

BRITISH COLUMBIA UTILITIES COMMISSION

IN THE MATTER OF THE *Utilities Commission Act*, RSBC 1996, c.473

and

Corix Multi-Utility Services Inc.

Application for a Certificate of Public Convenience and Necessity for the
Burnaby Mountain District Energy Utility

BCUC Project No. 1598905

WRITTEN ARGUMENT OF INTERVENORS
B.C. SUSTAINABLE ENERGY ASSOCIATION and
SIERRA CLUB BRITISH COLUMBIA

July 6, 2017

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Part I. Introduction

A. Summary

1. This is the final argument of the interveners B.C. Sustainable Energy Association (BCSEA) and Sierra Club British Columbia (SCBC) concerning the application by Corix Multi-Utility Services Inc. (Corix) for
 - (a) a Certificate of Public Convenience and Necessity (CPCN) for the Burnaby Mountain District Energy Utility (BM DES, or Project) pursuant to section 45 of the *Utilities Commission Act*, RSBC 1996, c.473 (“Act”) authorizing construction and operation of a biomass central energy plant and the associated facilities (Project Facilities), and
 - (b) approval pursuant to sections 60 and 61 of the Act of the Amended and Restated Thermal Energy Services Agreement dated as of January 27, 2017 between Corix and Simon Fraser University (TESA), including the cost of service, cost allocation and rate design principles set out in Schedule 1 (Cost of Service Parameters) and Schedule 2 (Cost Allocation and Rate Design Principles) of the Application.
2. This argument responds to Corix’s June 22, 2017 Final Argument.
3. BCSEA-SCBC support Commission approval of a CPCN for the Project, and Commission approval of the rate design proposed by Corix.

B. BCSEA-SCBC

4. BCSEA is a non-profit association of citizens, professionals and practitioners committed to promoting the understanding, development and adoption of sustainable energy, energy efficiency and energy conservation in British Columbia. BCSEA supports the province’s transition to a lower-carbon economy. BCSEA has five chapters across B.C. and approximately five hundred individual and corporate members. Members of BCSEA are potential

ratepayers of the Corix UniverCity Neighbourhood Utility Service. BCSEA's goals include sustainable energy, energy efficiency and energy conservation in British Columbia.

5. SCBC is a non-profit organization of British Columbians from all walks of life. SCBC represents individuals in BC who care about a broad range of environmental issues, including climate change and clean energy, and who want the energy they purchase and use to be produced and transported in ways that minimize harm to the natural environment. SCBC has five local groups and over 12,000 members and supporters across the province, some of whom are potential ratepayers of the Corix UniverCity NUS.
6. BCSEA-SCBC's interests in this proceeding are those of public interest environmental and sustainable energy organizations and of their members who may be future ratepayers of the Burnaby Mountain DEU.
7. BCSEA and SCBC support thermal energy systems where they provide a low-carbon alternative to conventional heating systems. BCSEA-SCBC have participated in many of the Commission's proceedings concerning thermal energy systems, including project-specific applications for CPCNs and rates approvals, the Commission's inquiry into alternative energy services by FortisBC Energy Inc., and the Commission's development of a regulatory framework for thermal energy services. BCSEA-SCBC participated in the proceeding regarding Corix's application for a CPCN at Burnaby Mountain that led to Order G-48-16A.
8. BCSEA-SCBC participated fully in the current proceeding. For the record, they did not receive copies of the confidentially filed evidence.

C. The Project Facilities and Rate Design

9. BCSEA-SCBC accept Corix's overview of the Project Facilities, the Amended and Restated Infrastructure Agreement (SFU Infrastructure Agreement), and the TESA in paragraphs 3 to 8 of Corix's Final Argument.

10. The UniverCity Neighbourhood Utility System (NUS) was constructed and is operated pursuant to a CPCN issued by the Commission to Corix in 2011. The UniverCity NUS provides thermal energy by a hot water piping system to residential and commercial customers at SFU Community Trust's UniverCity development adjacent to Simon Fraser University on Burnaby Mountain, within Metro Vancouver. The UniverCity NUS currently operates with temporary natural gas-fired energy centres.
11. The stated intention has been to transition the UniverCity NUS from the temporary natural gas energy centres to a permanent low-carbon energy facility when build-out and energy demand become sufficient. Corix state, and BCSEA-SCBC agree, that this intended transition:
- (a) "aligns with the sustainability objectives set out by the SFU Community Trust...for developing UniverCity and the...British Columbia's Energy Objectives," and
 - (b) "reduces risk for customers associated with volatile natural gas commodity costs and future carbon tax policies."¹
12. A notable development reflected in the current application is that the proposal is for a combined permanent low carbon central energy centre to serve both UniverCity and the SFU campus. The SFU campus is currently served by a district energy system (SFU DES) supplied by a natural gas boiler plant. SFU is a "public sector organization" (PSO) and as such has a provincial mandate to mitigate GHG emissions. The combined low carbon energy centre will address both SFU's GHG emissions reductions requirements and the SFU Trust's objectives for transitioning the UniverCity NUS to low-carbon energy.
13. The proposal is that the UniverCity NUS will be known as the Burnaby Mountain District Energy System (DES). The Burnaby Mountain DES will continue to provide the previously approved piped hot water heating service

