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VIA EMAIL

Ian.Wigington@corix.com

November 13, 2015

**CORIX UNIVERCITY NUS
BURNABY MOUNTAIN CPCN EXHIBIT A-3**

Mr. Ian Wigington
Director, Regulatory
Corix Multi-Utility Services Inc.
Suite 1160
1188 West Georgia Street
Vancouver, BC V6E 4A2

Dear Mr. Wigington:

Re: Corix Multi-Utility Services Inc.
Application for a Certificate of Public Convenience and Necessity for Additional Capital and
Amended Rates for UniverCity Neighbourhood Utility Service on Burnaby Mountain

Further to British Columbia Utilities Commission Order G-173-15 establishing a Regulatory Timetable with respect to the above noted application, enclosed please find the Commission's Information Request No. 1 to Corix Multi-Utility Services Inc. In accordance with the Regulatory Timetable and the Commission's Document Filing Protocols, please file your responses electronically with the Commission by Friday, December 4, 2015.

Yours truly,

Erica Hamilton

/nd
Enclosure

Corix Multi-Utility Services Inc.

Application for a Certificate of Public Convenience and Necessity (CPCN) for Additional Capital and Amended Rates for UniverCity Neighbourhood Utility Service (NUS) on Burnaby Mountain (Application)

Table of Contents	Page No.
A. NEED FOR CPCN.....	1
B. BENEFITS OF SINGLE 8 MW TEC	2
C. FINANCIAL INFORMATION ON ACTUAL AND ESTIMATED COSTS	4
D. CHALLENGES & VARIANCES FROM ORIGINAL CPCN	9
E. ENERGY LOAD AND ANNUAL ENERGY DEMAND.....	10
F. INFRASTRUCTURE AND PERSONNEL ADDITIONS	13

A. NEED FOR CPCN

- 1.0 Reference: PROJECT COVER LETTER**
Exhibit B-1, Cover Letter; Section 5.1, p. 40;
British Columbia Utilities Commission Thermal Energy Systems (TES) Regulatory Framework Guidelines, dated March 2, 2015, Section 2.4.5
Stream B TES Guidelines

In its cover letter, Corix Multi-Utility Services Inc. (Corix) states that:

Under the Commission’s Thermal Systems Regulatory Framework Guidelines (‘TES Guidelines’), Stream B Thermal Energy Utilities are required to file subsequent CPCN applications with the Commission based on certain capital expenditure or rate impact thresholds.

In section 2.4.5 of the TES Guidelines (Extensions to a Stream B TES), the British Columbia Utilities Commission (Commission) states:

Once a CPCN is granted for a Stream B TES, a new CPCN Application may be required if the TES Provider plans to construct or operate an extension to the TES. An extension is a capital addition to the system of a material dollar amount to provide additional capacity to meet increased demand. If the ratio of the capital costs of the planned extension to the initial capital cost of the TES, plus any previous extensions, exceeds one, a CPCN is required. A CPCN is also required if, as a result of the extension, rates for existing customers will increase by an amount greater than 10 percent...

On page 40 of its Application, Corix provides Table 22 showing the approved CPCN capital of its fully built-out temporary solution as \$3.252 million after Contributions in Aid of Construction (CIAC) and its actual costs to date of \$4.404 million.

1.1 What is Corix’s interpretation of the TES Guidelines in terms of its “initial capital cost of the TES”

system? Is it the capital cost estimate as contemplated in the original CPCN application or the actual costs of the approved scope of the original CPCN? Please discuss. If so, does Corix believe that the projected capital costs of \$3.252 million was *specifically* approved in Commission Order C-7-11?

- 1.2 What is Corix's interpretation of "the ratio of the capital costs of the planned extension to the initial capital cost of the TES?" Please provide the calculation of the ratio for both interpretations in 1.1 above.
- 1.3 What is Corix's interpretation of the 10 percent rate impact as outlined in the TES Guidelines? Should this impact be interpreted as the annual change in rates (before versus after planned extension without levelization) or should it be interpreted as the change in the leveled rates over a 15 or 20 year period? Please discuss.
 - 1.3.1 For both interpretations, please confirm that Corix has not breached the 10 percent rate increase threshold for its proposed extension. If not confirmed, please provide calculations and a discussion on why a CPCN is necessary given the TES Guidelines.

