain what work the Developer will undertake prior to the completion of the Expo Plant.

107.2 With reference to the statement “Creative Energy would not yet have made its first payment to the Developer as this payment is not due until the Expo Plant is in service,” please explain what costs Creative Energy will have incurred for the construction of the Expo Plant.

107.2.1 Please explain how Creative Energy would recover these costs.

In response to Panel IR 4.0 Creative Energy provided information on Scenario 2:

### Scenario 2

If the Developer abandons or is incapable of completing the Developer’s project during Beatty Plant Shutdown #1, the Expo Plant would be in service and available to service customers.

Beatty Plant Shutdown #1 largely involves two major pieces of work: A) abating and demolishing Boiler #1, Boiler #2 and Boiler #3, and B) relocating the gas service to the Beatty Plant.

If the work associated with A) is not completed by the scheduled Beatty Plant Restart #1, this would not impair Creative Energy’s ability to provide service to customers because Boiler #4, Boiler #5, Boiler #6 and the Expo Plant would be available for service.

The work associated with B), once started, would need to be completed in order to restart Beatty Plant Boiler #4, Boiler #5 and Boiler #6 to meet peak demand requirements. The risk of completion of utility services to the plant is mitigated by careful planning and coordination between the Developer and the utility providers, and by the fact that the majority of the work is completed by the utility providers, not by the Developer.

The final mitigant is the contingency plan to bring in trailer-mounted boiler(s) to provide sufficient capacity to meet peak demand.

107.3 With reference to the statement “If the work associated with A) is not completed by the scheduled Beatty Plant Restart #1, this would not impair Creative Energy’s ability to provide service to customers because Boiler #4, Boiler #5, Boiler #6 and the Expo Plant would be available for service”, please discuss the structural works required to abate and demolish the boilers at the Beatty Plant.

107.3.1 Please explain whether, in the event that that the work associated with A) is not completed by the scheduled Beatty Plant Restart #1, the Beatty Plant could be safely operated to continue to provide service to customers.

107.4 With reference to the statement “the majority of the work is completed by the utility providers, not by the Developer”, please discuss the work that will be within the Developer’s scope.

107.5 Please explain whether Creative Energy would be responsible for the costs associated with the contingency plan to “bring in trailer-mounted boiler(s) to provide sufficient capacity to meet peak demand.”

107.5.1 If so, please explain how Creative Energy would recover the costs incurred.

107.5.2 If not, please provide the party responsible for the contingency plan.

In response to Panel IR 4.0 Creative Energy provided information on Scenario 3:

Electrical and water services to the Beatty Plant will be relocated during Beatty Plant Shutdowns #2 and #3. As discussed above, the risk of completion of utility services to the plant is mitigated by careful planning and coordination between the Developer and the utility providers, and by the fact that the majority of the work is completed by the utility providers, not by the Developer. During these shutdowns the contingency plan would also be available to bring in trailer-mounted boiler(s) to provide sufficient capacity to meet peak demand.

Creative Energy would not yet have made its second payment to the Developer as this payment is not due until the Beatty Plant is in service on a final basis.

107.6 Please explain whether, under Scenario 3, the electrical and water services to the Beatty Plant would still need to be relocated.

107.6.1 If so, please explain why.

107.7 With reference to the statement “the majority of the work is completed by the utility providers, not by the Developer, please discuss the work that will be within the Developer’s scope.

107.8 Please explain whether Creative Energy would be responsible for the costs associated with the contingency plan to “to bring in trailer-mounted boiler(s) to provide sufficient capacity to meet peak demand.”

107.8.1 If so, please explain how Creative Energy would recover the costs incurred.

107.8.2 If not, please provide the party responsible for the contingency plan.

In response to Panel IR 4.0, Creative Energy stated: “If the Developer is in default under its financing and the lender commences realization proceedings, then the lender will be required to complete the construction of the Beatty Plant.”

- 107.9 Please explain how “complete the construction of the Beatty Plant” is defined. In your response, please discuss the work that must be accomplished in order for the construction of the Beatty Plant to be considered “complete.”
- 107.10 Please confirm, or explain otherwise, whether the “complete construction of the Beatty Plant” includes the construction or acquisition of a new office space.
- 107.10.1 If not confirmed, please explain whether Creative Energy would be responsible for the construction or acquisition of a new office space.
- 107.10.1.1 If so, please explain how Creative Energy would recover the costs incurred.

**108.0 Reference: CONSTRUCTION OF THE PROJECT**  
**Exhibit B-1, Section 11.3, pp. 58 to 60; Schedule F to Appendix G, pp. 4-5, p. 18; Exhibit B-5, BCUC IR 29.1; Attachment 29.1**  
**Project risks**

In response to BCUC IR 29.1, Creative Energy stated:

Creative Energy developed a project risk register as part of the schematic design process for the whole project. The intent of the risk register is to begin to catalogue and quantify the major risks on the project. The risk register is intended to be updated at every stage of the project, as the project design definition increases, and the level of project understanding increases. Regular reviews are undertaken with consultants, contractors, vendors, PavCo and other stakeholders.

The risk register developed previously is quite preliminary, but appropriate given the degree of project definition at this stage. The risk register is Attachment 29.1. The risk register will be updated with more detail as the project proceeds and will eventually address all the items identified above.

Creative Energy provided its Risk Register for the Proposed Project in Attachment 29.1:

Name		Company	Probability	Impact	Priority Score = Probability Score x Impact Score
Amin Hassanshahi	Kieran McConnell	Creative Energy	5 > 75%	Critical	Very high - immediate action required
Richard Neindorf	Phil Jones	Creative Energy	4 > 50%	Severe	High - high risk, action needed
			3 > 25%	Major	Medium - action to be delegated to correct authority
			2 > 10%	Mod.	Low - monitor and manage via routine procedures
			1 > 0%	Minor	Very low - managed by routine procedures

- 108.1 Please confirm that the Risk Register, dated December 27, 2017, as provided in Attachment 29.1, is the latest version of Creative Energy’s Risk Register for the Proposed Project.
- 108.1.1 If not confirmed, please provide the latest version of the Risk Register.
- 108.1.2 If confirmed, please discuss the appropriateness of the current Risk Register given that construction is planned to commence in January 2019.
- 108.2 Please confirm, or otherwise explain, whether Creative Energy intends to update the Risk Register for the Proposed Project.
- 108.2.1 If confirmed, please explain whether the updated Risk Register will address the following items:
- Supply of utility service;
  - Cost risks;
  - Public safety / worker safety;

- Construction;
- Access;
- Schedule;
- Environmental issues such as:
  - Permits;
  - Connection of services;
  - Asbestos material removal (Beatty and Expo Plants);
  - Seismic reinforcement;
  - Updating to current codes and regulations;
  - Oil storage tank removal;
  - Oil spill remediation;
- Probability of occurrence; and
- Consequence; and mitigation strategies.

108.2.1.1 If not confirmed, please provide details of the items that the Risk Register will address.

108.2.2 If confirmed, please explain when Creative Energy anticipates updating the Risk Register and the frequency at which the Risk Register will be updated over the duration of the Proposed Project.

108.2.3 If confirmed, please explain whether Creative Energy is prepared to submit the Risk Register to the BCUC for review.

108.2.3.1 If not, please explain why not.

108.2.4 If not confirmed, please explain how Creative Energy will address and monitor the project risks.

Among others, Creative Energy identified the following two risks related to “Budget” in the Risk Register for the Proposed Project in Attachment 29.1:

#	Identified by (initials)	Date Identified	Category	Risk Description	Probability	Impact	Priority Score	Owner (initials)	Response Type	Action
17	KM	12.27.17	Budget	Funding issues - lack of funding or delay in payments	2	4	8	KM	Reduce	Secure whole project funding in advance
25	KM	12.27.17	Budget	Counterparty risk - ie WB insolvent	1	4		KM	Accept	Secure funding in advance against CE project

108.3 Please clarify/explain the difference in risk between Risk #17 (i.e. “Funding issues – lack of funding or delay in payments”) and Risk #25 (i.e. “Counterparty risk – ie WB insolvent”) in the Risk Register.

