



SIXTH FLOOR, 900 HOWE STREET, BOX 250
VANCOUVER, BC CANADA V6Z 2N3
TELEPHONE: (604) 660-4700
BC TOLL FREE: 1-800-663-1385
FACSIMILE: (604) 660-1102

Log No. 48334

ERICA HAMILTON
COMMISSION SECRETARY
Commission.Secretary@bcuc.com
web site: <http://www.bcuc.com>

VIA EMAIL

lan.wigington@corix.com

December 12, 2014

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 Phase 1 of the Neighbourhood District Energy System at the University of British Columbia

Further to your August 8, 2014 filing of the above-noted application, enclosed please find the Commission's Decision and Order C-11-14.

Yours truly,

Erica Hamilton

CG/kbb

cc: Registered interveners
Interested parties



IN THE MATTER OF

CORIX MULTI-UTILITY SERVICES INC.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY APPLICATION
FOR PHASE 1 OF THE NEIGHBOURHOOD DISTRICT ENERGY SYSTEM
AT THE UNIVERSITY OF BRITISH COLUMBIA

DECISION

December 12, 2014

Before:

D. M. Morton, Commissioner/Panel Chair

C. A. Brown, Commissioner

I. F. MacPhail, Commissioner

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ORDER C-11-14

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EXECUTIVE SUMMARY

On August 8, 2014, Corix Multi-Utility Services Inc. (CMUS or the Company) filed an application for a Certificate of Public Convenience and Necessity (CPCN) under sections 45 and 46 of the *Utilities Commission Act* (UCA) to construct and operate the Neighbourhood District Energy System (NDES) to serve new developments at the University of British Columbia (UBC). CMUS also sought other approvals, including approval under sections 59, 60 and 61 of the UCA of the proposed methodology for establishing revenue requirements, rate design and rates as described in the application (Application).

In the Application, CMUS described the project in two phases, with the first phase comprising three distinct areas – Wesbrook, Acadia and Block F. The energy source for Phase 1 is proposed to be a temporary gas fired boiler system. Phase 2 is contemplated to begin in 2024 when thermal load can support the installation of a renewable energy source. For this renewable source, CMUS proposes to utilize waste heat from TRIUMF's cooling towers. CMUS states that if it is unable to utilize waste heat from TRIUMF, it would instead use biomass as an energy source and, failing that, consider purchasing carbon credits. Phase 2 also includes further build-out of Acadia and Block F.

The Application requests approval for a CPCN for the construction of Phase 1. However, during the proceeding, CMUS amended its application to include approval for only the Wesbrook portion of Phase 1 (Phase 1 Wesbrook).

At full build-out, the NDES will serve approximately 1,078,800 m² of gross floor area, consisting of primarily residential units, with the possibility of having commercial and institutional customers in the Development Area. In the first phase, Phase 1 Wesbrook, an estimated 11 new high rise buildings and 12 new low rise buildings with a total floor space of 342,207m² will connect to the NDES in the Wesbrook Place neighbourhood. Wesbrook Place's thermal needs – for heating and hot water – will be served by gas fired boilers in two temporary gas fired energy centres and the permanent Wesbrook Energy Centre/Energy Transfer Station.

The Application also requests approval for the Infrastructure Agreement between CMUS and UBC and a 20 year levelized rate for the NDES. The proposed levelized rate is designed based on CMUS' forecast of costs and revenues for both Phase 1 and Phase 2 of the project. The Infrastructure Agreement contains two ratemaking requirements. One is that CMUS must recover from its ratepayers the costs of a construction credit to developers of low rise buildings. The other is the collection of a Carbon Emissions Rider.

Both CMUS and UBC consider that the Infrastructure Agreement falls within the broad language of section 45(7) of the UCA which requires Commission approval for any privilege, concession or franchise granted to a public utility by a municipality or other public authority. The Panel accepts this position and considers that approval of the Infrastructure Agreement is necessary for a CPCN to be issued for Phase 1 Wesbrook.

In this decision, the Panel considers whether the Application is consistent with the Commission's CPCN Guidelines, in addition to whether the proposed rate design complies with sections 59 and 60 of the UCA. In particular, the Panel considers the following:

- Does the proposed project align with the *Clean Energy Act* and provincial government policy;
- Is the Infrastructure Agreement between CMUS and UBC appropriate;
- Is the Load Analysis and Energy Forecast adequate;
- Is the project in the public interest if there is no future renewable heat source;
- Is the scope of the CPCN reasonable;
- Is the 20 year levelized rate design appropriate;
- Is the Project Description adequate;
- Are the Cost Estimates adequate;
- Is the risk of Stranded Assets acceptable; and
- Has there been adequate Public and First Nation Consultation?

Upon consideration of these issues, the Panel finds there is sufficient evidence to support acceptance of this CPCN Application and is prepared to grant a CPCN for Phase 1 Wesbrook subject to modifications to the Infrastructure Agreement as laid out by the Panel.

In making this determination, the Panel notes that Phase 1 Wesbrook introduces potential economic risk to ratepayers because of the buildup of the revenue deficiency deferral account. In addition, it produces an increase in greenhouse gas emissions above a business as usual scenario. However, we acknowledge the intent of the parties, as part of Phase 2 of the project, to develop a central energy plant based on renewable energy and that Phase 1 Wesbrook is a necessary first step to that goal. For this reason, we consider that Phase 1 Wesbrook contributes to meeting the applicable BC's energy objectives and will provide an overall benefit to ratepayers. On that basis, we are prepared to approve it. The Panel acknowledges the stewardship role of UBC with respect to the development of the University Endowment Lands and its commitment to the well-being of the community. This is an essential element of our approval for Phase 1 Wesbrook.

The Panel finds that the Infrastructure Agreement requires CMUS to charge a rate that is unduly discriminatory under section 59 of the UCA and is therefore unable to approve the Infrastructure Agreement with this requirement. Further, the Panel identifies issues with the NDES Extension terms in the Infrastructure Agreement. However, the Panel is prepared to approve the Infrastructure Agreement and grant the CPCN for Phase 1 Wesbrook, if the agreement is amended and refiled with the Commission within 60 days of this decision.

The Panel is unable to approve CMUS' proposed 20 year levelized rate design at this time. In order to assist CMUS to prepare a revised rate design that the Panel is prepared to approve, in the following sections, we make further determinations relating to the following:

- Levelized rate structure;
- Carbon Emissions Rider and Connection Credit;
- Allocation of annual rate based on proposed fixed/variable charge;
- Capital structure;
- System operating costs; and
- Project development costs.

The Infrastructure Agreement provides CMUS with a franchise to operate the NDES in the territory defined by UBC. The Panel approves a single thermal rate in this territory regardless of where the energy is served from.

For the purpose of the allowed system extension costs, the Commission finds that the "initial TES capital cost" is \$11,193,073 in real 2014 dollars.

1.0 INTRODUCTION

On August 8, 2014, Corix Multi-Utility Services Inc. (CMUS) applied for a Certificate of Public Convenience and Necessity (CPCN) to construct and operate a Neighbourhood District Energy System (NDES) at the University of British Columbia (UBC) (Application). Initially, CMUS sought to include the infrastructure necessary to serve future loads in the Wesbrook, Acadia and Block F neighbourhoods. However, in the Streamlined Review Process (SRP) CMUS removed the Acadia and Block F neighbourhoods from the CPCN Application. In the future, CMUS still expects these neighbourhoods to be served from the NDES.¹

The removal of these neighbourhoods resulted in an amended CPCN application, which include only the first 10 years of construction and operation, and provides thermal energy service to new developments in Wesbrook Place. For clarity, the term Phase 1 Wesbrook will be used to refer to the project applied for in the amended application and Phase 1 will refer to the project in the original application. The infrastructure for Phase 1 Wesbrook consists of two temporary energy centres (TEC), a component of the permanent Wesbrook Energy Centre/Energy Transfer Station (EC/ETS), distribution piping and energy transfer stations.