B. BENEFITS OF SINGLE 8 MW TEC

2.0 Reference: BENEFITS OF SINGLE 8 MW TEMPORARY ENERGY CENTRE (TEC) Exhibit B-1, Section 2.2, p. 12 Comparison of alternatives

Corix states on page 12 of the Application: "Compared to two 2.3 MW TECs, the proposed 8 MW TEC would result in estimated capital savings of \$51,200/MW (including a salvage value of the existing 2.3 MW TEC) and estimated annual operating cost savings of \$26,320."

- 2.1 Please provide the financial analysis in a fully functional excel spreadsheet, confidentially if necessary, of adding an additional 2.3 MW TEC module as opposed to the proposed 8 MW TEC. Please explain all assumptions.
 - 2.1.1 As part of the response, please provide a qualitative explanation of how the \$51,200/MW capital savings and the \$26,320 annual operating savings are achieved under Corix's preferred alternative.
 - 2.1.2 Please provide as part of Corix's non-confidential response the following tables from the Application under the assumption that Corix instead adds an additional 2.3 MW TEC module:
 - Table 8 (Incremental Capital Costs);
 - Table 10 (Fixed Operating Costs);
 - Table 11 (Fuel Costs and Property Taxes);
 - Table 12 (Project Balance Sheet);
 - Table 14 (Revenue Requirements);
 - Table 15 (Proposed Levelized Rates);
 - Table 16 (NUS Rate Design); and
 - Table 17 (Statement of Earnings).
- 2.2 Please calculate the levelized cost of the proposed project (i.e. the preferred alternative of replacing the existing 2.3 MW TEC with the 8 MW TEC).

- 2.3 Please calculate the levelized cost of the scenario described above (i.e. adding another 2.3 MW TEC module).
- 2.4 Can additional boiler capacity be added to the existing 2.3 MW TEC module? If not, please explain why not.

**3.0 Reference: TEMPORARY ENERGY CENTRES CONTAINERIZED PLANTS
Exhibit B-1, Section 2.2, p. 12; Section 5.2.2, p. 43;
Corix Application for a CPCN for the Neighbourhood Utility Service at UniverCity
Burnaby proceeding (2011 CPCN), Exhibit B-1, dated November 26, 2010, pp. 36–37
Timing of permanent solution and benefit of Temporary Energy Centre**

To summarize from Corix's 2011 CPCN application, initially, the Production Facility would consist of a temporary Central Energy Plant (CEP), which, according to Corix, would be constructed in the fall of 2011 with a capacity of 1.9 MW. The temporary CEP would be able to meet forecast loads up to 2013. At that time, additional boilers would increase the capacity up to 4.4 MW which would be sufficient to meet forecast loads up to 2016, after which the permanent CEP will be in place.

On page 43 of the current Application, Corix states "the TEC is currently proposed to be developed in two phases, the container with two 3 MW boilers will be installed in 2016 and an additional 2 MW boiler will be added when the load develops. This is currently projected for 2019." Additionally, on page 12 of the Application, Corix indicates a benefit of the 8 MW TEC is "increased flexibility" where "adding additional capacity will extend the timing for implementation of the permanent low carbon energy facility."

- 3.1 Given that initially the permanent CEP was anticipated in 2016, and now the project timeline has moved forward where the final 2 MW boiler of the total 8 MW TEC is projected for 2019, when is the permanent CEP expected to be installed?
- 3.2 What are the factors preventing the implementation of the permanent CEP at this time or in the immediate future? Please discuss.

On page 12 of the Application, Corix states that two benefits of a single 8 MW TEC is "space reduction" and "cost savings."