108.4 Please provide an update on the status of Risk #17 and #25 as it relates to securing project funding in advance.

**109.0 Reference: CONSTRUCTION OF THE PROJECT  
Exhibit B-1, Schedule G to Appendix A, pp. 1–2; Exhibit B-6, CEC IR 46.2  
Project risks**

Page 1 of Schedule G to Appendix A provides the Responsibilities Matrix which states that apart from the ‘Exterior Façade of Expo Plant’ in which both Creative Energy and the Developer are identified as the responsible parties for the ‘Management of Design/ Specifications/ Permitting’, Creative Energy is responsible for all items identified.

	Description	Location / Level	Management of Design/ Specifications/ Permitting	Management of Construction	Comments
Expo Plant	Hazmat and Aesbestos Removal	Expo Boulevard Level 1	Creative Energy	Creative Energy	CE responsible for up to \$100,000 of removal costs. PavCo responsible for all other costs.
	Demolition and Modifications to shell space as required	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Exterior Façade of Expo Plant	Expo Boulevard Level 1	Creative Energy with the approval of the Developer	Creative Energy	Developer is required to approve the façade design of the Expo Plant due to the proximity to the 720 Beatty Redevelopment
	Major Equipment Inside Expo Plant - Boiler #1 (200,000 pound per hour steam boiler) / Boiler #2 (200,000 pound per hour steam boiler)	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Secondary Equipment Inside Expo Plant - Water softeners / Feed water pumps / Chemical treatment equipment / Deaerator / Condensate receiver	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Electrical Distribution Inside Expo Plant - Medium voltage (600V) electrical distribution	Expo Boulevard Level 1	Creative Energy	Creative Energy	Electrical Power to be taken from Substation C within BC Place.
	Life Safety Inside Expo Plant - Emergency Generator (1000 kW)	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Ancillary Spaces Inside Expo Plant - Control Room / Staff Lunch Room / Staff Washroom	Level 2	Creative Energy	Creative Energy	
	Flues and Piping Outside of Expo Plant - 2 x Boiler flues (routed out upper concourse) / Relief piping (routed out upper concourse)	Level 3 and above	Creative Energy	Creative Energy	

In response to CEC IR 46.2, Creative Energy stated:

The Developer cannot commence major work on the Beatty Plant until the Expo Plant is commissioned. The Developer also cannot receive the first installment of Creative Energy’s payment until the Expo Plant is commissioned. If the Developer fails to complete the Expo Plant there is no immediate impact on Creative Energy ratepayers, except the lost opportunity of securing the upgrades to the Beatty Plant. [Emphasis added]

109.1 Given that the Responsibilities Matrix identifies Creative Energy as the responsible party for the Expo Plant, please explain the statement “[i]f the developer fails to complete the Expo Plant.”

109.2 With respect to the Expo Plant, please explain all of the specific responsibilities of the following parties:

- Creative Energy;
- The Developer;
- PavCo;
- any other party.

**110.0 Reference: CONSTRUCTION OF THE PROJECT  
Exhibit B-5, Attachment31.3a, Section 5.3.2;  
Project risks**

In reference to the Expo Plant, Section 5.3.2 of WSP’s Preliminary Design Report states:

**5.3.2 Project Risks**

Connection with Beatty Street and continuing operation through the Georgia Viaduct construction and Beatty Street Plant site redevelopment. Areas of concern includes the following:

— Connection and integration of the diesel fuel system for the emergency generator. The Standby Generator will have a day tank but will not have a storage tank. There is a risk that the standby generator may run dry if the fuel supply from Beatty Street Plant site is interrupted.

110.1 Please discuss the risk to the Proposed Project and Creative Energy’s ongoing ability to provide safe and reliable service to its customers in the event that fuel supply from the Beatty Plant is

interrupted.

110.1.1 Please provide details of consequences and mitigation strategies.

110.2 Please discuss the risk to the Proposed Project and Creative Energy's ongoing ability to provide safe and reliable service to its customers in the event that the Interconnection piping is damaged or interrupted.

110.2.1 Please provide details of consequences and mitigation strategies

**111.0 Reference: CONSTRUCTION OF THE PROJECT  
Exhibit B-5, BCUC IRs 27.51, 27.7 and 27.9, pp. 46–47  
Temporary and new office**

In response to BCUC IR 27.5.1, Creative Energy stated that it is “focussed on continuing to grow and maintain the steam system as well as development other new energy systems. The projected growth in office staff is for additional project managers, regulatory staff and accounting staff to support the growing business.”

111.1 Please provide specific details on how Creative Energy calculated its projected growth in office staff from 13 currently to 25 in 20 years.

111.1.1 What specific projects does Creative Energy have planned that will contribute to this projected growth.

111.1.1.1 If no specific projects are scheduled, please indicate what factors were used to project the increase in office staff from 13 currently to 25 in 20 years.

111.1.2 Please provide, to the best of your ability, an estimated amount of growth that can be attributed to the regulated entities.

In response to BCUC IR 27.7, Creative Energy confirmed “that fee simple ownership is intended. If fee simply ownership cannot be provided, equivalent tenure will be provided (e.g., 999-year lease).”

111.2 Please indicate when the ownership structure of the new office space will be finalized.

111.2.1 If fee simple ownership cannot be provided, please provide details on all possible alternatives.

In response to BCUC IR 27.9, Creative Energy stated that it is “not able to estimate the future costs to operate and maintain the new office space. The amount attributed to regulated and non-regulated uses of the space will be allocated based on the projects Creative Energy is working on at the time and cannot be estimated at this time.”

111.3 Please explain why Creative Energy is not able to estimate future costs to operate and maintain the new office space.

111.3.1 With the information available to you, please provide an estimate of the annual operational and maintenance costs for the new office space assuming the same allocation of regulated and non-regulated space reported for 2017. Please provide justification for any assumptions made in the estimate:

New Office Space - Annual Costs											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Operational Costs \$											
Maintenance Costs \$											
Total cost \$											
Amount attributed to the Regulated Operations %											
Amount attributed to the Non-regulated %											

111.4 Please discuss the consequences of the operational and maintenance costs being higher or lower than current costs. In your answer please confirm if the Developer, Creative Energy’s shareholders, or ratepayers will be responsible for any differences.

111.4.1 If ratepayers are responsible, please describe how this affects the forecasted rate change of 3.8 percent.

**F. TOTAL PROJECT COST ESTIMATE**

**112.0 Reference: TOTAL PROJECT COST ESTIMATE  
Exhibit B-6, CEC IRs 33.1, 33.2  
Project costs already incurred by Creative Energy**

In response to CEC IR 33.1, Creative Energy stated that \$1.45 million has already been incurred for the Project by Creative Energy.

In response to CEC IR 33.2, Creative Energy stated that it has not considered the recovery of the \$1.45 million in the event the application is denied or approved with conditions.

112.1 Please provide Creative Energy’s course of action regarding the recovery of costs already incurred or committed if the application is denied or approved with conditions by the BCUC.

**G. RATE AND BILL IMPACT OF THE PROPOSED PROJECT**

**113.0 Reference: RATE AND BILL IMPACT OF THE PROPOSED PROJECT  
Exhibit B-1, Section 13.4, p. 72; Exhibit B-5, BCUC IR 39.1  
Retired asset**

On page 72 of the Application, Table 9 shows the estimated rate base items to be retired under the Proposed Project. Creative Energy notes, at this time, that the amounts provided are as of 2017 and will be adjusted to actual based on the actual timing of retirements:

Table 9 – Estimated Retired Assets and Land

Steam Production Plant	Net Rate Base 2017	Est. % to be Retired	Est. Retired Amount	Notes
Land	565,500*	50%	282,800	
Structures & Improvements	1,360,100	100%	1,360,100	Completely removed
Boiler Plant Equipment	3,381,100	30%	1,014,300	Boilers #1 and #2 already 100% depreciated
Boiler Tanks Equipment	42,100	100%	42,100	Completely removed
Boiler Auxiliary Equipment	235,200	50%	117,600	
Accessory Electric Equipment	110,500	50%	55,200	
<b>Total Steam Production Plant</b>	<b>5,694,500</b>		<b>2,872,200</b>	
<b>Total Excluding Land</b>	<b>5,129,000</b>		<b>2,589,400</b>	

In response to BCUC IR 39.1, Creative Energy submitted that “the proposed retirements are in the normal course of business and prudent...”