To provide context and justification for the Application, CMUS also provided information regarding a future second phase of NDES development. Phase 2 is contemplated to occur in 2024 when thermal load can support the installation of the alternate energy source, which is likely to be the utilization of waste heat from TRIUMF's cooling towers.²

As part of the Application, CMUS seeks approval of its proposed methodology for establishing revenue requirements, rate design and rates for the first 10 years of the project. CMUS seeks approval to include within its levelized rate design the revenues and costs associated with all phases of the project, which includes Wesbrook, Acadia, Block F and the future alternative energy source. CMUS is not seeking approval of final rates as part of this Application; instead, it will file an application for final rates in 2015.³ CMUS proposes to establish a 20-year levelized rate structure and specifically requests approval to establish a revenue deficiency deferral account (RDDA) to accomplish the proposed rate levelization. There are two unique rate design features which form part of the Infrastructure Agreement between UBC and CMUS and are characterized by UBC as "essential elements" of the project – the Carbon Emissions Rider and the Connection Credit. Both of these features represent a cost to ratepayers and form part of the overall rate proposed to be charged to ratepayers during Phase 1 of the project.⁴

1.1 The applicant

CMUS is a subsidiary of Corix Inc., a privately held Canadian corporation owned by the British Columbia Investment Management Corporation. CMUS has experience in development, ownership and operation of district energy utilities, including UniverCity in Burnaby, BC. CMUS will be responsible for developing,

¹ Transcript Volume 1, pp. 56–57.

² Exhibit B-1-1, p. 1.

³ CMUS Final Argument, p. 6.

⁴ Ibid., p. 5; Exhibit B-1-1, p. 2.

implementing and owning the NDES that is expected to provide thermal energy to UBC's new development areas at its Vancouver campus, and potentially Block F.⁵

1.2 Key stakeholders for Phase 1 and Phase 2

1.2.1 The University of British Columbia

This Application deals with UBC's Point Grey campus in Vancouver, BC. The Point Grey campus is located within the boundaries of Metro Vancouver. However, Metro Vancouver's land use bylaws do not apply. Rather, UBC's Board of Governors must ensure that land use in development areas is consistent with the land use plan. The UBC Board of Governors applies the general land use policies of the land use plan by adopting a neighbourhood plan for each development area.⁶

UBC Properties Investments Ltd. (UBC Properties Trust) administers the process of subdividing, servicing and marketing these lands to third party developers. It was created in 1988 as a wholly owned subsidiary of UBC.

The areas that are expected to be served by the NDES at UBC include Wesbrook Place, Stadium, Acadia East, Acadia West and East Campus. The land within each of these areas is owned in fee simple by UBC.⁷ Neighbourhood plans have been approved for Wesbrook Place and East Campus but have not been prepared or approved for the other areas⁸. Wesbrook Place is currently being developed.⁹

1.2.2 TRIUMF

TRIUMF is Canada's national laboratory for particle and nuclear physics and is owned and operated by a consortium of Canadian universities including UBC.¹⁰ TRIUMF is located to the south of Wesbrook Place on the UBC campus.¹¹ In Phase 2, CMUS proposes to utilize waste heat from TRIUMF.

1.2.3 University Neighbourhood Association

The University Neighbourhood Association (UNA) is a society incorporated under the *Society Act* (British Columbia).¹² The UNA represents and provides municipal-like services to residents of UBC's residential neighbourhoods.¹³

⁵ Exhibit B-1-1, p. 5.

⁶ *Ibid.*, p. 6.

⁷ *Ibid.*, p. 6.

⁸ Exhibit B-3, p. 23; Exhibit B-6, BCUC 1.39.1.

⁹ Exhibit B-1-1, p. 6.

¹⁰ *Ibid.*, p. 7.

¹¹ *Ibid.*, p. 8; Exhibit D-1.

¹² Exhibit B-1-1, Appendix 10, p. 8.

¹³ Exhibit D-2.

1.2.4 Others

The proposed project will affect ratepayers in buildings to be served by the NDES. Additionally, those in the surrounding areas may be affected by the project. The general public may benefit from potential reduced carbon emissions and GHG levels if Phase 2 occurs, although Phase 1 Wesbrook will increase GHG levels.

1.3 Orders sought

CMUS is seeking the following:

- a) A CPCN under section 45 of the *Utilities Commission Act* (UCA) for the construction and operation of the Wesbrook portion of Phase 1 of the proposed community-based district energy system at UBC, Vancouver BC.¹⁴
- b) Approval under subsection 45 (vii) of the UCA of the Infrastructure Agreement between CMUS and UBC including endorsement of the proposed project plan.
- c) Approval under sections 59¹⁵, 60 and 61 of the UCA of the proposed methodology for establishing revenue requirements, rate design and rates for the initial 10 years of the project, as described in the Application. CMUS is not seeking approval of final rates. Instead, it seeks approval of the methodology by which the revenue requirement and rates would be established;¹⁶
 - i) The indicative rate base as provided in Section 2.7 of the Application;
 - ii) The indicative revenue requirement as provided in Section 2.9:
 1. A deemed capital structure of 57.5% debt and 42.5% equity;
 2. Long term debt financing costs estimated at 4.0%;
 3. A return on equity (ROE) of 9.5%;
 4. Operating costs as provided in Section 2.6.2; and
 5. 20-year levelized rate structure.
 - iii) Approval of the accounting treatment of the following:
 1. A revenue deficiency deferral account which is used to record those portions of revenue requirements which are not recovered in the early stages of development, with the goal of complete recovery of the funds over the 20-year period;
 2. The Connection Credit for low rise buildings connected prior to 2021;
 3. The Carbon Emissions Rider; and
 4. The indicative rate design as provided in Section 2.10 of the Application.¹⁷

¹⁴ CMUS Final Argument, pp. 3–4.

¹⁵ The Application requested approval under section 56, which is not applicable.

¹⁶ CMUS Final Argument, p. 6.

¹⁷ Exhibit B-1-1, pp. 4, 12.

- iv) The indicative financial model be kept confidential to protect CMUS' business interests¹⁸; and
- v) Approval to capitalize and amortize CMUS' and UBC's project development costs over 30 years and to have these costs included in rates.

1.4 Regulatory process

The review of the Application was conducted by way of written information requests, a Streamlined Review Process (SRP) and written arguments. The interveners were BC Sustainable Energy Association and the Sierra Club of British Columbia (BCSEA) and UBC. The Regulatory Timetable is summarized in Appendix A.

2.0 PROJECT DESCRIPTION

2.1 Project history and need

UBC's on-campus residential community currently houses approximately 8,500 residents in student accommodations and an additional 8,000 permanent community residents. UBC is targeting an additional 8,000+ student beds by 2030 and neighbourhood build-out is projected to conclude by 2041 with a population of approximately 24,000 residents.