- 3.3 The existing boiler is 2.3 MW. Explain the basis under which Corix changed its plan of increasing the capacity of the temporary CEP up to 4.4 MW by adding boilers?
- 3.4 In addition to the container of two 3 MW boilers expected in 2016, Corix is looking to add a 2 MW boiler in 2019. Please confirm this implies that the 2 MW boiler expected in 2019 is an independent containerized unit that is not part of the two 3 MW boilers container.
 - 3.4.1 If confirmed, please indicate how the 2 MW boiler proposed for 2019 would be different than the existing 2.3 MW boiler in terms of physical size and cost. Is the difference substantial? If not, then please indicate why the existing 2.3 MW boiler cannot be retained to avoid the purchase of a similar unit in the future.

C. FINANCIAL INFORMATION ON ACTUAL AND ESTIMATED COSTS

**4.0 Reference: FINANCIAL MODELING AND INPUTS
Exhibit B-1, Section 2.5.1, pp. 19–20, Table 9
Project development costs**

Corix states on page 19 of the Application: “The 2011 CPCN included project development costs of \$90,000 that represented the cost of the feasibility study to initiate and develop the project.”

Table 9 on page 20 of the Application provides a breakdown by year of project development costs, including \$210,861 Feasibility Study/External Consultant costs incurred in 2009/2010.

- 4.1 Please explain why the 2009/2010 Feasibility Study/External Consultant Costs are \$120,861 higher (\$210,861 less \$90,000) than the amount of project development costs included in the 2011 CPCN.
- 4.2 For each year and each cost category in Table 9, please separately show how much of the project development costs were incurred to develop: (i) the project as approved in the 2011 CPCN; (ii) the revised project as applied for in this Application; and (iii) the permanent alternative energy solution.
 - 4.2.1 Are any of the project development costs included in Table 9 related to the development of the permanent alternative energy solution? If so, please explain why it is appropriate to capitalize these costs at this time, given that Corix has not yet put forth an application for the permanent solution.

Corix states on page 20 of the Application: “These costs have been accrued in the project revenue deficiency deferral account.”

- 4.3 Please provide a more detailed explanation of how these costs have been accrued in the project revenue deficiency deferral account (RDDA).
- 4.4 Given that Corix has been accruing all project development in the RDDA, including project development costs exceeding the originally budgeted amount of \$90,000, does this mean that Corix has been earning an annual return (i.e. interest and return on equity) on these additional project development costs?
 - 4.4.1 If yes, please provide the total interest and return on equity which Corix has recorded on the project development costs in excess of the originally budgeted \$90,000. Please show all calculations.
- 4.5 Please confirm, or explain otherwise, that Corix did not request Commission approval to accrue the additional project development costs shown in Table 9 in the RDDA.
- 4.6 Please explain why it is appropriate to recover additional project development costs related to the 2011 CPCN-approved project beyond the amount reviewed and approved as part of the 2011 CPCN.
- 4.7 Please separately show the project management versus construction management costs for each year and provide a detailed explanation for how these amounts are calculated.
- 4.8 Please explain the change in circumstances subsequent to the approval of the 2011 CPCN which precipitated Corix incurring project management and construction management costs. Were

these costs budgeted in the 2011 CPCN application? If not, why not?

4.9 Please explain why Corix did not include legal external costs as part of its project development cost budget in the 2011 CPCN application.

4.9.1 Please provide a more detailed breakdown and explanation of the external legal costs incurred each year (i.e. 2009/2010 through 2014).

**5.0 Reference: FINANCIAL MODELING AND INPUTS
Exhibit B-1, Section 2.5.3, pp. 19–20, Table 8
Salvage value**

Corix states on page 20 of the Application that the boilers from the existing 2.3 MW TEC would be “re-deployed to another Corix project.”

Corix further states on page 20 that it “engaged an appraisal company, Universal Appraisal, to assess the plant and determine the market salvage value of the existing TEC” and that the appraisal resulted in an assessed value of \$325,000.

Table 9 on page 19 of the Application shows the reduction of \$325,000 salvage in 2020.