On pages 71-72 of the Application, Creative Energy states it “will submit detailed accounting and a proposal for the treatment of these costs as part of a future application.” The BCUC notes it has established the Regulatory Account Filing Checklist that is applicable to regulated entities that are requesting approval to establish a new regulatory account in order to facilitate an efficient review of these applications.<sup>1</sup>

- 113.1 Please provide the criteria that Creative Energy has applied to determine if the disposition of utility **assets, property and rights** associated with the Proposed Project are inside or outside of the ordinary course of business.
  - 113.1.1 Please discuss Creative Energy’s view of the impact of the disposition of assets and rights being inside or outside of the ordinary course of business as it relates to Creative Energy’s request to establish the proposed deferral account for future recovery from ratepayers.
  - 113.1.2 Should the BCUC consider that it is the choice of Creative Energy to retire the assets at this time in determining if the disposition is in the normal course of business?
- 113.2 Please provide a detailed breakdown of the amounts in the column “Est. Retired Amount” by individual asset in Table 9.
- 113.3 Please provide a detailed breakdown of the amount of annual depreciation expense associated with the assets which are expected to be retired under the Proposed Project.
  - 113.3.1 Please confirm whether or not savings from the removal of the annual depreciation expense noted in the IR response above have been included in the NPV analysis for the Proposed Project.
- 113.4 In order to determine the appropriateness of the proposed regulatory deferral account and in line with the Regulatory Account Filing Checklist, Creative Energy is requested to provide the following information and supporting rationale:

<sup>1</sup> [https://www.bcuc.com/Documents/Guidelines/2017/05-03-2017\\_RegulatoryAccountFilingChecklist.pdf](https://www.bcuc.com/Documents/Guidelines/2017/05-03-2017_RegulatoryAccountFilingChecklist.pdf)

1. Whether, or to what extent, the subject of the deferral account is outside of management's control;
2. The term (i.e. length of time) for which the regulatory account should be approved;
3. The mechanism for recovery;
4. The proposed carrying cost for the balance in the deferral account and why it's appropriate;
5. The materiality of the costs;
6. The timing of additions to the proposed account.

**114.0 Reference: RATE AND BILL IMPACT OF THE PROPOSED PROJECT  
Exhibit B-1, Section 13.2, pp. 68–69; Exhibit B-5, BCUC IR 17.1  
O&M**

On page 68 of the Application, Creative Energy states that O&M costs will increase because of “higher electricity consumption (increase of 1,339 MWh per year) due to replacement of some steam-powered equipment with electricity-powered equipment (electricity rates are assumed to escalate at 3% per year).”

In response to BCUC IR 17.1, Creative Energy stated: “this cost/benefit analysis has not been developed at this stage of the project. The analysis will be conducted in the detailed design stage of the project, where the optimum balance of steam-driven and electrically driven equipment will be determined. The analysis will consider capital and operating costs, operating flexibility, efficiency and emissions associated with both options.”

114.1 If Creative Energy hasn't performed an analysis of the balance of steam-driven and electrically driven equipment, what assumptions have been made in the financial model regarding higher electricity consumption? Please provide all supporting calculations and assumptions for the 1,339 MWh/year figure.

114.1.1 Please discuss how the assumptions identified above impact the O&M costs.

114.2 Please provide other feasible scenarios regarding the balance of steam-driven and electrically driven equipment. Please provide all supporting calculations and assumptions.

114.2.1 Please discuss how the various scenarios above impact the O&M costs.

On pages 68 and 69 of the Application, Creative Energy states: “O&M costs will decrease due to a reduction in Creative Energy's property tax liability at the Beatty Plant as the property taxes for the site will be spread over a larger pool of users,” and that the net change in the Beatty Street property tax will be minus \$474,600.

114.3 Please provide the supporting calculations and assumptions for the estimated \$474,600 decrease in property taxes.

## **H. ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT**

**115.0 Reference: ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT  
Exhibit B-1, Section 9, p. 31; Section 14, p. 76; Exhibit B-5, BCUC IR 41.1.1  
Feasibility assessment criteria**

In response to BCUC IR 41.1.1, Creative Energy stated:

Creative Energy did not prepare a final feasibility analysis document. The options were assessed in an iterative manner. Both the Proposed Project and the Alternative project meet the criteria of being able to be constructed while maintaining steam service. The

Proposed Project is considerably more attractive than the Alternative from the standpoint of economic and first-cost considerations, before including in the Alternative the cost of new office space. The Proposed Project is also expected to better improve the reliability of the system as it replaces a greater proportion of end-of-life assets.

- 115.1 Please explain how Creative Energy conducted the alternative assessment in an iterative manner.
- 115.2 Please explain whether Creative Energy assessed other alternatives, in addition to the 'Alternative' project and the 'Construct a New Plant in a Different Location' options.
  - 115.2.1 If confirmed, please provide details.
  - 115.2.2 If not confirmed, please explain why.
- 115.3 Please provide the results of the iterative assessment.
- 115.4 Please discuss how the BCUC should review the iterative assessment process.
- 115.5 Please provide the criteria Creative Energy used to assess the alternatives with respect to ongoing operation and maintenance costs.
  - 115.5.1 Please provide a table comparing the operation and maintenance benefits for the Proposed Project, the 'Alternative' project and the 'Construct a New Plant in a Different Location' alternative.
- 115.6 Please explain which of the alternatives considered is estimated to have the lowest operation and maintenance costs on an annual basis.
  - 115.6.1 Please provide the calculation(s) and data used to estimate the operation and maintenance costs.

Creative Energy further stated: "The Proposed Project and the Alternative are expected to have similar impacts on system efficiency."

- 115.7 Please explain why it is assumed that the system efficiency for the Alternative is the same as the Proposed Project.
  - 115.7.1 Please provide all the assumptions used to determine the system efficiency of the Alternative.

Section 9 of the Application provides the primary drivers for the Proposed Project. The primary drivers are stated to be:

- Maintain Reliable Service to Customers;
- Improve Safety;
- Improve Efficiency;
- Improve Emissions;
- Improve Staff Work pace and Accessibility.

- 115.8 Please provide, in table form, a comparison of how the primary project drivers are met by each of the following alternatives:
  - i. Proposed Project;
  - ii. 'Alternative' project; and
  - iii. 'Construct a New Plant in a Different Location.'

**116.0 Reference: ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT  
Exhibit B-1, Section 14, pp. 76-78; Exhibit B-5, BCUC IRs 42.7, 42.9  
In-situ Equipment Replacement (“Alternative”) - Scope**

In response to BCUC IR 42.7, Creative Energy stated: “If Creative Energy were to decide to continue to operate the plant in-situ, major capital renewal would be required as soon as possible, as major equipment has passed its design life. The time to obtain approvals, complete design, procure and install equipment is roughly three years.”

116.1 Please provide a table comparing the construction milestones for the Proposed Project versus the Alternative project, according to the time required to:

- a) obtain approvals;
- b) complete design;
- c) procure equipment; and
- d) install equipment.

BCUC IR 42.9 requests clarification as to whether Creative Energy has explored the Alternative with any other real estate developers. In its response Creative Energy stated: “The main impediment to redeveloping the site is the operating steam plant and associated equipment and facilities on the site. Please see the response to BCUC IR 1.42.8, and Creative Energy’s August 24, 2018 submission to the Commission regarding the terms of reference for the independent appraiser.”

116.2 Please confirm, or explain otherwise, whether Creative Energy has approached any other real estate developers to discuss the Proposed Project or any other alternative.

**117.0 Reference: ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT  
Exhibit B-1, Section 14, p. 80; Exhibit B-5, BCUC IR 43.1  
In-situ Equipment Replacement (“Alternative”) - Risks**

In response to BCUC IR 43.1, Creative Energy stated: “Put simply, the Proposed Project has the lowest cost and the lowest risk to customers as compared to any alternative. The two alternatives noted would have much higher costs to customers, and higher risks including risk of service interruption and/or cost overruns.”

117.1 Please discuss the risk of service interruption for the following:

- i. Proposed Project;
- ii. Alternative project; and
- iii. Construct a New Plant in a Different Location alternative.