In 2011, UBC and the UNA developed a Community Energy and Emissions Plan (CEEP) for UBC's residential community. The CEEP presents a comprehensive framework to achieve reductions in the use of energy, and to reduce GHG emissions within the community. It recommends the implementation of a low carbon district energy system to service all new buildings starting in 2015. CMUS was named by UBC to implement the district energy system.¹⁹

2.2 Project build-out schedule, load analysis and demand forecasts

At full build-out, the NDES will serve approximately 1,078,800 m² of gross floor area, consisting primarily of residential units, with the possibility of having commercial and institutional customers in the Development Area.²⁰ The total gross floor area upon completion of Phase 1 (2015 to 2023) is forecast to be 493,000m².²¹ CMUS later removed the Acadia and Block F neighbourhoods from the CPCN approvals sought.²² Based on development projections provided by UBC Properties Trust, CMUS projects that 11 new high rise buildings and 12 new low rise buildings, with a total floor space of 342,207m², will connect to the NDES during Phase 1 Wesbrook.²³ CMUS utilizes a phased approach to the project whereby the installation of distribution piping system (DPS) and energy sources are scheduled and sized to match the development construction in the area.²⁴ CMUS submits that this approach serves as a method of mitigating development risk and uncertainty.²⁵

¹⁸ Exhibit B-1, Cover Letter, p. 1.

¹⁹ Exhibit B-1-1, p. 13.

²⁰ Ibid., p. 15.

²¹ Ibid., p. 15.

²² CMUS Final Argument, p. 4; Exhibit B-6, Attachment L, p. 1.

²³ Exhibit B-6, BCUC 1.28.2.

²⁴ Exhibit B-1-1, Appendix One, Drawing G-002.

²⁵ Ibid., p. 53.

The project plan assumes all the new buildings will connect to the NDES for domestic hot water, ventilation air and space heating within suites.²⁶ This assumption was substantiated through a Community Energy Covenant for each new development, to be entered into by each developer, and requires that the developer use the CMUS NDES for heating purposes.²⁷ CMUS states that existing buildings without a district energy covenant are not required to connect to the NDES.²⁸ Evidence indicates that existing buildings are not forecasted to connect to the NDES during Phase 1.²⁹

CMUS estimates that for Phase 1 Wesbrook the 85 percent diversified peak demand will increase every year to 2023 and will reach 13,431kW.³⁰ Similarly, CMUS estimates that for Phase 1 Wesbrook the load will increase every year to 2023 and will reach 33,593kWh.³¹ The 85 percent diversified peak demand is based primarily on peak heating energy use intensities (EUI) of 47.5W/m² for high rises and 46.5W/m² for low rises. The load forecast is based primarily on a weighted average annual EUI of 100 kWh/m² of projected floor area for buildings receiving full hydronic service.³²

2.3 Project alternatives

To initially serve the NDES, alternative energy sources (AES), such as biomass, rather than temporary gas boilers were also considered. However, CMUS found that based on an initial conceptual analysis, use of AES technology for the temporary energy system was cost prohibitive.³³ CMUS also considered using a permanent but phased-in AES, as opposed to installing a temporary energy system. However, CMUS found that the annual revenue requirement under this scenario would be significantly higher too.³⁴ Connecting to UBC's existing Academic District Energy System (ADES) was another option considered. However, the ADES connection option was not chosen because the cost of interconnection is estimated to be approximately \$5 million as compared to \$2 million associated with implementing the TECs and the impact on annual revenue requirement during Phase 1 is materially higher.³⁵ Last, CMUS considered recovering waste heat from TRIUMF at an earlier opportunity but found that rates and the revenue deficiency deferral account balance would be significantly higher than the temporary gas boiler option.³⁶

²⁶ Ibid., p. 15.

²⁷ Exhibit B-6, BCUC IR 1.38.1.

²⁸ Ibid., BCUC IR 1.28.3.

²⁹ Ibid., BCUC IR 1.28.2; Attachment L, p. 1.

³⁰ Ibid., Attachment L, p. 1.

³¹ Ibid., Attachment L.

³² Exhibit B-1-1, p. 17; Exhibit B-6, BCUC 1.29.1.

³³ Exhibit B-6, BCUC IR 1.1.1.

³⁴ Ibid., BCUC IR 1.1.3.

³⁵ Ibid., BCUC IR 1.1.4.

³⁶ Ibid., BCUC IR 1.1.2.

2.4 Project scope and description for Phase 1 Wesbrook

To serve initial customers in Wesbrook Place from 2015 to 2023, there will be two independent thermal energy supply loops, one to serve new customers in the east part of Wesbrook Place and one to serve new customers in the west part of Wesbrook Place. In 2022 and 2023, these two sub-systems are expected to be interconnected and connected to a permanent Wesbrook EC/ETS.³⁷

The infrastructure necessary to provide thermal service to these initial customers consists of two TECs, a component of the Wesbrook EC/ETS, distribution piping and energy transfer stations (ETS). Each TEC consists of two 2.9MW non-condensing natural gas boilers housed within a standard 53 foot shipping container.³⁸ Starting in 2022, one 5 MW natural gas boiler will be installed inside the permanent Wesbrook EC/ETS to provide additional thermal energy to the interconnected Wesbrook loop. This boiler is required to meet the heat demand in the Wesbrook Place neighbourhood, in excess of what the two TECs are able to provide.

In Phase 2 the Wesbrook EC/ETS will also begin to function as an ETS and a second 5 MW natural gas boiler will be added. The two 5 MW natural gas boilers in the Wesbrook EC/ETS will continue to provide peaking and backup energy to the Wesbrook Place neighbourhood in Phase 2.³⁹ The two TECs will be removed once Phase 2 begins.⁴⁰

The DPS runs from the TECs to the customers' buildings and the Wesbrook EC/ETS. The construction of the DPS will be phased to match the development in Wesbrook Place such that the DPS will reach new buildings just as they are reaching completion.⁴¹ Generally, there will be one ETS per building, which will likely consist of one space heating heat exchanger and one domestic hot water heat exchanger.⁴²

2.5 Long-term plan (beyond Wesbrook Phase I) and its viability

Initially, CMUS applied for a CPCN for a Phase 1 which would also provide service to new buildings in Acadia East and Block F to be built between 2020 and 2023.⁴³ However, in the SRP CMUS removed these areas from the CPCN Application. In the future, CMUS still expects these areas to be served from the NDES.⁴⁴ Acadia East and Block F will likely be served by purchased energy from the ADES, initially from a separate district heating loop.⁴⁵ In CMUS' Final Argument, it explains that the CPCN and System Extension regulatory framework established in the British Columbia Utilities Commission's Thermal Energy Systems Regulatory Framework Guidelines (2014) (TES Guidelines) is sufficient for CMUS to expand in accordance with the UBC Project Plan.⁴⁶

³⁷ Exhibit B-1-1, p. 47; Exhibit B-6, BCUC IR 1.30.3.

³⁸ Exhibit B-1-1, p. 50.

³⁹ Ibid., p. 51.

⁴⁰ Ibid., p. 25.

⁴¹ Ibid., p. 50.

⁴² Ibid., p. 51.

⁴³ Ibid., p. 47.

⁴⁴ Transcript Volume 1, pp. 56-57, 59.

⁴⁵ Exhibit B-1-1, pp. 3, 8.

⁴⁶ CMUS Final Argument, p. 4.