5.1 When does Corix anticipate that the boilers from the existing 2.3 MW TEC will be re-deployed to another Corix project?

5.2 Please confirm, or explain otherwise, that this other project is not directly connected to the UniverCity project.

5.2.1 If confirmed, please indicate which other Corix project these boilers are being re-deployed to.

5.3 Did Corix undergo a Request for Proposal (RFP) process to select the appraisal company?

5.3.1 If yes, please generally describe the process and why Universal Appraisal was selected.

5.3.2 If no, please explain why not and describe the process undertaken to select Universal Appraisal.

5.4 Please confirm, or explain otherwise, that Universal Appraisal has an arm’s length, third party relationship to Corix.

5.5 Please explain how the market salvage value of \$325,000 was determined by Universal Appraisal.

5.6 What is the net book value of the re-deployed boilers at the end of 2020? Please show all calculations.

5.7 Please discuss whether the existing 2.3 MW TEC should be classified as no longer “used and useful” once the replacement 8 MW TEC is installed.

5.8 Please confirm, or explain otherwise, that Corix is not proposing to remove the 2.3 MW TEC from rate base in 2016 (i.e. when it is replaced with the 8 MW TEC).

5.8.1 If confirmed, please provide justification for why it is appropriate to continue to recover the costs of the 2.3 MW TEC from UniverCity ratepayers once it is no longer being used by these ratepayers.

- 5.9 Please provide the Net Book Value of the 2.3 MW TEC at the expected time of replacement by the 8 MW TEC.
- 5.10 If Corix was directed to remove the 2.3 MW TEC from ratebase in 2016 (i.e. at the time of replacement by the 8 MW TEC), how would this change the forecast capital costs, revenue requirement, and rate structure for the years 2016 through 2026? Please show all calculations and explain any assumptions made. Please also provide the revised levelized rate under this scenario.
- 5.11 Does Corix expect to incur any removal or remediation costs as a result of removing the 2.3 MW TEC? If yes, please describe and quantify these costs and please indicate where these costs are accounted for in the Application and in the financial model.

**6.0 Reference: FINANCIAL MODELING AND INPUTS
Exhibit B-1, Section 2.5.4, pp. 21–22, Table 10
Fixed operating costs**

Table 10 on page 21 of the Application provides a breakdown of the annual fixed operating costs for years 2015 through 2021 and 2026.

- 6.1 Please provide the same breakdown of fixed operating costs for the actual fixed operating costs incurred in years 2012, 2013 and 2014.

Corix states on page 21 of the Application: “After the new TEC is installed and starting in 2017, Corix will employ its own operator on a 0.5 full time equivalent (FTE) basis...The qualified operator FTE is assumed to cost \$100,000 per annum in 2015 dollars.”

- 6.2 Please provide a comparison of the following forecast operating costs for years 2016 through 2021 under the assumption that Corix added an additional 2.3 MW TEC. Please explain all assumptions and the reasons for any differences in costs between this option and Corix’s proposed option.

- Operating labour and supervision;
- TEC maintenance;
- Distribution maintenance;
- ETS maintenance;
- Insurance; and
- Land lease.

- 6.3 Why is the TEC maintenance cost forecast to decrease from \$14,000 in 2016 to less than \$5,000 for years 2017 through 2021?

- 6.3.1 If the reason for this decrease in TEC maintenance is due to the fact that Corix plans to hire its own operator starting in 2017, please explain why the TEC maintenance is not reduced to zero.

- 6.4 Please explain why Distribution maintenance costs are no longer incurred commencing in 2017.

Corix states on page 22: “The insurance is calculated using \$0.11 per \$100 of the replacement value starting in 2017. The insurance escalates at 5% annually.”

- 6.5 Please explain the basis for forecasting a 5 percent annual escalation in insurance.
- 6.6 How has the annual replacement value of the capital assets been determined? Please explain.

Corix states on page 22 of the Application:

The combined charge of \$90,500 per annum (in 2015 dollars) is for an average year and includes estimates for legal, accounting, regulatory, administration, human resources, IT support and maintenance, telephones, office supplies, vehicle costs, as well as operational management/support of Corix's Energy Western Canada division.