**118.0 Reference: ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT  
Exhibit B-6, BCUC IR 62.18  
In-situ Equipment Replacement (“Alternative”) - Benefits**

In response to BCUC IR 62.18, Creative Energy stated:

If the Commission does not approve the Application, the Trust and Development Agreement would be terminated. Creative Energy and its customers would lose the benefits of the Proposed Project. This might leave Creative Energy and its customers with the only feasible alternative to the Proposed Project (being the Alternative project described in section 14 of the Application), which is much more costly, has less benefits and has a higher present value cost. [Emphasis added]

118.1 Please provide a table comparing the benefits of the Proposed Project and the Alternative Project.

**119.0 Reference: NPV ANALYSIS OF PROPOSED PROJECT  
Exhibit B-1, Section 9.3, p. 33; Section 13.5, pp. 72–75; Exhibit B-5, BCUC IRs 45.1, 45.2  
Avoided natural gas consumption**

In response to BCUC 45.1 Creative Energy stated that the plant gate efficiency used to calculate the cost benefits of \$8,584,000 in avoided natural gas consumption is 84%.

119.1 Please confirm, or otherwise explain, that the cost benefit of \$8,584,000 in avoided natural gas consumption is estimated against the Baseline (2023) efficiency of 80.4%.

119.1.1 If confirmed, please provide the cost benefit for avoided natural gas consumption based on the current Plant Gate Efficiency, stated to be 82.7%.

In response to BCUC IR 45.2, Creative Energy stated:

The present value avoided cost of natural gas consumption for the alternative depends on the year in which the alternative is completed. The below table shows the present value of the benefit of avoided gas consumption for the alternative, for the selected years used in the Application to illustrate the alternative<sup>28</sup>

	Present Value of Benefit of Avoided Natural Gas Consumption (Alternative)
2020 Completion	\$8.1 M
2025 Completion	\$6.7 M
2030 Completion	\$4.8 M
2035 Completion	\$3.2 M

119.2 Please provide the plant gate efficiency used to estimate the Present Value of the Benefit of Avoided Natural Gas Consumption (Alternative).

119.2.1 Please provide the assumptions used to determine the Alternative project plant gate efficiency.

119.3 Please confirm, or otherwise explain, whether the cost benefit of \$8.1 M in avoided natural gas consumption is estimated against the Baseline (2023) efficiency of 80.4%.

119.3.1 If confirmed, please provide the cost benefit for avoided natural gas consumption based on the current Plant Gate Efficiency, stated to be 82.7%.

Creative Energy further stated: “Creative Energy does not have a calculation of the benefit of avoided natural gas consumption for the Construct a New Plant in a Different Location option. Creative Energy expects that it would be comparable to the results shown above for the alternative.”

119.4 Please confirm, or explain otherwise, whether Creative Energy would expect the plant gate efficiency of a New Plant, as part of the Construct a New Plant in a Different Location option, to have a higher plant gate efficiency than the Proposed Project and the Alternative Project.

119.4.1 If not confirmed, please discuss the reasons why the plant gate efficiency would not be higher than those estimated for the Proposed Project and the Alternative project.

**120.0 Reference: ANALYSIS OF THE ALTERNATIVE PROJECT**  
**Exhibit A-15, p. 78; Exhibit B-1, Section 13.3, p. 71; Exhibit B-5, BCUC IRs 47.4, 47.4.1**  
**Cost of constructing a new plant in a different location**

In response to BCUC IR 47.4 Creative Energy stated:

For the sale of the land to give a financial outcome comparable to the Proposed Project, it would need to sell for at least \$80 million as shown below.

Low-Bookend Capital Cost Estimate for New Plant – New Site	\$75+ million	Excludes or under-estimates some items
Target Impact on Ratepayers	\$15 million	Equivalent to Proposed Project
Required Revenue from Sale of Land (Net of Capital Gains Tax)	\$60+ million	\$75+ M - \$15 M
Required Land Sale Price	\$80+ million	Grossed up 25% for Capital Gains Tax Impact

Page 78 of Grover, Elliott & Co. Ltd.’s report titled ‘An Appraisal of A Redevelopment Site Located at 720 Beatty Street & 701 Expo Boulevard Vancouver, British Columbia’ states:

As at September 19, 2018, and based on the Commission’s allocation of land areas, we estimate the market value of the lands as follows.

Parcel	Non-regulated Area (%)	Non-regulated Value \$	Regulated Area (%)	Regulated Value \$	Total Value \$
720 Beatty Street	24.2%	43,867,983	75.8%	137,712,017	181,580,000
701 Expo Boulevard	0.0%		100.0%	4,060,000	4,060,000
Total	16.3%	43,867,983	83.7%	141,772,017	185,640,000

120.1 Given that the market value of the lands is assessed to be in excess of \$80 million, please discuss the impact of the increased land value on the viability of the ‘Construct a New Plant in a Different Location’ alternative.

120.2 Please provide a comparison of the financial outcome of the ‘Construct a New Plant in a Different Location’ alternative compared to the Proposed Project, given the increased land value.

120.2.1 Please discuss whether Creative Energy has reassessed feasibility of the ‘Construct a New Plant in a Different Location’ alternative based on the increased land value.

120.2.1.1 If so, please provide details of the reassessment.

120.2.1.2 If so, please provide a comparison of the reassessment results compared to the Proposed Project.

120.2.1.3 If not, please explain why.

In response to BCUC IR 47.4.1 Creative Energy stated:

Locating the new plant at BC Place was considered at an early stage, but discarded for a number of reasons.

Creative Energy conducted a joint review of available space within BC Place with PavCo facilities staff, to develop a comprehensive list of possible plant locations. Spaces which were undersized or did not allow installation and future replacement of boilers were screened out as non-functional. Following the screening, the current proposed location was the only space which offered functional boiler plant space. The current space is only large enough to accommodate two 200,000 lb/hr steam boilers. [Emphasis added]

On page 71 of the Application, Creative Energy states:

The secondary payment would only be payable in the event new net generating capacity of any form is installed within the Beatty Plant. It does not apply to replacing existing generating capacity, or to any capacity added to the system outside the Beatty Plant (including any expansion of capacity at the Expo Plant).

120.3 Please discuss the opportunities for expansion at the Expo Plant referred to in the Application.

120.3.1 If there is sufficient space for expansion at the Expo Plant, please provide details of the possible locations and the anticipated additional capacity that could be realised.

**121.0 Reference: ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT  
Exhibit B-5, BCUC IR 46.5  
Cost of in-situ equipment replacement (the “Alternative”)**

In response to BCUC IR 46.5, Creative Energy stated that “it has made one revision to the methodology used to calculate the values in Table 12 of the Application. The calculation has been revised to include a terminal value of the new plant. The below table has corrected values for Table 12...”

121.1 Please clarify what is meant by the term “terminal value” of the new plant in the above preamble. Please also explain how the calculation has been revised to account for the terminal value of the new plant.

121.1.1 For clarity, please compare/contrast the meaning and application of “terminal value” provided in the IR response above, to the definition and application of the terms: i) “residual value”; and ii) “salvage value” in ASPE Section 3061 (Property, plant and equipment) paragraphs .03 and .16.

121.2 Please provide the amount used by Creative Energy with respect to the “terminal value of the new plant.”

121.2.1 Please explain how the amount for the “terminal value of the new plant” was determined.

**122.0 Reference: ANALYSIS OF ALTERNATIVE TO PROPOSED PROJECT  
Exhibit B-5, BCUC IR 47.4; Exhibit A-15  
Cost of constructing a new plant in a different location**

In reply to BCUC IR 47.4, Creative Energy stated that the required land sale price needs to exceed \$80+ million in order to consider building a new plant in a different location.

Exhibit A-15 contains the independent appraisal report conducted by Grover, Elliott & Co. Ltd. which was requested to assess the market value of the regulated and non-regulated lands. The table below summarises the analysis:

Parcel	Non-regulated Area (%)	Non-regulated Value \$	Regulated Area (%)	Regulated Value \$	Total Value \$
720 Beatty Street	24.2%	43,867,983	75.8%	137,712,017	181,580,000
701 Expo Boulevard	0.0%	-	100.0%	4,060,000	4,060,000
Total	16.3%	43,867,983	83.7%	141,772,017	185,640,000

122.1 Please discuss, and provide appropriate justification, whether Creative Energy now considers the alternative of building a new plant in a different location as an economical alternative to the Proposed Project given that the Grover, Elliott & Co. Ltd. assessment has estimated that the land value exceeds the \$80+ million approximation.

## I. SENSITIVITY ANALYSIS

### 123.0 Reference: SENSITIVITY ANALYSIS Exhibit B-5, BCUC IR 51.2; Exhibit B-1, Schedule G of Appendix A Sensitivity of capital cost risk to Creative Energy

In BCUC IR 51.2, the BCUC requested that Creative Energy (i) “explain the scope and definition of ‘schedule delays caused by Creative Energy’” and (ii) to confirm if various scenarios would be included in this definition. The BCUC notes that Creative Energy answered only the latter of the two questions.