To provide context and justification for the Application, CMUS also provided information regarding a future second phase of NDES development. Phase 2 is contemplated to occur in 2024 when thermal load can support the installation of the alternate energy source, which is likely to be the utilization of waste heat from TRIUMF's cooling towers.⁴⁷ The trigger to initiate Phase 2 of the NDES is either or both of the following events: the interconnection of the Wesbrook portion of the NDES and the ADES and/or the connection of a permanent Central Energy Plant to an AES.⁴⁸

2.5.1 TRIUMF and other alternatives

UBC conducted a pre-feasibility study that investigated a range of thermal energy sources to supply the NDES with the following four energy supply alternatives being evaluated in more detail:

- Connection to the future medium temperature hot water system for the main Campus [ADES];
- Heat capture from the TRIUMF cooling facilities;
- Biomass combustion from a facility located on South Campus; and
- Sewer heat capture from South Campus sewer lines.

The pre-feasibility study results concluded that waste heat captured from TRIUMF and connection to the ADES are the most cost effective options.

In 2011, a full feasibility report was conducted and concluded using waste heat from TRIUMF and/or biomass is technically feasible and an NDES using these sources could provide significant reductions in natural gas use and GHG emissions. It also concluded that waste heat from TRIUMF is the preferable starting technology, but biomass offers an economically viable alternative to TRIUMF if agreements cannot be reached with TRIUMF to access waste heat.⁴⁹

UBC and TRIUMF signed a Letter of Intent showing joint support for the development, establishment and operation of a heat recovery and distribution system using waste heat from TRIUMF's cooling towers. The Letter of Intent includes the principle of TRIUMF guaranteeing UBC sole access to, and use of, the warm water generated at TRIUMF at no cost until such time as UBC has retired the debt associated with the capital cost of the system. It was extended in March 2014 and was modified to include UBC or a third party utility provider such as CMUS.⁵⁰

⁴⁷ Exhibit B-1-1, p. 1.

⁴⁸ Ibid., p. 47.

⁴⁹ Ibid., p. 14.

⁵⁰ Ibid., p. 8, Appendix 9.

2.5.2 Infrastructure Agreement and Project Plan

UBC and CMUS have developed an Infrastructure Agreement (IA) to define the roles and responsibilities for the development of the NDES at UBC.⁵¹ The agreement includes information on the overall project plan and phasing, accounting requirements such as the Carbon Emissions Rider and the Connection Credit, as well as information on franchise fees, extensions, and many other requirements. It is a 45 page legal document containing nine schedules.⁵²

In response to Commission IR 1.16.1, CMUS explains:

UBC and [CMUS] consider that the Infrastructure Agreement falls within the broad language of Section 45(7) of the Utilities Commission Act which states: “Except as otherwise provided, a privilege, concession or franchise granted to a public utility by a municipality or other public authority after September 11, 1980 is not valid unless approved by the Commission.”⁵³

In the IA the project plan is defined as follows:

“Project Plan” means the plan for carrying out the Infrastructure Work, the operation of the NDES and the provision of Energy Services, a copy of which as at the date of this Agreement is attached as Schedule B, setting out:

- (i) an indicative development and load forecast;
- (ii) technical design specifications, including DPS layout, and current and future energy sources;
- (iii) a capital plan reflecting the indicative development and load forecast and technical specifications;
- (iv) operating assumptions, including equipment efficiencies, labour requirements and all costs to provide the Energy Services;
- (v) input fuel price assumptions;
- (vi) the Project Plan Pro Forma;
- (vii) rate design and rate setting principles; and
- (viii) the Extension Test;

as approved by the BCUC and as amended thereafter in accordance with this Agreement, including so as to reflect changes in the Development Forecast and in NDES operating costs that are a flow-through to NDES Customers.⁵⁴

⁵¹ Ibid., p. 24.

⁵² Exhibit B-3-2.

⁵³ Exhibit B-6, BCUC IR 1.16.1.

⁵⁴ Exhibit B-3-2, pp. 6–7.

Schedule B of the IA is itself also titled Project Plan. It is another 45 page document with three appendices and includes information on all eight of the points outlined in the Project Plan definition above. It contains similar, but not identical information as is contained in the body of the Application.⁵⁵ Additionally, the Application refers to both a Project Plan and a project plan.

CMUS seeks approval of the IA, including endorsement of the project plan.⁵⁶ However, as described above, the Infrastructure Agreement defines Project Plan as the project plan set out in Schedule B.⁵⁷

3.0 PROJECT COSTS AND RATE DESIGN

3.1 Capital costs

The CPCN approval request is for \$11,193,073 in real 2014 dollars, which is the total Phase 1 Westbrook project capital cost up to and including the year 2023.⁵⁸ A breakdown of the total Phase 1 Westbrook project capital cost up to and including the year 2023 is provided in the table below.

⁵⁵ Ibid., Schedule B.

⁵⁶ Exhibit B-1-1, pp. 3, 12.

⁵⁷ Ibid., pp. 3, 12.

⁵⁸ Exhibit B-10; CMUS Final Argument, p. 4.

Table 1 Phase 1 Westbrook Project Capital Cost and Budget Estimate (Thousands, 2014 \$)⁵⁹

	Base Estimate	General Conditions		Engineering		Contingency		Cost Estimate
	\$	\$	% of base estimate	\$	% of base estimate	\$	% of base estimate	\$
1. Before Westbrook EC/ETS is installed								
<u>a. Westbrook West</u>								
i) TECs – equipment	674,230	30,340	4.5%	40,454	6.0%	67,423	10.0%	812,447
ii) TECs – installation	119,000	8,330	7.0%	17,850	15.0%	23,800	20.0%	168,980
iii) DPS	1,682,583	117,780.78	7.0%	252,387.38	15.0%	336,516.50	20.0%	2,389,267
iv) ETSs	1,020,939	30,628.16	3.0%	61,256.32	6.0%	102,093.87	10.0%	1,214,917
<u>b. Westbrook East</u>								
i) TEC – Equipment	674,230	30,340	4.5%	40,454	6.0%	67,423	10.0%	812,447
ii) TEC – Installation	119,000	8,330	7.0%	17,850	15.0%	23,800	20.0%	168,980
iii) DPS	1,657,656	116,035.89	7.0%	248,648.33	15.0%	331,531.10	20.0%	2,353,871
iv) ETSs	649,688	19,490.65	3.0%	38,981.29	6.0%	64,968.82	10.0%	773,129
c. All other Westbrook costs, if any (please list)								
A. Total Westbrook Phase 1 capital costs before Westbrook EC/ETS is installed	6,597,325	361,276	5.5%	717,881	10.9%	1,017,556	15.4%	8,694,038
2. Westbrook EC/ETS costs – Phase 1 only								
a. Building	477,000	33,390	7.0%	71,550	15.0%	95,400	20.0%	677,340
b. Equipment	629,250	18,878	3.0%	94,388	15.0%	125,850	20.0%	868,365
c. Installation								
included with equipment								
d. DPS	64,430	4,510	7.0%	9,665	15.0%	12,886	20.0%	91,491
e. All other costs, if any (please list) - ETSs	185,625	5,569	3.0%	11,138	6.0%	18,563	10.0%	220,894
B. Total Westbrook EC/ETS Phase 1 capital costs	1,356,305	62,346	4.6%	186,740	13.8%	252,699	18.6%	1,858,090
3. After Westbrook EC/ETS is installed and connected and still Phase 1								
<u>a. Westbrook West</u>								
i) TECs – Equipment	-	-		-		-		-
ii) TECs – Installation	-	-		-		-		-
iii) DPS	109,015	7,631	7.0%	16,352	15.0%	21,803	20.0%	154,802
iv) ETSs	139,219	4,177	3.0%	8,353	6.0%	13,922	10.0%	165,671
<u>b. Westbrook East</u>								
i) TECs – Equipment	-	-		-		-		-
ii) TECs – Installation	-	-		-		-		-
iii) DPS	109,015	7,361	7.0%	16,352	15.0%	21,803	20.0%	154,802
iv) ETSs	139,219	4,177	3.0%	8,353	6.0%	13,922	10.0%	165,671
c. All other Westbrook costs, if any (please list)								
C. Total Westbrook Phase 1 capital costs after Westbrook EC/ETS is installed	496,469	23,615	4.8%	49,411	10.0%	71,450	14.4%	640,945
Total Westbrook Phase 1 capital costs (A + B + C)	8,450,099	447,238	5.3%	954,031	11.3%	1,341,705	15.9%	11,193,073