¹ Exhibit B-1, p.1.

to UniverCity customers and, if approved, will also provide primary heat energy to the SFU energy transfer station (Campus ETS). The gas boilers in the UniverCity temporary energy centres will be repurposed to the central energy plant to provide peaking and backup energy. Notably, the SFU DES will continue to provide its own distribution and will continue to own and operate its gas boiler plant for peaking and back-up energy.²

14. The Burnaby Mountain DES facilities include:

- (a) the existing previously approved UniverCity NUS facilities,
- (b) a central energy plant with a new 13.5 MW output capacity biomass module and, for peaking and backup, an 8.3 MW output capacity natural gas module (repurposed from the existing gas boilers),
- (c) an SFU energy transfer station (Campus ETS), interconnecting the Burnaby Mountain DES with the SFU DEU,
- (d) a distribution piping system, including a pipeline connection between the Central Energy Plant and the Campus ETS, and a pipeline connection between the Central Energy Plant and the existing UniverCity distribution piping system.³

15. The wood waste fuel to be used in the biomass module in the Central Energy Plant will be sourced locally. It will meet Metro Vancouver's wood waste quality and composition requirements.

16. There are two main agreements between Corix and SFU:

- (a) the SFU Infrastructure Agreement, which “deals with the design, financing, construction, and ownership of the Project Facilities... [and] provides for permitting and land access, and sets out design specifications and timelines,” and

² Exhibit B-2, BCUC 1.2.1.

³ Exhibit B-1, p.2.

(b) the TESA, which sets out the terms and conditions on which Corix will be providing thermal energy service to SFU.⁴

17. Corix states that the SFU Infrastructure Agreement is a development agreement, not a “privilege, concession, or franchise” as defined in the UCA. Accordingly, Corix states, and BCSEA-SCBC agree, that it does not require approval under the Act.⁵

18. The TESA must be approved by the Commission under sections 60 and 61 of the UCA. Key components are Schedule 1 – Cost of Service Parameters, and Schedule 2 – Cost Allocation and Rate Design Principles.

Part 2. Law and Policy

19. The legal test for whether the Commission ought to approve this CPCN application by Corix for the Project is a public interest test under the *Act*. The Commission has broad discretion to consider a variety of factors and evidence in determining whether the Project Facilities are in the public interest.

20. The legal test for whether the Commission ought to approve the TESA, cost of service, cost allocation and rate design principles is whether they are just and reasonable and not unduly discriminatory.

Part 3. CPCN

Project Justification

21. BCSEA-SCBC respectfully submit that the Commission should determine that the development and operation of the Burnaby Mountain DES is in the public interest under the UCA.

⁴ Exhibit B-1, p.11.

⁵ Exhibit B-1, p.11.

GHG emissions reductions

22. Corix states “By utilizing the biomass CEP, the implementation of the Burnaby Mountain DEU will result in an estimated reduction in overall GHG emissions of 11,600 tonnes / year.”⁶
23. BCSEA-SCBC agree with Corix that “The use of [clean] biomass fuel to provide heat energy in this type of application is recognized by provincial, federal and international agencies as an appropriate approach for mitigating the impacts of GHG when compared to using conventional fossil fuel energy sources.”⁷
24. However, BCSEA-SCBC do take issue with Corix’s statement that CO₂ emissions from burning biomass are considered “carbon-neutral” according to the BC Ministry of Environment’s “2016/17 B.C Best Practices Methodology for Quantifying Greenhouse Gas Emissions.”⁸ BCSEA-SCBC submit that there is more nuance than Corix acknowledges in this assertion.
25. The Best Practices document explains why biomass is “often considered ‘carbon-neutral’,” however it does not endorse a general conclusion that biomass is carbon-neutral. It states:

“The CO₂ released to the atmosphere during combustion of biomass is assumed to be the same quantity that had been absorbed from the atmosphere during plant growth. Because CO₂ absorption from plant growth and the emissions from combustion occur within a relatively short timeframe to one another (typically 100-200 years), there is no long-term change in atmospheric CO₂ levels. For this reason, biomass is often considered “carbon-neutral” and the Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories specifies the separate reporting of CO₂ emissions from biomass combustion. See: IPCC (2006), 2006 IPCC Guidelines for

⁶ Exhibit B-1, p.13.