- 6.7 Please provide a more detailed breakdown and explanation of the costs included in the \$40,000 "Utility management – administration" cost line item.
- 6.8 Please provide a more detailed breakdown and explanation of the costs included in the \$50,500 "Corporate Overhead and Support" cost line item.
- 6.9 In Table 10 on page 21 of the Application there is an operating cost line item titled "Other utilities (phone, internet)." Please explain how these costs differ from the combined administrative costs of \$90,500 described in the above preamble.
- 6.10 Please provide a more detailed explanation of the costs related to "operational management/support of Corix's Energy Western Canada division" as described in the above preamble, including how much is being charged annually to the UniverCity NUS.
- 6.10.1 If this is an allocated cost to the UniverCity NUS, please explain in detail how this allocated cost is calculated.

**7.0 Reference: FINANCIAL MODELING AND INPUTS
Exhibit B-1, Section 2.5.4, pp. 21–22, Table 11
Property taxes**

Corix states on page 21 of the Application: "As the NUS is located on SFU lands that are exempt from property taxes, to date Corix was not required to pay property taxes on the distribution system. Starting in 2015, the NUS system is subject to property taxation..."

- 7.1 Please explain why, starting in 2015, the NUS system will be subject to taxation.
- 7.2 Please explain why Corix has made the assumption that property taxes will be charged as a percentage of revenue.
- 7.2.1 What is the likelihood that a different method for calculating property tax will be selected?
- 7.2.2 If a different method for calculating property tax is selected, what is the likely increase/decrease to the annual revenue requirement? Please show all calculations and provide the impact, if any, on the levelized rate.
- 7.3 Did Corix include an annual property tax amount for the University of British Columbia Neighbourhood District Energy System (UBC NDES) revenue requirement? If yes, please explain what methodology was utilized for the UBC NDES and why.

**8.0 Reference: FINANCIAL MODELING AND INPUTS
Exhibit B-1, Section 2.5.6, p. 23
Debt and equity financing**

Corix states on page 23 of the Application that it set initial rates consistent with the British Columbia Utilities Commission Generic Cost of Capital (GCOC) Stage 2 Decision and is therefore proposing an equity risk premium of 75 points over the benchmark low risk utility.

On October 2, 2015, FortisBC Energy Inc. (FEI) filed an application for approval to increase its return on equity (ROE) from 8.75 percent, as established in the GCOC Stage 1 Decision, to 9.5 percent.

8.1 If FEI's request is approved, and in consideration of the fact that a decision on FEI's application will not be issued until sometime in 2016, please discuss how Corix plans to address any change to FEI's ROE (assuming the Commission determines that FEI shall remain the benchmark low risk utility).

**9.0 Reference: FINANCIAL MODELING AND INPUTS
Exhibit B-1, Sections 2.5.9 and 2.5.10, pp. 25–26
Levelized rate proposal and revenue deferral account**

Corix states on page 25 of the Application: "Under the new levelized rate proposal, Corix would charge a 2016 rate of \$109.27 per MWh and escalate the rate by 2.0% per annum over the next 10 years commencing on January 1, 2017."

9.1 Please explain why Corix considers \$109.27 per MWh to be a reasonable initial rate for 2016.

Corix states on page 25 of the Application: "As approved in Order C-7-11, the rates for the UniverCity NUS project have been levelized over 20 years. With the updated project assumptions, Corix expects to recover the deferral account by the end of year 15."

9.2 Please describe the main drivers which have resulted in Corix's proposal to shorten the levelization period by five years.

9.3 If Corix did not alter the originally approved RDDA recovery period and therefore planned to recover the RDDA by the end of year 20, what impact would this have on the proposed initial 2016 rate, the annual escalation rate, and the levelized rate? Please show all calculations and explain all assumptions/inputs.

9.4 What are the advantages/disadvantages of reducing the RDDA recovery period by five years as proposed in the Application? Please discuss.