⁵⁹ Exhibit B-10

In the Application, CMUS explains that the overall cost estimate of the original NDES application is an Association of Consulting Engineering Companies British Columbia (ACEC-BC) Class C estimate. However, some elements of this cost estimate have a higher degree of accuracy and can be classified as ACEC-BC Class B.⁶⁰

In the SRP, CMUS submits that the revised project's capital cost estimate is based on a maturity level of project definition that includes the level of detail expected of an AACE Class 3 estimate except CMUS only has a tentative location for the Wesbrook EC/ETS agreed upon with UBC Properties Trust.⁶¹

CMUS submits the TEC estimates are based on a 2014 tender pricing received for a similar plant and adjusted for size. The TEC installation cost estimate is based on averaged unit pricing for similar installations in the Lower Mainland. The estimate for the Wesbrook EC/ETS is based on a 2013 supplier quotation, recent electrical and control tender unit pricing and CMUS' engineering consultant's expertise for mechanical balance of plant and heat pump estimates.

DPS estimates are based on actual installed costs of DPS in the Lower Mainland. The DPS layout was developed using a WaterCAD model to optimize the pipe sizing. The pipe lengths were determined using a Geographic Information System.⁶²

The ETS estimates are based on CMUS' engineering consultant's experience at UniverCity, as well as a number of other buildings, including at Southeast False Creek and on UBC campus.⁶³

CMUS submits the estimate is suitable for budget control or authorization and \$25,000 was spent developing the estimate.⁶⁴ The accuracy of the estimate is plus or minus 20 percent and CMUS states that they have a high degree of confidence that the total project capital cost will fall within this range.⁶⁵

In response to BCUC IR 1.10.3, CMUS provided a breakdown of the cost estimates.

The Wesbrook TECs cost estimates include the following:

- Containerized Boiler Plant – Fabrication
 - Equipment: boilers, shipping container, expansion tanks, piping, valves, pumps, controls
 - General conditions at 4.5%
 - Engineering costs at 6%
 - Contingency of 10%

⁶⁰ Exhibit B-1-1, p. 58.

⁶¹ Transcript Volume 1, pp. 139–140.

⁶² Exhibit B-1-1, pp. 59–60.

⁶³ Transcript Volume 1, pp. 140–141.

⁶⁴ *Ibid.*, p. 139; Exhibit B-10.

⁶⁵ CMUS Final Argument, pp. 138, 152.

- Containerized Boiler Plant – Installation
 - Reinforced concrete foundation and seismic anchoring of the container
 - Sanitary sewer connection
 - Water service connection
 - Gas service connection
 - Electrical service connection
 - Supply and return piping for the district energy system
 - TEC demolition and site restoration
 - General conditions at 7%
 - Engineering at 15%
 - Contingency of 20%

The Wesbrook EC/ETS cost estimates include the following:

- Equipment: boilers, expansion tanks, piping, valves, pumps, controls
- Installation: mechanical and electrical work; sanitary sewer connection; water service connection; gas service connection; electrical service connection; and DPS connection
- Space allowance provision
- General conditions at 3% for Mechanical, Electrical and Equipment capital costs and 7% for Building, Structure and Site Work costs
- Engineering at 15%
- Contingency of 20%

The DPS cost estimates include the following:

- Equipment: pre-insulated piping, fittings and valves
- Installation: civil work, welding, pipe conditioning
- General conditions at 7%
- Engineering at 15%
- Contingency of 20%

The ETS cost estimates include the following:

- Equipment: heat exchangers, strainers, piping, fittings, valves, instruments, controls (i.e., control valves and flow meter), hangers and supports
- Installation: mechanical and electrical work, equipment conditioning
- General conditions at 3%

- Engineering at 6%
- Contingency of 10%

The following items are not included in the cost estimates and are not expected to be incurred by CMUS:

- Storm sewer connections (not anticipated to be required)
- Land acquisition costs associated with the temporary and permanent energy facilities
- Geotechnical work required to assess foundation requirements for any buildings or structures
- Contaminated site investigations or remediation
- Environmental impact mitigation
- Allowances for utility conflicts (i.e., major utility relocations exceeding the contingency budget)
- Cost premiums due to critical shortages of labour and/or materials
- Goods and Services Tax (GST)⁶⁶

The estimated cumulative capital costs by year are as follows:

Table 2 Wesbrook East Cumulative Capital Cost (Thousands, Nominal \$)⁶⁷

Cumulative Capital Costs (thousands, Nominal \$)	2015 1	2016 2	2017 3	2018 4	2019 5	2020 6	2021 7	2022 8	2023 9
Energy Centre, Site Work and Buildings, Cumulative	-	175,807	175,807	175,807	175,807	175,807	175,807	175,807	175,807
Energy Centre, Mechanical, Cumulative	-	845,270	845,270	845,270	845,270	845,270	845,270	845,270	845,270
Energy Centre, Heat Pump, Cumulative	-	-	-	-	-	-	-	-	-
DPS, Cumulative	-	1,171,919	1,171,919	1,271,563	1,306,055	2,334,478	2,594,482	2,594,482	2,594,482
Energy Transfer Stations, Cumulative	-	229,818	229,818	349,370	471,312	595,693	849,431	849,431	849,431
Total, Cumulative	-	2,422,814	2,422,814	2,642,010	2,798,444	3,951,248	4,464,989	4,464,989	4,464,989

⁶⁶ Exhibit B-6, BCUC IR 1.10.3.

⁶⁷ Ibid., BCUC IR 1.10.2.