⁷ Corix Final Argument, para.14, underline added.

⁸ MOE Best Practices document,
<http://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2016-17-pso-methodology.pdf>

National Greenhouse Gas Inventories, p. 5.5; and the Climate Registry (2013), General Reporting Protocol Version 2.0, p. 36.”⁹

26. The MOE Best Practices document identifies three aspects of the carbon accounting of biomass combustion that make it more nuanced than simple “carbon neutrality.”

27. First, burning woodwaste biomass to produce heat is considered to produce “biogenic emissions (BioCO₂),” which must be reported. The MOE Best Practices document states:

“In addition to fossil fuels, wood fuel and wood waste may also be combusted to produce heat. For the purposes of emissions reporting in alignment with international protocols, biogenic emissions (BioCO₂) from biomass combustion, including wood, wood waste, ethanol, biodiesel and renewable natural gas must be reported.”¹⁰

28. Second, Public Sector Organizations are required to offset N₂O emissions from biomass combustion:

“For biomass combustion, BioCO₂ emissions must be reported separately from CH₄ and N₂O emissions but PSOs are only required to offset the CH₄ and N₂O emissions from biomass combustion.”¹¹

29. Third, the Best Practices document cautions that the proper accounting for GHG emissions from biomass is the subject of ongoing international discussions. It states:

“Any organization considering biomass should be aware that there are ongoing international discussions around the proper treatment of biomass and how to best account for the BioCO₂ storage and emissions of different harvested wood products (e.g. waste wood

⁹ 2016/17 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions Including Guidance for Public Sector Organizations, Local Governments and Community Emissions (MOE Best Practices document), footnote 14 on page 10.

¹⁰ MOE Best Practices document, p.10, underline added.

¹¹ *Ibid.*

vs. virgin wood) and the associated forest management practices occurring on the land base.¹²

30. It is acknowledged that there is a higher potential for change in the accounting treatment of biomass combustion regarding biomass harvested for the primary purpose of combustion than regarding biomass from wood waste such as with the proposed Burnaby Mountain biomass facility.

31. This is noted in the MOE Best Practices document as follows:

“The impacts of future accounting changes will be minimized to the extent that biomass is diverted from waste streams and that non-waste biomass comes from sustainably managed forest lands.”¹³

32. Mr. Alan James provided a letter of comment asking the Commission to reject the application on the grounds that the proposed woodwaste biomass energy facility would have higher GHG emissions than a natural gas-fired energy facility.¹⁴ BCSEA-SCBC respectfully disagree with that premise.

33. BCSEA-SCBC concur with Mr. James that combustion of wood waste is not strictly “carbon neutral.” However, the choice at hand is not between a biomass facility and no GHG emissions. For the primary energy source, the choice is between a facility fueled by locally sourced clean wood waste that would in the past have gone to a Metro Vancouver landfill and a facility fueled by natural gas with known GHG emissions.

34. According to the international standards applied in B.C., the combustion of wood waste fuel in a stationary heat plant has a zero GHG emissions factor. If site specific adjustments to the emissions factors were to be made then they would have to be made to both the wood waste fuel and the natural gas alternative. For an alternative baseload natural gas plant for BMDDES, this would include consideration of additional upstream GHG emissions, such as fugitive methane emissions, not currently included in the approved emissions

¹² *Ibid.*

¹³ *Ibid.*

¹⁴ Exhibit E-1.

factor. For the BMDES wood waste fuel, this would include consideration of forest management practices. However, the size of any adjustment due to less-than-sustainable forest practices would be limited because the wood waste being sourced for the BMDES is from waste streams and not from direct harvesting.¹⁵

35. BCSEA-SCBC are satisfied that the proposed BMDES biomass facility using the clean local wood waste described in the evidence would result in significant GHG reductions over a natural gas-fired alternative due to displacing natural gas that would otherwise be consumed.

Air emissions

36. The air emissions from the proposed wood waste biomass facility are regulated by Metro Vancouver, not by the Commission.

37. Corix states:

“A two-stage emissions control system, consisting of a cyclone and an electrostatic precipitator, and a continuous emission monitoring system will ensure local air emissions meet or exceed Metro Vancouver’s air emission requirements.”¹⁶

38. BCSEA-SCBC consider that this provides the Commission with reasonable assurance that air emissions from the proposed facility will be properly regulated.