Corix states on page 26 of the Application: "Due to costs that exceed those originally forecast in the 2011 CPCN (see section 5.1), the 2014 year end deferral account balance totaled \$1.45 million. Based on the estimated costs and revenues in this application, the account is expected to peak at \$2.4 million in 2019."

9.5 In the form of two separate continuity schedules showing the opening and closing RDDA balance and the annual additions to the RDDA, please provide the following information for years 2011 through 2026 based on: (i) the original forecasts from the 2011 CPCN application; and (ii) the actual results for years 2011 through 2014 plus the updated forecasts as presented in the

current application.

D. CHALLENGES & VARIANCES FROM ORIGINAL CPCN

**10.0 Reference: INITIAL PHASE CAPITAL COST OVERVIEW
Exhibit B-1, Section 2.2, p. 12, Section 5.1, p. 41
TEC capital costs**

On page 12 of the Application, Corix proposes “to replace the existing 2.3 MW containerized temporary energy centre (TEC) with a larger capacity TEC in the same location.”

In regards to the variance in TEC capital costs, Corix states on page 41 of the Application:

Cost to build a first module of the TEC were higher than originally estimated due to the City of Burnaby (CoB) building and planning requirements. These were not initially included as the plant was expected to be classified as a temporary structure. CoB considered the TEC a permanent building and Corix had to undertake the preliminary plan approval (PPA) and building permit process and comply with CoB requirements.

10.1 Please indicate whether Corix will have to undertake a new PPA and building permit process to comply with CoB requirements for the proposed larger capacity TEC.

10.1.1 If confirmed, please indicate the impact to the project cost.

10.2 Please indicate why the CoB’s consideration of the TEC’s temporary vs. permanent structure status was not confirmed during the original CPCN to thereby allow Corix to more accurately assess the project costs?

**11.0 Reference: INITIAL PHASE CAPITAL COST OVERVIEW
Exhibit B-1, Section 5.1, p. 41
Distribution Piping System (DPS) construction costs**

In regards to the variance in DPS construction costs, Corix states on page 41 of the Application:

Scope of work (e.g., a new route, hauling and disposal of the excavation material off the Burnaby Mountain, etc.), CoB requirements and in-situ conditions (e.g., shoring, route changes to accommodate other infrastructure not captured on the drawings provided to Corix, etc.) led to significant increase in costs to complete the DPS to connect initial buildings... Corix has paid CoB a road access fee and road pavement degradations fees, which were not estimated in the original cost estimates. 2011 CPCN modelled cost per trench meter was \$1,300/tm vs. \$2,800/tm actual costs.

11.1 What cost per trench meter is being used for the estimated build-out of the system? Please explain basis and assumptions.

11.1.1 How was the \$1300/tm from the 2011 CPCN arrived at (basis and assumptions)?

11.2 Does Corix agree that within the scope of work, the hauling and disposal of the excavation material off the Burnaby Mountain could have been foreseen during the original CPCN? Please indicate reasons for why this was not included in the scope of work.

11.3 Does Corix agree that a road access fee and road pavement degradations fees to CoB could have

been foreseen during the original CPCN? Please indicate reasons for why this was not included in the original cost estimates.

E. ENERGY LOAD AND ANNUAL ENERGY DEMAND

- 12.0 Reference: SENSITIVITY ANALYSIS**
Exhibit B-1, Section 2.3.1, p. 13; Section 2.5.13, Table 19, p. 28;
Corix Application for a CPCN for the Neighbourhood Utility Service at UniverCity Burnaby (2011 CPCN) proceeding, dated November 26, 2010, Exhibit B-1, p. 16
Sensitivity

Corix presents its sensitivity scenarios in Table 19 on page 28 of its Application.

- 12.1 Please expand Table 19 to include the following additional sensitivity scenarios: i) consumption decrease by 25 percent; ii) consumption decrease by 35 percent; iii) consumption increase by 25 percent; iv) consumption increase by 35 percent.

Corix presents the UniverCity buildout comparison between the original buildout and updated buildout in Figure 5 on page 13 of its Application.