Table 3 Westbrook West Cumulative Capital Cost (Thousands, Nominal \$)⁶⁸

Cumulative Capital Costs (thousands, Nominal \$)	2015	2016	2017	2018	2019	2020	2021	2022	2023
	1	2	3	4	5	6	7	8	9
Energy Centre, Site Work and Buildings, Cumulative	172,360	172,360	172,360	172,360	172,360	172,360	172,360	172,360	172,360
Energy Centre, Mechanical, Cumulative	828,696	828,696	828,696	828,696	828,696	828,696	828,696	828,696	828,696
Energy Centre, Heat Pump, Cumulative	-	-	-	-	-	-	-	-	-
DPS, Cumulative	399,063	947,004	1,823,780	1,854,521	2,115,293	2,249,110	2,509,113	2,509,113	2,509,113
Energy Transfer Stations, Cumulative	112,656	227,565	579,187	698,738	942,623	1,191,385	1,318,254	1,318,254	1,318,254
Total, Cumulative	1,512,775	2,175,625	3,404,023	3,554,315	4,058,971	4,441,551	4,828,423	4,828,423	4,828,423

Table 4 Wesbrook EC/ETS Cumulative Capital Cost (Thousand, Nominal \$)⁶⁹

Cumulative Capital Costs (thousands, Nominal \$)	2015	2016	2017	2018	2019	2020	2021	2022	2023
	1	2	3	4	5	6	7	8	9
Energy Centre, Site Work and Buildings, Cumulative	-	-	-	-	-	-	-	793,612	793,612
Energy Centre, Mechanical, Cumulative	-	-	-	-	-	-	-	1,017,428	1,017,428
Energy Centre, Heat Pump, Cumulative	-	-	-	-	-	-	-	-	-
DPS, Cumulative	-	-	-	-	-	-	-	107,196	477,201
Energy Transfer Stations, Cumulative	-	-	-	-	-	-	-	258,813	654,796
Total, Cumulative	-	-	-	-	-	-	-	2,177,048	2,943,037

3.2 Project development costs

CMUS requests approval to capitalize project development costs incurred by itself and by UBC and to amortize these costs into rates over 30 years.⁷⁰ In response to BCUC IR 1.15.1, CMUS provided a breakdown by year of the project development costs incurred by each party. Based on the breakdown provided by CMUS, UBC has incurred an estimated \$594,337 in project development costs up to the fourth quarter of 2014 and CMUS has incurred an estimated cost of \$392,329.⁷¹

⁶⁸ Ibid., BCUC IR 1.10.2.

⁶⁹ Ibid., BCUC IR 1.10.2.

⁷⁰ Exhibit B-1-1, p. 24.

⁷¹ Exhibit B-6, BCUC IR 1.15.1, Attachment H.

When asked why it is appropriate for NDES customers to pay for UBC-incurred costs, CMUS responded as follows:

UBC's initial planning and development of the UBC NDES project began prior to [CMUS] being selected as the preferred utility partner. This included the pre-feasibility and feasibility studies upon which [CMUS] conducted the due diligence to finalize the business case. Pre-feasibility and feasibility studies are part of normal project development costs and would have been included in [CMUS]'s project development costs had UBC elected to pursue a third party provider earlier in the process.⁷²

Notwithstanding costs incurred by UBC for the pre-feasibility and feasibility studies, UBC has also incurred \$81,631 in financial costs and \$266,330 in legal costs, which CMUS is proposing to include as capitalized project development costs.⁷³

CMUS submits that amortizing the project development costs over 30 years as opposed to a shorter time period is appropriate because these costs are associated with the total life of the system; thus, amortizing the costs over 30 years, which is the average life of the project assets, is a more equitable approach.⁷⁴

CMUS requests approval to capitalize and amortize project development costs over a 30-year period as part of the Application; however, CMUS submits that it does not have a complete estimate of aggregate project developments costs that will be incurred by itself and UBC prior to construction. CMUS further submits that it will provide an accurate and detailed estimate of project development costs as part of its final rates application to be filed with the Commission in 2015.⁷⁵

3.3 System operating costs

CMUS states that system operating costs include fuel, wages, maintenance, insurance, administration, land leases, water and sewer, UBC service levy, UBC franchise fee, property taxes, and all other taxes, fees and levies.⁷⁶ CMUS forecasts that during Phase 1 the system operating costs will increase from \$241,000 in the initial year 2015 to \$3.5 million by year 2023. The largest driver of system operating costs during Phase 1 is fuel costs, particularly the cost of natural gas.⁷⁷

CMUS forecasts an annual cost of \$140,000 for administration and overhead charges, which includes legal, accounting, regulatory, administration, human resources, information technology support and maintenance, telephones, office supplies, and vehicle costs. The Company submits that it makes every effort to minimize these costs, but it is reasonable to assume that these costs in the early stage of the project will be higher when viewed

⁷² Ibid., BCUC IR 1.17.2.

⁷³ Ibid., BCUC IR 1.15.1, Attachment H.

⁷⁴ Ibid., BCUC IR 1.15.2.

⁷⁵ Ibid., BCUC IR 1.15.1.

⁷⁶ Exhibit B-1-1, p. 27.

⁷⁷ Exhibit B-6, BCUC IR 1.20.1, Table Q.

on a per megawatt hour basis.⁷⁸ CMUS states that its forecast for administration and overhead charges is higher for this project compared to the UniverCity district energy system because CMUS now has a better understanding of the requirements for managing a district energy system.⁷⁹

CMUS is not seeking approval of operating costs as part of the Application. The Company submits that these costs will be revisited and revised as part of its 2015 application for approval of final revenue requirements and rates prior to the initial customers attaching to the distribution system.⁸⁰

3.4 Debt and equity financing

CMUS proposes a deemed capital structure of 57.5 percent debt and 42.5 percent equity, with an equity risk premium of 75 basis points over the benchmark low risk utility return on equity of 8.75 percent. CMUS submits that this proposal is consistent with the Generic Cost of Capital (GCOC) Stage 2 “Minimum Default Capital Structure and Equity Risk Premium” for similar small thermal utilities to that contemplated for Phase 1 of the proposed NDES.⁸¹

CMUS proposes a debt rate of 4 percent based on the credit spread between BBB and BBB (low) rated debt and the 10-year Government of Canada bond yield. CMUS submits that this is consistent with the approach for calculating a “default debt” rate for thermal energy system utilities from the Commission’s GCOC Stage 1 Decision and confirmed in the Commission’s Stage 2 GCOC Decision.⁸²

3.5 Rate design

CMUS states in its Final Argument that it is not seeking approval of final rates; instead, it seeks approval of the methodology by which the revenue requirement and rates will be established. CMUS further states that it will file for approval of final rates in 2015.⁸³ The following components are included in CMUS’ proposed rate design and are further discussed below:

- 20-year levelized rate structure
- Revenue deficiency deferral account
- Carbon Emissions Rider
- Connection Credit
- Allocation of annual rate based on 66.3 percent fixed charges and 33.7 percent variable charges

3.5.1 Proposed levelized rate

CMUS requests approval to set rates for the initial 10 years of the project. The Company proposes a rate design based on a 20-year levelized rate structure, which would begin upon initial energy load delivery and continue

⁷⁸ Exhibit B-1-1, p. 30.

⁷⁹ Exhibit B-6, BCUC IR 1.21.1.

⁸⁰ Ibid., BCUC IR 1.18.1.

⁸¹ Exhibit B-1-1, p. 30.

⁸² Ibid., pp. 30–31, Table 19.

⁸³ CMUS Final Argument, pp. 6–7.

until 2034 (year 20). CMUS seeks approval to include within the rate design all revenues and costs associated with all phases of the project, which includes Westbrook, Acadia, Block F and the future alternative energy source.