Choice of central low-carbon facility

39. Economies of scale are the rationale for the combined approach as distinct from two separate low carbon energy centres. BCSEA-SCBC accept that the evidence supports this rationale. Corix states:

“By providing service to both the UniverCity customers and the SFU Campus, the Burnaby Mountain DEU will deliver renewable energy at a reasonable cost and lower rates for both SFU and UniverCity

¹⁵ footnote 14 on page 10.

¹⁶ Exhibit B-1, p.2.

than would be the case with smaller standalone plants serving each customer group separately.”¹⁷

Choice of biomass over other low carbon alternatives

40. Early in the development of a district energy system for UniverCity the following low-carbon technologies were evaluated:

- (a) High-efficiency natural gas boilers,
- (b) Sewer heat recovery and ground source heat pumps,
- (c) Waste heat recovery from the proposed SFU data centre,
- (d) Combined Heat and Power based on natural gas and biogas,
- (e) Solar and wind applications, and
- (f) Biomass.¹⁸

41. Of these low-carbon technologies, Corix considered waste heat recovery from the proposed SFU data centre and biomass as the two most viable methods to “achieve significant GHG reductions in a cost-effective manner with sufficient capacity to satisfy the energy requirements for both the SFU Campus and the UniverCity customers.”¹⁹

42. Corix says that “biomass was ultimately chosen as the preferred technology ... [due] to uncertainty with development of the data centre.”²⁰

43. Corix says that there remains a potential for waste heat recovery from a future SFU data centre. If the data centre was built close to the UniverCity development or the Burnaby Mountain DEU, then Corix says it “could still be incorporated into the overall energy supply strategy at UniverCity,” with two limitations. First, data centre (alone) would not provide sufficient energy to meet the baseload demand of both UniverCity and SFU. Second, the “lower

¹⁷ Exhibit B-1, p.3.

¹⁸ Exhibit B-1, p.10.

¹⁹ *Ibid.*

²⁰ *Ibid.*

grade energy available from the data centre would limit its use to supplying the UniverCity portion of the Burnaby Mountain DEU, which is designed to operate under lower temperatures than the SFU DES.”²¹

44. BCSEA-SCBC are satisfied that this evidence establishes that waste heat recovery from a future SFU data centre is not, in and of itself, a viable alternative to biomass technology for the low-carbon energy centre assuming the low-carbon energy centre is designed to meet the primary heating energy needs of both UniverCity and SFU, or of UniverCity alone. The estimated primary heating energy needs of both UniverCity and SFU is 13.5 MW. Of this, 3.5 MW is attributed to UniverCity and 10 MW is attributed to SFU.²²
45. In terms of SFU’s baseload needs alone, is noted that it was not Corix’s role to determine the best type of technology for meeting SFU’s climate action commitments: that was SFU’s prerogative. That said, BCSEA-SCBC are satisfied with Corix’s explanation that waste heat from a potential future SFU data centre was not considered a viable alternative to biomass (to meet SFU’s 10 MW baseload) because, as noted above, “This resource does not have sufficient capacity to satisfy the SFU baseload and the construction of a data centre is uncertain.”²³
46. Also, BCSEA-SCBC are satisfied that waste heat recovery from a future SFU data centre is not, in and of itself, a viable alternative to the wood waste technology if the plant was sized to meet only the requirements of UniverCity and not SFU. While the UniverCity baseload estimate had increased from 2.1 MW, when the original evaluation of technology options was done, to 3.5 MW at the present time, BCSEA-SCBC accept Corix’s evidence that this would not alter the ranking of the stand-alone alternatives (i.e., for UniverCity alone). Further, Corix’s evidence is reasonable that “none of these [UniverCity only]

²¹ *Ibid.*

²² Exhibit B-6, BCOAPO 30.2.

²³ *Ibid.*

alternatives would be less costly than the proposed combined system given the large economies of scale.”²⁴

Renewable Natural Gas alternative

47. BCSEA-SCBC accept Corix’s evidence that Renewable Natural Gas (RNG) would not be a cost-effective alternative to the proposed baseload wood waste plant. Corix states

“Based on the current price for RNG from FortisBC, it was determined that the lifecycle costs using RNG would be higher when compared to the biomass option for achieving the desired GHG reduction targets.”²⁵

Clean local wood waste biomass fuel source

48. Corix says that “The biomass used in the CEP will be sourced locally and will meet Metro Vancouver’s wood waste quality and composition requirements.” BCSEA-SCBC asked Corix about the biomass fuel source.