- 12.2 Please present the impact the buildout schedule has on energy demand, diversified capacity, and the revenue deficiency deferral account each year from 2011 to 2030 by completing the table in the excel spreadsheet attached. Please clearly identify actual data and forecasted data.

Corix presents a load duration curve on page 16 of its 2011 CPCN application.

- 12.3 Please provide a similar load duration curve as referenced in the preamble for 2015 actual load and 2021 forecasted load.

- 13.0 Reference: ENERGY LOAD AND ANNUAL ENERGY DEMAND**
Exhibit B-1, Section 2.3.2, p. 14
Demand forecast methodology

Corix states on page 14 of its Application: "Energy loads and annual energy demand is determined using the Energy Use Intensity (EUI)..."

- 13.1 Please provide the information used to inform the load forecast, and explain the source of the information obtained.
- 13.2 Please explain in detail the process, calculations, inputs and any assumptions used to produce the forecasted energy demand and diversified capacity.
- 13.2.1 If available, please present any calculations and models in a functional excel spreadsheet.
- 13.2.2 Please identify and explain any differences between the demand forecast methodology used in this Application versus the one used to produce the original forecast presented in the 2011 CPCN application.
- 13.3 Please provide the occupancy rate of the completed buildings in NUS and the assumed occupancy rate used in the demand forecast.

13.4 Please state the percentage of existing building gross floor area connected to the current TEC, and state the percentage of building gross floor area expected to connect to the TEC in the load forecast.

Corix states on page 14 of the Application “It is important to note that the energy intensities vary by building and are significantly impacted by whether the units are owned versus rented.”

13.5 Please explain the methodology and inputs to calculate the EUI.

13.6 Please state the assumptions and explain, with calculations, how the annual EUI in buildings with partial hydronic servicing was adjusted to account for reduced space heating provided through the temporary energy centre (TEC).

13.7 Please provide the average actual EUI for rental units and owned units within each connected building in a table and in a functional excel spreadsheet. Please also provide an overall average EUI for the following: i) rental units in concrete buildings; ii) owned units in concrete buildings; iii) rental units in wood frame buildings; iv) owned units in wood frame buildings.

13.7.1 If the data request is unavailable, please support Corix’s statement in the preamble.

13.8 Please explain whether Corix incorporated rental versus owned EUI and the anticipated ratio of rented versus owned units in its demand forecast. If yes, please present the values and weightings. If not, please explain why not.

**14.0 Reference: ENERGY LOAD AND ANNUAL ENERGY DEMAND
Exhibit B-1, Section 2.3.2, p. 14
Energy Use Intensity (EUI)**

Corix states on page 14 of the Application:

The EUIs used in the original studies were determined based on the development requirements to comply with the stringent energy efficiency requirements stipulated by the [SFU Community] Trust. To date the actual operating data as well as design requirements from the building developers show that the originally estimated EUIs were aggressive and that the load requirements as well as annual energy demands are significantly higher than originally projected.

14.1 Please explain whether the connected buildings to date conformed to the energy efficiency requirements stipulated by the Trust.

14.2 Please provide reasons why the EUI as observed from the actual operating data differ significantly from the initial forecast presented in the Commission approved 2011 CPCN application.

Corix further states on page 14: “The comparison of the originally estimated EUI and actual data and assumptions used for the updates in the load forecast and annual energy demand are summarized in [Table 3].”

14.3 Please elaborate on the source, type of information and the time frame covered by the actual data referenced in the preamble.

14.4 Please present the updated EUI assumptions for energy load for space heating for low rise and high rise separately.

14.4.1 Please explain whether the average energy load for UniverCity presented in Table 3 is a weighted average proportionate to the number of high rise and low rise buildings. If not, please explain.