Schedule G of the Trust and Development Agreement indicates Creative Energy is responsible for various aspects of the project for the Beatty Plant, Expo Plant, and Interconnection including the management of design, specifications, permitting, and management of construction.

123.1 Please explain the scope and definition of “schedule delays caused by Creative Energy.” Please provide a variety of examples in response.

123.2 In the view of Creative Energy, please provide the scope/definition of “management of design, specifications, permitting, and management of construction” of the various aspects of the Proposed Project that is the responsibility of Creative Energy. Please provide a variety of examples in response.

## J. OTHER APPROVALS REQUIRED

### 124.0 Reference: OTHER APPROVALS REQUIRED Exhibit B-1, Section 16, p. 86; Exhibit B-5, BCUC IR 53.1 Fuel oil pipeline

In response to BCUC IR 53.1 Creative Energy stated: “The fuel oil line will not require BC Oil and Gas Commission approval. The regulation of oil and gas lines which are associated with heating boilers falls to Technical Safety BC. “

124.1 Please explain any permits or approvals that are required from Technical Safety BC with respect to the fuel oil pipeline.

**125.0 Reference: OTHER APPROVALS REQUIRED**  
**Exhibit A-15, Part Three, p. 46; Exhibit B-1, Section 11.1, p. 55; Section 19.1, p. 98;**  
**Exhibit B-5, BCUC IR 52.1**  
**Rezoning and permit Applications**

Page 55 of the Application states: “The construction of both the Expo and Beatty Plants will not commence prior to approval of this Application by the Commission and approval of rezoning for 720 Beatty Street by the City of Vancouver.”

Page 98 of the Application further states:

The steps in the proposed reorganization (**Proposed Reorganization**) are planned to occur shortly after approval in the order as set out in the slides attached to this Application as Appendix M. The slides in Appendix M show the reorganization steps from the organization structure at time of filing this Application through to completion of the Proposed Reorganization. All steps must be completed to implement the Proposed Reorganization and prior to commencing construction of the Expo Plant.

Page 46 of Grover, Elliott & Co. Ltd.’s report titled ‘An Appraisal of A Redevelopment Site Located at 720 Beatty Street & 701 Expo Boulevard Vancouver, British Columbia’ states:

Changing the land use controls requires approval by municipal council of a rezoning. Municipal staff indicate that a formal development application has not been submitted for the subject sites as the most recent application was considered incomplete because the required setbacks were not met; usually, this is a technical matter, and can be overcome with design or possibly relaxation.

125.1.1 Please confirm, or otherwise explain, that the Expo Plant does not require a rezoning application.

125.1.1.1 If not confirmed, please explain whether one rezoning application will be submitted for both plants.

125.1.1.2 If confirmed, please provide details of the permits / approvals required for the Expo Plant.

In response to BCUC IR 52.1, Creative Energy provided the following table:

Approval	Authority having Jurisdiction	Site	Approval Date	Impact of Delay	Party Responsible
Air Quality Permit	Metro Vancouver	Expo	December 31, 2018	Project not likely delayed	Developer
Operating Permit	Technical Safety BC	Expo and Beatty	December 31, 2019	Project not likely delayed	Developer
Rezoning Enactment	City of Vancouver	Beatty Development	December 31, 2018	Project delayed by duration of permit delay	Developer
Development Permit	City of Vancouver	Beatty Development	July 31, 2019	Project delayed by duration of permit delay	Developer
Building Permit	City of Vancouver	Beatty Development	September 31, 2019	Project delayed by duration of permit delay	Developer
Occupancy Permit	City of Vancouver	Beatty Development	Dec 31, 2023	Project delayed by duration of permit delay	Developer

125.2 For each Approval listed in the table provided, and any other approvals required for either the Beatty Plant or the Expo Plant, please provide the actual (or anticipated) application date. Please provide your response in table format below:

Approval	Authority having Jurisdiction	Site	Approval Date Impact of Delay	Impact of Delay	Party Responsible	Actual (or anticipated) application date

125.3 Please confirm, or otherwise explain, whether Creative Energy will commence construction of the Beatty Plant or the Expo Plant prior to attaining rezoning approval.

125.3.1 If confirmed, please discuss the likelihood of Creative Energy starting construction in January 2019 assuming the BCUC approves the CPCN Application.

125.3.2 If not confirmed, and in the event that rezoning approval is not attained, please explain the party responsible for the costs incurred.

125.3.2.1 Please detail any costs that would be the responsibility of Creative Energy.

125.4 In the event that the rezoning application is not approved, please confirm, or otherwise explain, the Proposed Reorganization would not proceed.

125.4.1 If not confirmed, please provide details of the Proposed Reorganization.

**126.0 Reference: OTHER APPROVAL REQUIRED**  
**Exhibit B-5, BCUC IR 52.1; Exhibit A-15, p. 46**  
**Other government authority approvals required**

In response to BCUC IR 52.1, Creative Energy provided the following information regarding government approvals for the Project:

Approval	Authority having Jurisdiction	Site	Approval Date	Impact of Delay	Party Responsible
Air Quality Permit	Metro Vancouver	Expo	December 31, 2018	Project not likely delayed	Developer
Operating Permit	Technical Safety BC	Expo and Beatty	December 31, 2019	Project not likely delayed	Developer
Rezoning Enactment	City of Vancouver	Beatty Development	December 31, 2018	Project delayed by duration of permit delay	Developer
Development Permit	City of Vancouver	Beatty Development	July 31, 2019	Project delayed by duration of permit delay	Developer
Building Permit	City of Vancouver	Beatty Development	September 31, 2019	Project delayed by duration of permit delay	Developer
Occupancy Permit	City of Vancouver	Beatty Development	Dec 31, 2023	Project delayed by duration of permit delay	Developer

Exhibit A-15 page 46 states “Municipal staff indicate that a formal development application has not been submitted for the subject sites as the most recent application was considered incomplete because the required setbacks were not met.”

BCUC staff reviewed the City of Vancouver’s list of current and approved rezoning applications<sup>2</sup> on October 24, 2018 and Creative Energy’s Proposed Project is not listed.

126.1 Please confirm, or otherwise explain, whether a rezoning application for 720 Beatty St has been submitted to the City of Vancouver.

126.1.1 If confirmed, please provide the current status of the Application.

126.1.2 If not confirmed, please explain why a rezoning application has not been submitted to the City of Vancouver.

126.2 Please provide the following for each permit provided in response to BCUC IR 52.1:

1. The actual or anticipated application date;
2. A copy of the applications that have been filed;
3. The current status of each permit (e.g. application not yet filed, application filed, application under review, approval granted);
4. The actual or anticipated approval date;
  - a) For anticipated approval dates please provide a range of estimates for the average approval time for each type of permit with accompanying evidence or examples to support estimates.
5. The date by which approval is required; and
6. The risk to the Proposed Project if delayed.

126.3 Please explain in detail why the most recent rezoning application was considered “incomplete.”

126.3.1 Please confirm if there is expected to be one rezoning application for each of the two properties or one application combined for the two properties.

126.3.2 Please confirm that the FSR for 720 Beatty was 11.68 (an 18 story office tower) and 701 Expo Blvd. was 0.54 (single-storey retail use) for the denied application, and whether

<sup>2</sup> <https://rezoning.vancouver.ca/applications/index.htm>

those facts will remain for the revised application(s).

- 126.4 Based on the current status of all required permits and approval, how likely is it for Creative Energy to be able to begin construction in January 2019 assuming the BCUC approves the Application?

Schedule G of the Trust and Development Agreement indicates Creative Energy is responsible for permits for various aspects of the project at the Beatty Plant, Expo Plant, and Interconnection. BCUC staff note that while the matrix is not clear which permits from the above table correspond to each project element in the Responsibilities Matrix, some permits could be assumed. For example, the Responsibilities Matrix indicates that Creative Energy is responsible for all permits required for the Expo Plant and, in general, any permits pertaining to the utility-related elements of the Beatty Plant. In response to BCUC IR 52.1, Creative Energy submits the Developer is responsible for all permits.

- 126.5 Please clarify or reconcile the differences between the Responsibilities Matrix and Creative Energy's response to BCUC IR 52.1 as discussed in the preamble.