49. Asked to explain “sourced locally,” Corix states “The biomass fuel will be delivered to the CEP from Cloverdale Fuel’s yard located in Port Kells, Surrey.”²⁶ BCSEA-SCBC are satisfied with that response.

50. Asked to explain “Metro Vancouver’s wood waste quality and composition requirements” that the CEP fuel will have to meet, Corix said that Metro Vancouver defines “biomass” and its quality requirements in the Greater Vancouver Regional District Boilers and Process Heaters Emission Regulation Amending Bylaw No. 1190, 2013.

51. BCSEA-SCBC have reviewed Metro Bylaw 1190/2013 and are satisfied that the biomass fuel for the CEP will be required to be “uncontaminated wood waste,” with appropriately stringent terms and conditions.

²⁴ *Ibid.*

²⁵ Exhibit B-6, BCUC 30.5, pdf p.4.

²⁶ Exhibit B-4, BCSEA 1.1.

52. Corix confirmed that only fuel that meets the definition of “biomass” in the TES Agreement, the Infrastructure Agreement and Statutory Right of Way is allowed to be burned in the CEP.²⁷
53. Corix also confirmed that despite somewhat different wording in various places in the application “clean” and “uncontaminated” are used interchangeably and that the biomass fuel will comply with the definition of “biomass” included in the Metro Vancouver Bylaw Metro Bylaw 1190/2013.²⁸
54. BCSEA-SCBC sought and received from Corix specific assurance that the biomass fuel would not include retired rail ties treated with creosote or pentachlorophenol. BCSEA-SCBC are satisfied with Corix’s responses.²⁹
55. BCSEA-SCBC are very concerned that it be abundantly clear that the BMDES biomass facility is not allowed to use contaminated rail ties as fuel. Notably, Corix said it would not object to a condition of the CPCN that the CEP will not include rail ties treated with creosote or pentachlorophenol.³⁰

Support for GHG emissions reduction objectives

56. BCSEA-SCBC agree with Corix that the Burnaby Mountain DEU supports the goals of both SFU Trust and SFU.³¹ This supports the conclusion that the Project is in the public interest, although BCSEA-SCBC do not suggest that this alone defines the public interest under the Act.
57. In particular, regarding the SFU Trust, the Burnaby Mountain DEU:

“...meets the SFU Trust's objectives for developing UniverCity in a sustainable manner and satisfies the requirements under the Infrastructure Agreement between Corix and SFU Trust, dated April

²⁷ Exhibit B-4, BCSEA 1.3.

²⁸ Exhibit B-4, BCSEA 1.4.

²⁹ Exhibit B-4, BCSEA 1.5.

³⁰ Exhibit B-4, BCSEA 1.6.

³¹ Corix Final Argument, para.11.

26, 2010 and amended February 2, 2012, to develop a low carbon energy supply.”³²

58. And, regarding SFU:

“The Burnaby Mountain DEU also meets SFU's objective to significantly reduce greenhouse gas ("GHG") emissions as part of its commitment to be carbon neutral.”³³

59. BCSEA-SCBC concur with Corix³⁴ that the Burnaby Mountain DEU serves the following British Columbia energy objectives set out in the *Clean Energy Act*, s.2:

“To use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources. [CEA, s.2(d)]

To reduce BC GHG emissions. [CEA, s.2(g)]

To encourage the switching from one kind of energy source or use to another that decreases GHG emissions in British Columbia. [CEA, s.2(h)]

To encourage communities to reduce GHG emissions and use energy efficiently. [CEA, s.2(i)]

To reduce waste by encouraging the use of waste heat, biogas and biomass. [CEA, s.2(j)]”

Part 4. TESA and Rate Design

60. BCSEA-SCBC agree with Corix that the TESA fairly allocates capital and operations costs between UniverCity and SFU. Costs associated with dedicated facilities and equipment are directly allocated to the respective customer group. BCSEA-SCBC agree with Corix that the proposed cost allocations for the shared portion of the CEP and associated operations “ensure that both SFU and the UniverCity residents benefit from the

³² *Ibid.*

³³ *Ibid.*

³⁴ Corix Final Argument, para.12.

economies of scale the facility provides while avoiding cross-subsidization between the two customer groups Capital and operations costs are fairly allocated between UniverCity and SFU.”³⁵

Part 5. Conclusion

61. For the reasons set out above, BCSEA-SCBC support Commission approval of the application. BCSEA-SCBC ask that the Commission confirm that the wood waste fuel for the CEP must not include retired rail ties contaminated with creosote or pentachlorophenol.

ALL THE ABOVE IS RESPECTFULLY SUBMITTED



July 6, 2017

³⁵ Corix Final Argument, para.16(b).