**15.0 Reference: INITIAL PHASE CAPITAL COST OVERVIEW
Exhibit B-1, Section 5.1, p. 41;
Corix 2011 CPCN proceeding, Decision dated May 6, 2011, Order C-7-11, p. 10
Uncertainty**

Order C-7-11 accompanying the Corix 2011 CPCN Decision states on page 10: "CMUS has noted that the demand forecast has a high level of uncertainty and will require actual operating experience before the energy demand can be forecasted with any degree of accuracy." Some of the uncertainties mentioned on page 33-34 of the decision include the number of units that will be connected to the NUS, development risk, and implementation of any supplementary energy sources at the building level by developers.

Corix states on page 41 of its Application: "In the time period since the 2011 CPCN was granted, the development schedule has changed and the gross floor area (GFA) being added have changed."

15.1 Please describe all uncertainties in Corix's updated demand forecast, and explain the directional and magnitudinal impact each uncertainty has on the confidence of the energy load and diversified capacity forecast.

15.1.1 Please explain which of the uncertainties, if any, on the demand forecast presented in the 2011 CPCN has been minimized or alleviated from the operational experience to date.

**16.0 Reference: ENERGY LOAD AND ANNUAL ENERGY DEMAND
Clean Energy Act, SBC 2010, Chapter 22, Section 2(b)
Demand-side measures**

Section 2 of the *Clean Energy Act* states "The following comprise British Columbia's energy objectives: (b) to take demand-side measures and to conserve energy..."

16.1 Please explain whether Corix has considered any demand-side measures (DSM) to reduce the energy demand forecasted from 2015 to 2022.

16.2 Please elaborate on whether Corix will actively seek conservation opportunities and implement any feasible DSM on an ongoing basis.

16.3 Please elaborate on whether Corix's energy load and annual energy demand forecast accounts for a reduction in energy demand by DSM. If not, please explain why not.

16.3.1 If applicable, please produce an energy load and annual energy demand forecast net of DSM. If not applicable, please elaborate.

16.4 Please discuss, in Corix's view, whether DSM is a feasible option to reduce the need to increase the capacity of boiler plants to fulfill future energy load.

**17.0 Reference: ENERGY LOAD AND ANNUAL ENERGY DEMAND
Exhibit B-1-1, Confidential Financial Model
Confidentiality**

- 17.1 Please explain why the “assumptions” tab and the energy demand presented under the “forecast” tab are confidential. If the information contained is not confidential, please re-file on a non-confidential basis.
- 17.1.1 If a portion of the information contained in the “assumptions” and “forecast” tabs are confidential, please file a redacted version on a non-confidential basis.

F. INFRASTRUCTURE AND PERSONNEL ADDITIONS

**18.0 Reference: HUMAN RESOURCES REQUIREMENT
Exhibit B-1, Section 2.5.4, p. 21; Section 4.4, p. 35
Personnel addition**

On page 35 of the Application, Corix states:

Corix expects that the new TEC will not require full-time personnel and will be of the same unmanned status. Based on the current BC Safety Authority (BCSA) regulation (the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation) the temporary plant proposed will have less than 150 m² of heating surface area which is the threshold for a supervision required status.

In addition, on page 21 of the Application, Corix states, “after the new TEC is installed and starting in 2017, Corix will employ its own operator on a 0.5 full time equivalent (FTE) basis. The remaining 0.5 FTE will be allocated to another Corix district energy project.”

- 18.1 If Corix had instead added an additional 2.3 MW TEC, would Corix still have likely employed its own operator on a 0.5 FTE basis? Please explain.
- 18.2 Why has 2017 been decided as the time of hire for the new operator? Does this imply that TEC will grow beyond the 150 m² size in 2017 and therefore has to meet the BCSA Regulation (the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation) for plants greater than 150 m²? If so, what infrastructure changes are taking place in 2017?
- 18.3 Please describe the roles and responsibilities to be performed by the operator starting in 2017 and how Corix determined the appropriate amount of time required for the operator to work on the UniverCity NUS. Also indicate what the BCSA Regulation specifically states regarding time commitment of an operator for supervision of a plant greater than 150 m²? Please provide a reference to the Regulation.
- 18.4 Which Corix district energy project will the remaining 0.5 FTE be allocated to?