126.5.1 If Creative Energy is responsible for any permits please confirm, or explain otherwise, that any delays to the project as a result of Creative Energy not receiving a permit (e.g., Creative Energy has not budgeted enough time for approvals) would constitute a "schedule delay caused by Creative Energy."

#### **K. BRITISH COLUMBIA'S ENERGY OBJECTIVES AND SOCIO-ECONOMIC IMPACT**

- 127.0 Reference: IMPROVE EFFICIENCY  
Exhibit B-1, Section 17.2, p. 92; Exhibit B-5, BCUC IR 56.2.1  
Extension of flues**

In response to BCUC IR 56.2.1, Creative Energy stated: "Please see the response to BCUC IR 1.36.2. Air dispersion studies were completed by Gradient Wind Engineering. Please see Attachment 31.3a."

- 127.1 Please provide a copy of the air dispersion studies completed by Gradient Wind Engineering.

- 128.0 Reference: BRITISH COLUMBIA'S ENERGY OBJECTIVES AND SOCIO-ECONOMIC IMPACT  
Exhibit B-xx, BCUC IR 54.1  
Estimated Annual GHG Emissions**

In response to BCUC IR 54.1, Creative Energy provided the table below:

	<b>Estimated Annual GHG Emissions</b>
<b>Existing Plant</b>	<b>87,726 tonnes</b>
<b>New Plant</b>	<b>84,013 tonnes</b>
<b>Difference</b>	<b>3,713 tonnes</b>

- 128.1 Please provide the supporting calculations and justification for all assumptions used to calculate the estimated Annual GHG Emissions.

**129.0 Reference: BRITISH COLUMBIA'S ENERGY OBJECTIVES AND SOCIO-ECONOMIC IMPACT  
Exhibit B-xx, BCUC IR 54.7  
Socio-economic impact of alternatives**

In response to BCUC IR 54.7, Creative Energy stated:

The Alternative project discussed in the Application would provide none of the other socio-economic public interest benefits identified on page 92 and Figure 11 of the Application, except that it would provide some improvement to local air quality. The Alternative project would improve local air quality to a significantly lesser extent than the Proposed Project because the Proposed Project adds more new high efficiency equipment and extends the flues.

BCUC staff note Creative Energy has not discussed any additional benefits associated with the alternatives that Creative Energy has considered (e.g. Constructing a New Plant in a Different Location could result in lower local noise pollution, less GHG emissions).

129.1 Please briefly discuss the environmental and social impacts of (i) In-situ Equipment Replacement and (ii) Construct a New Plant in a Different Location.

**L. CONSULTATION**

**130.0 Reference: CONSULTATION  
Exhibit B-5, BCUC IRs 57.1, 57.5.2 p. 111  
Public Open House**

In response to BCUC IR 57.1, Creative Energy stated it presented “the entire project to City of Vancouver engineering department staff.”

In response to BCUC IR 57.5.2, Creative Energy stated it “will incorporate feedback from the survey where possible. If there are large concerns from customers, Creative Energy will set up individual meetings to discuss their concerns, the Proposed Project and the Alternative.”

130.1 Please clarify how “large concerns from customers” will be quantified to ensure Creative Energy is following up with those concerns.

**M. PART III – CORPORATE REORGANIZATION**

**131.0 Reference: CORPORATE ORGANIZATION  
Exhibit B-1, p. 5; Section 19, pp. 97-106; Exhibit B-5, BCUC IR 59.5p. 114  
Public interest benefits of the proposed reorganization steps**

Page 103 of the Application describes Step 3 as follows: “Step 3 of the Proposed Reorganization involves amalgamation of Creative Energy and Newco to form Creative Energy (2018), and Creative Canada acquiring all of the issued and outstanding shares of Creative Energy (2018). Following such merger, Creative Energy (2018) will be the public utility pursuant to the UCA. This is the second of two necessary steps in order to increase the tax cost of the land held by Creative Energy in accordance with section 88(1)(d) of the Income Tax Act.

Pursuant to subsections 53(1) and (3) of the UCA, the proposed amalgamation of Creative Energy and Newco requires that Creative Energy apply to the Commission for the LGIC’s consent to the amalgamation. Pursuant to 53(4) and (5) of the UCA the Commission is to inquire into Creative Energy’s application for LGIC consent to amalgamate and, if the Commission is of the opinion that the

amalgamation would be beneficial in the public interest, submit its report and findings to the LGIC.”

Creative Energy respond to BCUC IR 59.5, which asks Creative Energy to discuss and quantify the public interest benefit(s) resulting from the amalgamation pursuant to section 53 of the UCA. In its answer Creative Energy stated:

In its October 20, 2017 report to the Attorney General regarding the proposed amalgamation of a public utility involving Cal-Gas Inc., the Commission determined that “Given that all steps in the Cal-Gas Reorganization will occur in immediate succession, the Panel considers it appropriate to assess the benefits of the Cal-Gas Reorganization as a whole when making its findings on the Amalgamation.” Applying that finding to the Proposed Reorganization involving Creative Energy, the benefits of the Proposed Reorganization as a whole should be considered when making findings on the amalgamation step. The Proposed Reorganization as whole enables Creative Energy and the Developer to proceed with the Proposed Project, the public interest benefits of which are described in the Application.

131.1 Please confirm that the Proposed Reorganization as a whole enables both the Proposed Project and the Developer’s project.

131.1.1 If not confirmed, please explain.

131.2 Please discuss the public interests benefits associated solely with the Developer’s project.

131.3 In addition to public interest benefits of the Proposed Project and the Developer’s project, please discuss in detail the public interest benefits associated with the amalgamation step *only*.

131.3.1 If Creative Energy cannot list specific benefits associated solely with the amalgamation step, please confirm that the benefits of the amalgamation step simply arise from the public interest benefits of the Proposed Project and the Developer’s project, if any.

131.4 In addition to public interest benefits of the Proposed Project and the Developer’s project, please discuss in detail the public interest benefits associated with the Proposed Reorganization as a whole.

131.4.1 If Creative Energy cannot list specific benefits associated with the Proposed Reorganization as a whole, please confirm that the benefits of the Proposed reorganization as a whole simply arise from the public interest benefits of the Proposed Project and the Developer’s project, if any.

### **Emanate Energy**

Page 5 of the Application states: “Finally, and largely independent of the Proposed Project, Emanate Energy Solutions Inc. (Emanate Energy) plans to acquire an indirect 50% equity interest in Creative Energy. The acquisition by Emanate Energy is proposed to be completed as part of a series of steps to reorganize Creative Energy to facilitate the Proposed Project.”

131.5 In addition to public interest benefits of the Proposed Project and the Developer’s project, please discuss in detail the public interest benefits associated with the Emanate Energy acquisition of the 50 percent interest in Creative Energy.

131.5.1 If Creative Energy cannot list specific benefits associated with the Emanate Energy acquisition of the 50 percent interest in Creative Energy, please confirm that the benefits of the Emanate Energy acquisition of the 50 percent interest in Creative Energy simply arise from the public interest benefits of the Proposed Project and the Developer’s project, if any.

**132.0 Reference: CORPORATE ORGANIZATION  
Exhibit B-9, Pane question 1.0p. 1  
Risks associated with the Proposed Project**

Creative Energy provided the following answer to the Panel's question 1.0 regarding risks associated with the Proposed Project:

Section 6.2 of the Trust and Development Agreement contains restrictions in respect of the Developer's ability to finance the Developer's project. These restrictions are designed to mitigate Creative Energy's exposure to liabilities and asset exposure associated with the construction financing for the Developer's project. These restrictions require among other things that any financing for the Developer's project will include covenants from the lenders thereunder:

(a) not to take any recourse, or pursue any claim or proceeding against Creative Energy, its affiliates or their respective shareholders, directors, officers, employees, agents, successors, and assigns, or against any of the utility assets;

(b) to allow Creative Energy to retain the utility assets notwithstanding any realization proceedings against the Developer or foreclosure proceedings against the Developer's project;

(c) if the Developer is in default under such financing and the lender commences realization proceedings, the lender will complete and deliver the new Beatty Plant and the new office space in accordance with the provisions of the Trust and Development Agreement.

Thus, most if not all of the risks associated with the construction financing for the Developer's project are mitigated by the requirement for these specific covenants from any lenders of such financing.