The initial 2015 rate, which CMUS is not requesting approval of in the Application, is currently proposed to be set at \$98.23 per MWh. This rate would then be escalated annually at a steady percentage, currently proposed to be 2.5 percent, for the 20-year levelized rate period. CMUS submits that on a net present value basis, the NDES levelized cost over a 30-year project period is approximately \$133, which is favorable to the competitive electricity benchmark levelized cost of \$147.⁸⁴

CMUS submits that it will re-apply for Commission-approved rates at the end of the initial 10 years, as this is when CMUS anticipates it will be implementing Phase 2 of the Project. However, CMUS also submits that factors impacting financial assumptions or customer load forecasts may result in the Company applying to the Commission for amendments to the rates prior to the end of the initial 10-year period.⁸⁵

In order to implement the proposed 20-year levelized rate structure, CMUS requests approval in principle of the accounting treatment of the Revenue Deficiency Deferral Account (RDDA). The purpose of the RDDA is to accumulate the annual over or under recovery of revenue requirements. The RDDA is proposed to be included in rate base and to earn a return based on CMUS' after-tax weighted average cost of capital (WACC). Based on CMUS' proposed rate design, rates charged to customers will under-recover CMUS' annual revenue requirement in project years 1 to 5 and years 11 to 13, while over-recovering in all other years up to project year 20, at which time the RDDA balance will have been reduced to zero.⁸⁶

Based on the proposed rate design, CMUS forecasts that the RDDA will reach a maximum balance of \$8.1 million, which is forecast to occur in year 2028.⁸⁷

3.5.2 Carbon Emissions Rider

CMUS seeks approval in principle of the accounting treatment of the Carbon Emissions Rider (CER).⁸⁸ The CER forms part of the IA between CMUS and UBC and has been characterized by UBC as an "essential element" of the IA.⁸⁹

The CER is a temporary surcharge, which, if approved, would be applied to the monthly invoice for all NDES customers until the AES is operational, which is currently projected to be in Year 2024. CMUS proposes to charge ratepayers \$25 per tonne of carbon emissions resulting from the operation of the natural gas boilers during Phase 1 of the project. These funds will be held by CMUS "in trust" and will accrue interest based on CMUS' WACC.⁹⁰

⁸⁴ Exhibit B-1-1, pp. 37–39.

⁸⁵ Exhibit B-6, BCUC IR 1.18.4.

⁸⁶ Exhibit B-1-1, pp. 38–39.

⁸⁷ Exhibit B-6, BCUC IR 1.24.1.

⁸⁸ CMUS Final Argument, p. 7.

⁸⁹ *Ibid.*, p. 5.

⁹⁰ Exhibit B-1-1, p. 25.

CMUS proposes to apply the accumulated balance of the CER funds as a reduction to the capital cost of the AES. However, CMUS also states that if it is not feasible to implement a low carbon energy source it may use the CER funds to acquire external carbon offsets.⁹¹ CMUS clarifies in its Final Argument that it would seek Commission approval prior to using the CER funds to purchase external offsets.⁹² The accumulated balance of the CER is projected to be approximately \$0.9 million in 2024.⁹³

3.5.3 Connection Credit

CMUS seeks approval in principle of the accounting treatment of the Connection Credit.⁹⁴ The Connection Credit forms part of the IA between CMUS and UBC and has been characterized by UBC as an “essential element” of the IA.⁹⁵ As part of the IA, if approved, CMUS is required to offer a connection incentive to developers of new low-rise buildings in Wesbrook Place to offset the incremental cost of developing fully hydronic-capable buildings over the benchmark approach of using electric baseboards for in-suite heating.⁹⁶

CMUS proposes to utilize the Connection Credit from 2015 through 2021, at which time it is expected that developer innovation will drive the hydronic premium to zero and thus no connection incentive will be required. CMUS proposes to set the Connection Credit at a rate of \$4.50 per square foot of completed floor space from 2015 through 2017, and then proposes to reduce the rate by \$0.90 per square foot each year thereafter, resulting in a rate of nil by 2022.⁹⁷

CMUS requests approval to recover the cost of the Connection Credit from all ratepayers, not just ratepayers of low-rise buildings. It is proposed that the Connection Credit amounts will be added to a rate base deferral account, earning a return based on CMUS’ WACC. CMUS proposes to amortize the deferral account over a period of no less than 10 years.⁹⁸ The Company also proposes to commence amortization of the Connection Credit in 2017, as it anticipates that the first connection incentives will be offered to developers in 2016. Based on CMUS’ indicative rates model, this results in the Connection Credit deferral account being fully amortized by the end of 2028.⁹⁹

In determining an appropriate amortization period, one of the factors considered by CMUS was the amortization periods used for demand-side management programs.¹⁰⁰ When asked during the SRP if CMUS would be amenable to the Commission establishing a fixed amortization period for the Connection Credit deferral account, CMUS responded that it did not think it would have an issue with such a determination.¹⁰¹

⁹¹ Ibid., p. 25.

⁹² CMUS Final Argument, p. 10.

⁹³ Exhibit B-1-1, p. 25.

⁹⁴ CMUS Final Argument, p. 7.

⁹⁵ Ibid., p. 5.

⁹⁶ Exhibit B-1-1, p. 25.

⁹⁷ Ibid., pp. 25–26.

⁹⁸ Ibid., pp. 25–26.

⁹⁹ Exhibit B-6, BCUC IR 1.25.7.

¹⁰⁰ Ibid., BCUC IR 1.25.9.

¹⁰¹ Transcript Volume 1, p. 189.

3.5.4 Fixed versus variable charges

CMUS proposes an initial allocation of the annual NDES rate per MWh based on 66.3 percent fixed charges and 33.7 percent variable charges. The annual rates will be apportioned on a monthly basis and will reflect a 66.3 percent basic charge expressed as an amount per square meter of floor space for each connected building, and a 33.7 percent commodity charge expressed as an amount per MWh of energy provided to the customer building. CMUS submits that the proposed allocation is supported by the relative fixed versus variable charges included in the NDES portion of the annual revenue requirement, calculated on a net present value basis over the 30-year forecast period.¹⁰²

CMUS submits that, in addition to alignment with the actual cost of providing service to the customer, it considered rate structures used at other similar district energy systems such as UniverCity and River District when determining the appropriate fixed/variable allocation. CMUS further submits: “By aligning the customer rate with the actual cost of service, any change in energy consumption, whether due to customer behaviour or weather, will not require frequent adjustments to customers rates.”¹⁰³

4.0 KEY ISSUES

4.1 Is the scope of the CPCN reasonable?

In its Final Argument, CMUS clarifies the scope of the CPCN approval for Phase 1 as follows:

- Phase 1 of the NDES as described in the Application, specifically the components in section 4.3.
- As discussed during the SRP, [CMUS] has decided that it is not necessary to seek CPCN approval at this time for any of the Phase 2 components – i.e. Acadia East, Acadia West, Stadium, East Campus, and Block F.
- UBC remains intent on developing the Phase 2 components of the NDES since they are part of the overall UBC Project Plan, as set out in the Infrastructure Agreement with CMUS.
- The CPCN and System Extension regulatory framework established in the TES Guidelines is sufficient for CMUS to expand in accordance with the UBC Project Plan.
- The implications of removing the Phase 2 components from the CPCN approval request are as follows:
 - Only the capital cost of the Phase 1 NDES plant is included in the CPCN approval request. Those components and associated costs are detailed in Exhibit B-10, Project Capital Cost and Budget, Rows A, B, and C. The totals are shown in the row entitled “Total Westbrook Phase 1 capital costs (A+B+C).”¹⁰⁴

¹⁰² Exhibit B-1-1, pp. 41–42.

¹⁰³ Exhibit B-6, BCUC IR 1.22.2.

¹⁰⁴ CMUS Final Argument, pp. 3–4.