It should be noted that as the registered owner of the Beatty Street lands, Creative Energy will need to execute any mortgage securing any construction financing, and it will not do so without the above covenants in place from the lender [Emphasis added].

- 132.1 Please list all the risks that Creative Energy deems will be mitigated.
- 132.2 Please list all the risks that Creative Energy considers will not be mitigated.
- 132.3 Please clearly identify which risks, if any, will not be isolated from the utility and its ratepayers.
- 132.4 Please confirm, or explain otherwise, that risks discussed above are associated with the Proposed Project and the Developer's project and would not exist without the Proposed Project and the Developer's project?

**133.0 Reference: CORPORATE ORGANIZATION  
Exhibit B-9, Panel question 2.0, p. 3  
Indemnities**

On page 3 of Exhibit B-9, answer Panels' question 2.0 regarding the indemnities from the Developer and Westbank Holdings Ltd., and the mechanism in place to ensure that the Developer and Westbank Holdings Ltd. have the ability to meet the financial requirements when exposed to the risks, Creative Energy stated:

With respect to the Developer, it will have equity in the Trust Property, which Creative Energy

will have recourse against if the Developer does not indemnify Creative Energy as required under the Trust and Development Agreement. With respect to Westbank Holdings Ltd., under section 9.3 of the Trust and Development Agreement, Westbank Holdings Ltd. is required to deliver such comfort letter or other document or statement to Creative Energy as is agreed upon in writing by Westbank Holdings Ltd. and Creative Energy from time to time in order to confirm the strength of Westbank Holdings Ltd.'s indemnity. If the reporting requirements of Westbank Holdings Ltd. are not met, then Creative Energy may require that legal title to the Beatty Street property be transferred to a nominee in order to mitigate any risk associated with holding registered title [Emphasis added].

- 133.1 Please provide details of the amount of equity that the Developer will have in the Trust Property.
- 133.2 With respect to the recourse that Creative Energy will have against the Developer, please confirm it is for 100 percent of the equity in the Trust Property as provided in the previous response.
- 133.3 Please confirm that Creative Energy will be willing to provide to the BCUC on a regular basis throughout the construction period of the Proposed Project, a report on the amount of equity that the Developer will have in the Trust Property.?
- 133.4 To the extent the Trust Property is not sufficient to cover Creative Energy's exposure to the financial and other risks, what other additional recourse would Creative Energy have against the Developer?
- 133.5 Please explain how "...comfort letter or other document or statement...", as noted above, provide indemnification to Creative Energy with respect to Westbank Holdings Ltd.
- 133.6 Please confirm whether Creative Energy can require such "...comfort letter or document or statement..." at any time.
- 133.7 Please confirm that Creative Energy will be willing to provide such "...comfort letter or document or statement..." to the BCUC.
  - 133.7.1 If not confirmed please explain why not.
- 133.8 What is the standard for "strength" of such documents that Westbank Holdings Ltd. needs to meet?
- 133.9 Please confirm that neither the Developer nor Westbank Holdings Ltd. will provide additional financial security such as a performance bond and other assets as security.
- 133.10 What are "the reporting requirements" of Westbank Holdings Ltd.?
  - 133.10.1 Why are such requirements relevant and provide indemnification to Creative Energy with respect to Westbank Holdings Ltd.?
  - 133.10.2 Please specify in which instances Creative Energy may require transfer of Beatty Street property to a nominee?
  - 133.10.3 Please specify in which instances Creative Energy may not require transfer of Beatty Street property to a nominee?
- 133.11 Please confirm whether the transfer of the Beatty Street property mitigates the risks associated to Creative Energy from the beginning of the Proposed Project and the Developer's Project, or does it mitigate the risks at the time of transfer.
- 133.12 Please explain how the transfer of the Beatty Street property to a nominee mitigates risks to Creative Energy and its ratepayers.

133.12.1 If Creative Energy deem necessary to take action for transfer of the Beatty Street property to a nominee, please describe steps Creative Energy will have to take.

133.12.1.1 Will Creative Energy alone make the decision regarding the property transfer, or will affiliates be involved?

133.12.1.2 Please discuss if Creative Energy is of the view that such property transfer will require Commission approval.

133.12.1.3 Please indicate the anticipated time and associated cost for each of the listed steps.

133.12.1.4 Please indicate the total time and anticipated cost of such actions to complete the Beatty Street property transfer.

**134.0 Reference: CORPORATE ORGANIZATION  
Exhibit B-9, Panel question 5.0, p. 7  
Due diligence process re the selection of Emanate Energy Solutions Inc.**

On page 7 of the Exhibit B-9, answering the Panel's question 5.0 regarding Creative Energy Canada's due diligence process resulting in the selection of Emanate Energy Solution Inc. to acquire a 50 percent indirect interest in Creative Energy, it stated:

...Further due diligence of both parties continued throughout the development of definitive agreements. Emanate Energy was set up as the vehicle for InstarAGF's investment in Creative Energy Developments GP and LP. All definitive agreements for establishing Creative Energy Developments GP and LP were completed in late January of 2018..,

134.1 Please provide copies of all such definitive agreements between the parties for the establishment of Creative Energy Developments GP and LP.

## **N. APPENDICES**

**135.0 Reference: APPENDIX A –TRUST AND DEVELOPMENT AGREEMENT  
Exhibit B-1, Schedule C of Appendix A, p. 3; Exhibit B-5, BCUC IRs 4.1, 69.2  
Beatty Plant ancillary space specifications**

In response to BCUC IR 4.1 Creative Energy stated:

The fuel oil supply enables Creative Energy to maintain continuous service to customers and purchase interruptible natural gas for the plant, generating a significant cost savings for customers. A similar strategy to maintain reliability and lower gas costs is employed by other large heating plants throughout the lower mainland, including plants serving SFU, UBC, and major hospitals.

In response to BCUC IR 69.2 Creative Energy further stated:

Current building code limits the size of individual fuel oil tanks within buildings to 40,000usg each. Further, operational experience and analysis of the fuel oil delivery logistics indicate that 80,000USG is adequate to maintain full plant capacity indefinitely throughout a full curtailment scenario.

135.1 Please provide details of the curtailment periods the Beatty Plant has experienced over the past five years. Please provide details of the following:

- a) number of curtailment periods;
- b) duration of curtailment periods;

- c) amount of fuel oil used during curtailment period (USG);
- d) number of fuel oil deliveries during curtailment period;
- e) amount of fuel oil delivered during curtailment period; and
- f) the duration of time that the plant can continue to operate at peak system load.

**136.0 Reference: APPENDIX D  
Exhibit B-1, Appendix D; Exhibit B-5, BCUC IR 72.3.1; Exhibit B-5-2, BCUC IR 72.2.1  
Accounting treatment**

BCUC staff note that there are a total of seven journal entries related to Creative Energy's role in the Proposed Project - these are provided in Appendix D of the Application as journal entries 1 through 6, and in response to BCUC IR 72.3.1.

Using this information, BCUC staff prepared the following T Accounts to understand the additions/subtractions (i.e. debits/credits) from the individual account balances:

<b>Assets:</b>		
<b>Journal Entry #</b>	<b>Cash/Bank Account</b>	
1	15,000,000	
2	31,000,000	
4		46,000,000
5		9,000,000
6		6,000,000
<b>Totals</b>	<b>46,000,000</b>	<b>61,000,000</b>
<b>Journal Entry #</b>	<b>Assets</b>	
3	46,000,000	
BCUC IR 72.3.1		31,000,000
<b>Totals</b>	<b>46,000,000</b>	<b>31,000,000</b>

<b>Liabilities:</b>		
<b>Journal Entry #</b>	<b>Accounts Payable (A/P)</b>	
3		46,000,000
4	46,000,000	
<b>Totals</b>	<b>46,000,000</b>	<b>46,000,000</b>
<b>Journal Entry #</b>	<b>Loan Liability</b>	
1		15,000,000
5	9,000,000	
6	6,000,000	
<b>Totals</b>	<b>15,000,000</b>	<b>15,000,000</b>

<b>Shareholder's Equity:</b>		
<b>Journal Entry #</b>	<b>Shareholder's Equity</b>	
2		31,000,000
BCUC IR 72.3.1	31,000,000	
<b>Totals</b>	<b>31,000,000</b>	<b>31,000,000</b>

136.1 Please confirm that the T Accounts prepared above by BCUC staff are correct (i.e. they are representative of the terms and conditions of the Trust and Development Agreement and of the

Proposed Project). If not confirmed, please explain and provide any amending journal entries or T Accounts which may be needed.

- 136.2 Given that there is a difference of \$15,000,000 between total debits (\$46,000,000) and total credits (\$61,000,000) in the Cash/Bank Account, please explain how Creative Energy will finance the additional \$15,000,000 which is needed.
- 136.3 Please confirm that the amount of \$46 million represents the total project costs (exclusive of other amounts paid directly by the Developer) and is, therefore, only an estimate at this time.

In response to BCUC IR 72.2.1, Creative Energy submitted:

Generally, contributions in aid of construction are amounts funded by customers who agree to finance a portion of new infrastructure (for example to get connected to the distribution system) in order to receive service from the utility. The Developer is not providing the funds to get service from the utility but rather providing a subsidy to assist Creative Energy to complete the Proposed Project and to enable the Developer to complete the larger redevelopment project.

In response to BCUC IR 72.3.1, Creative Energy provided the missing journal entry below:

	DR	CR
DR: Shareholders Account	\$31M	
CR: Contributions In Aid of Construction		\$31M

- 136.4 Please reconcile the apparent differences between Creative Energy's definition of CIAC provided in response to IR 72.2.1 and the missing journal entry provided in IR 72.3.2.

**137.0 Reference: APPENDIX K - PavCo STATUTORY RIGHT OF WAY AGREEMENT Exhibit B-1, Section 10.1, p. 35; Section 10.4.4, pp. 43-44; Exhibit B-5, BCUC IR 81.2.1 SRW and licences for access**

In response to BCUC IR 81.2.1 Creative Energy stated:

The Expo plant will be located within a part of BC Place which is a separate structure from the main stadium structure. This would allow the stadium to be deconstructed and redeveloped without removal or direct impact on the Expo plant.

The Expo plant will rely on BC Place for electricity supply. If BC Place were to be removed, new electrical service would have to be installed and energized prior to deconstruction of BC Place.

- 137.1 Please explain whether Creative Energy's Statutory Right of Way Agreement includes provisions to ensure that in the event that the stadium is deconstructed and redeveloped the Expo Plant can continue to operate at the Expo Plant.

137.1.1 If confirmed, please provide details of the provisions.

137.1.2 If not confirmed, please explain why.

**138.0 Reference: APPENDIX K - PavCo STATUTORY RIGHT OF WAY AGREEMENT Exhibit B-1, Schedule E of Appendix K, p. 56, Schedule D, p. 49; Schedule G to Appendix A, p. 1; Exhibit B-5, BCUC IR 82.1 Building permits**

BCUC IR 82.1 requests confirmation of the party responsible for submitting and attaining the required

permits for the Expo Plant. In its response, Creative Energy stated:

The Developer is responsible.

Page 1 of Schedule G to Appendix A provides the Responsibilities Matrix for the Expo Plant:

	Description	Location / Level	Management of Design/ Specifications/ Permitting	Management of Construction	Comments
Expo Plant	Hazmat and Asbestos Removal	Expo Boulevard Level 1	Creative Energy	Creative Energy	CE responsible for up to \$100,000 of removal costs. PavCo responsible for all other costs.
	Demolition and Modifications to shell space as required	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Exterior Façade of Expo Plant	Expo Boulevard Level 1	Creative Energy with the approval of the Developer	Creative Energy	Developer is required to approve the façade design of the Expo Plant due to the proximity to the 720 Beatty Redevelopment
	Major Equipment Inside Expo Plant - Boiler #1 (200,000 pound per hour steam boiler) / Boiler #2 (200,000 pound per hour steam boiler)	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Secondary Equipment Inside Expo Plant - Water softeners / Feed water pumps / Chemical treatment equipment / Deaerator / Condensate receiver	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Electrical Distribution Inside Expo Plant - Medium voltage (600V) electrical distribution	Expo Boulevard Level 1	Creative Energy	Creative Energy	Electrical Power to be taken from Substation C within BC Place.
	Life Safety Inside Expo Plant - Emergency Generator (1000 kW)	Expo Boulevard Level 1	Creative Energy	Creative Energy	
	Ancillary Spaces Inside Expo Plant - Control Room / Staff Lunch Room / Staff Washroom	Level 2	Creative Energy	Creative Energy	
	Flues and Piping Outside of Expo Plant - 2 x Boiler flues (routed out upper concourse) / Relief piping (routed out upper concourse)	Level 3 and above	Creative Energy	Creative Energy	

- 138.1 Given that Schedule G above lists Creative as the responsible party for each aspect of the Expo Plant, please clarify which Expo Plant permits and approvals are the Developer’s responsibility.
- 138.2 Please clarify which Expo Plant permits and approvals are Creative Energy’s responsibility.
- 138.3 Please discuss PavCo’s role in any permitting / approvals process.
- 138.4 Please list all permits and approvals required for the Expo Plant construction works.
  - 138.4.1 For all permits and approvals identified, please provide the following:
    - a) name of party responsible for the application;
    - b) actual (or anticipated) application date;
    - c) copy of the application, if submitted;
    - d) anticipated application processing time;
    - e) anticipated approval date;
    - h) date by which the approval is required; and
    - f) risk to the Proposed Project in the event of a delay.

**139.0 Reference: APPENDIX K – PavCo STATUTORY RIGHT OF WAY AGREEMENT Exhibit B-1, Section 12, p. 60; Schedule D to Appendix K, pp. 49–50; Exhibit B-5, BCUC IRs 79.1.2, 79.2 Technical performance design thresholds**

In response to BCUC IR 79.1.2 Creative Energy stated: “Creative Energy will tender the detailed design of the Expo plant and the selected party will be responsible for completion of a technical performance package. The timing is subject to issuance of a CPCN for this project.”

Page 12 of the Application states:

- The design teams are as follows:
- Beatty Plant – Fosdick & Hilmer
  - Expo Plant – WSP Engineering
  - Interconnections – Vibratech Engineering

139.1 Please confirm, or otherwise explain, whether WSP Engineering is responsible for the detailed design of the Expo Plant.

139.1.1 If not confirmed, please provide details of the tendering process. In your response please include:

- a) anticipated date of tender issuance;
- b) total time required for tendering process; and
- c) anticipated date of contract award.

139.1.2 If not confirmed, please discuss the risks to the project schedule in the event that the tendering process is delayed.

139.2 Please confirm, or otherwise explain, whether Fosdick & Hilmer is responsible for the detailed design of the Beatty Plant.

139.2.1 If not confirmed, please provide details of the tendering process. In your response please include:

- a) anticipated date of tender issuance;
- b) total time required for tendering process; and
- c) anticipated date of contract award.

139.2.2 If not confirmed, please discuss the risks to the project schedule in the event that the tendering process is delayed.

139.3 Please confirm, or otherwise explain, whether Vibratex Engineering is responsible for the detailed design of the interconnections.

139.3.1 If not confirmed, please provide details of the tendering process. In your response please include:

- a) anticipated date of tender issuance;
- b) total time required for tendering process; and
- c) anticipated date of contract award.

139.3.2 If not confirmed, please discuss the risks to the project schedule in the event that the tendering process is delayed.

**140.0 Reference: APPENDIX K – PavCo STATUTORY RIGHT OF WAY AGREEMENT  
Exhibit B-1, Section 10.1, p. 35; Section 10.4.4, pp. 43-44; Exhibit B-5-2, BCUC IR 81.1  
SRW and licences for access**

In response to BCUC IR 81.1, Creative Energy stated:

Licenses to construct, maintain and operated the steam and fuel oil services referred to as the Interconnection, are not included in the PavCo SRW which covers access for the Expo Plant within BC Place. The current design has the Interconnection piping affixed to the column bents which support the BC Place plaza above Expo Boulevard and within the parkade of the Beatty Street development. Rights will be secured from PavCo for the Interconnection piping at the appropriate juncture of the project.

140.1 Please discuss the access rights required by Creative Energy to construct, maintain and operate the Interconnection.

140.2 Please explain when Creative Energy anticipates securing the rights for the Interconnection piping from PavCo.

140.3 Please discuss the risks to the Proposed Project in the event that securing the rights for the Interconnection piping is either delayed or unsuccessful.

140.3.1 Please discuss any alternative solutions that would be open to Creative Energy in the event that rights to the Interconnection piping cannot be secured.