4.1.1 Phase 1 Wesbrook Design Basis and Servicing Plan

The CPCN Application is for what has been defined as Phase 1 Wesbrook. Section 4.3 of the Application provides a high level description of each component of Phase 1 of the NDES, including the design basis. The components identified in Section 4.3 are the two Wesbrook temporary energy centres, distribution piping, energy transfer stations and the nodal EC/ETS: Wesbrook and Stadium. The Wesbrook nodal EC/ETS is part of Phase 1, the Stadium nodal EC/ETS is not. Specifically, only the first 5 MW gas fired boiler to be installed in the Wesbrook EC/ETS is part of the Phase 1 Wesbrook Application.¹⁰⁵ CMUS submits it is utilizing a phased approach whereby the installation of DPS and energy sources have been scheduled and sized to match the development construction in the area.¹⁰⁶ CMUS submits this approach serves as a method of mitigating development risk and uncertainty.¹⁰⁷

Drawing G002 shows the layout of all Phase 1 NDES components and the forecast construction schedule between 2015 and 2023 for all of Phase 1, also known as the servicing plan. Only the layout of the Phase 1 Wesbrook components and the Phase 1 Wesbrook forecast construction schedule is shown below.

¹⁰⁵ Exhibit B-1-1, p. 51.

¹⁰⁶ Ibid., Appendix 1, Drawing G-002.

¹⁰⁷ Ibid., p. 53.

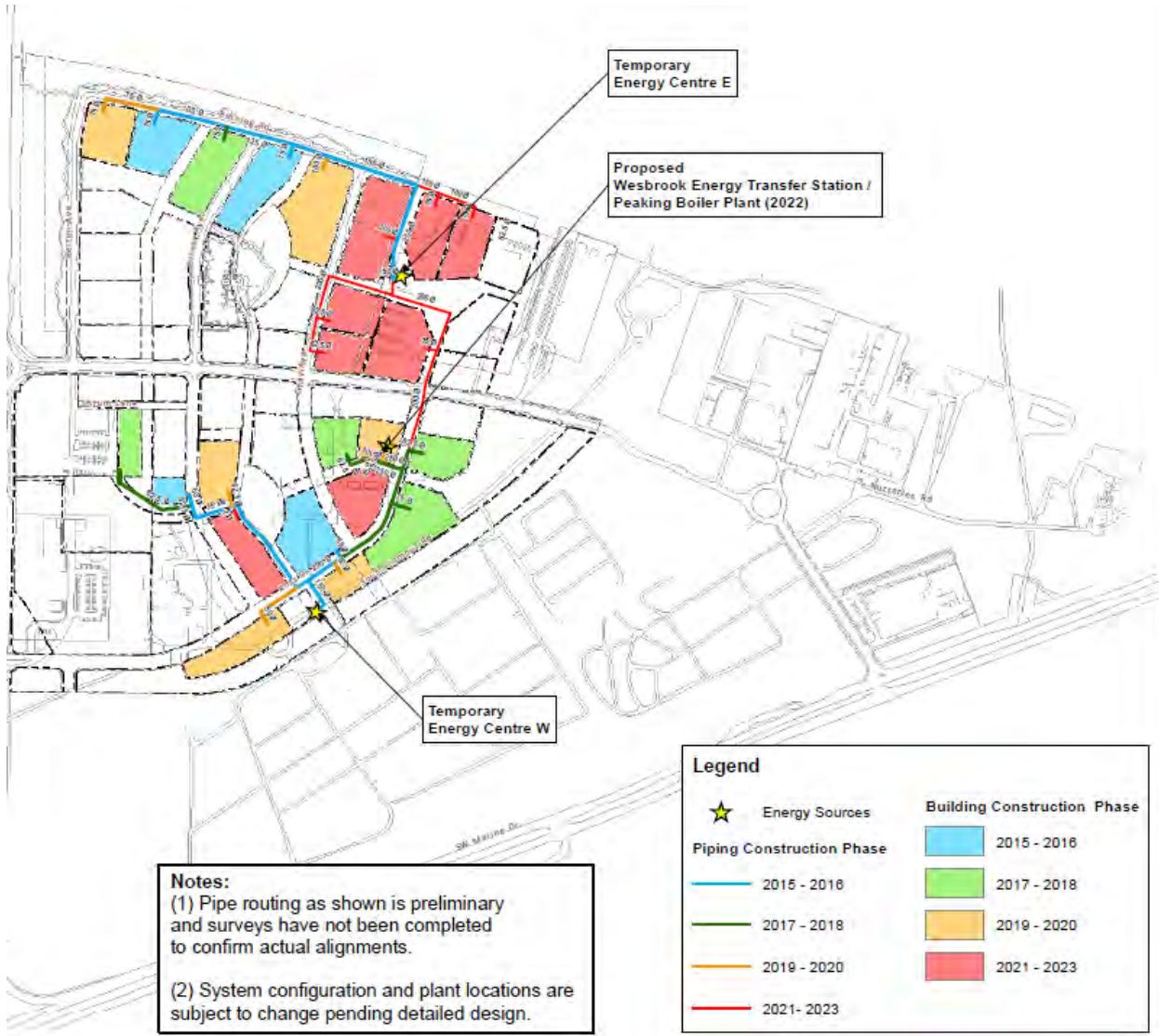


Figure 1 Wesbrook Place Servicing Plan (2015–2023)¹⁰⁸

As noted in the drawing above, the Wesbrook EC/ETS is proposed for 2022. To demonstrate the need for the Wesbrook EC/ETS, in response to Commission IR CMUS compares the 85 percent diversified forecast peak loads of Wesbrook Place to the planned capacities available in Wesbrook Place between 2015 and 2023. The charts are provided below.

¹⁰⁸ Exhibit B-3-2, Appendix 1, Drawing G002.

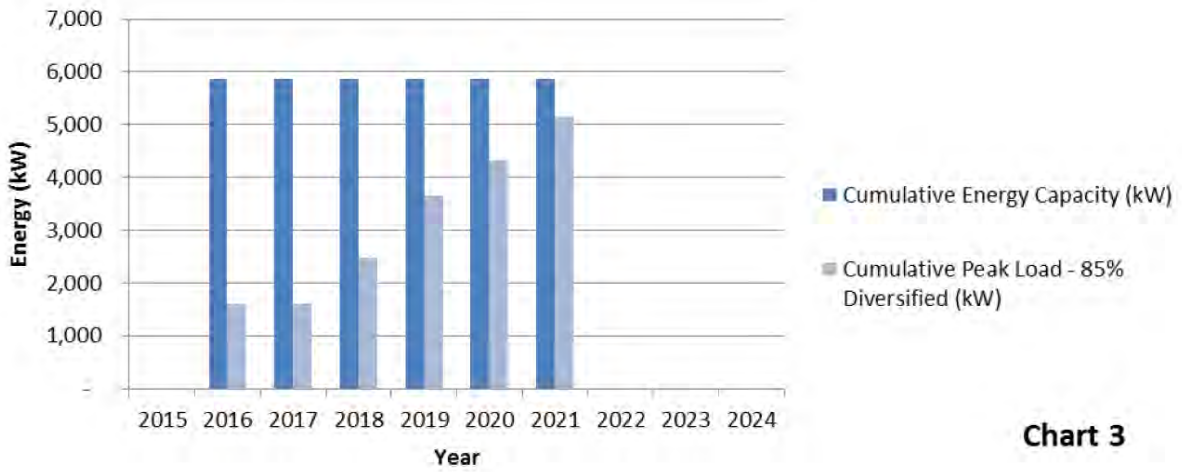


Chart 3

Figure 2 TEC-E available capacity and 85 percent diversified peak load of Wesbrook East¹⁰⁹

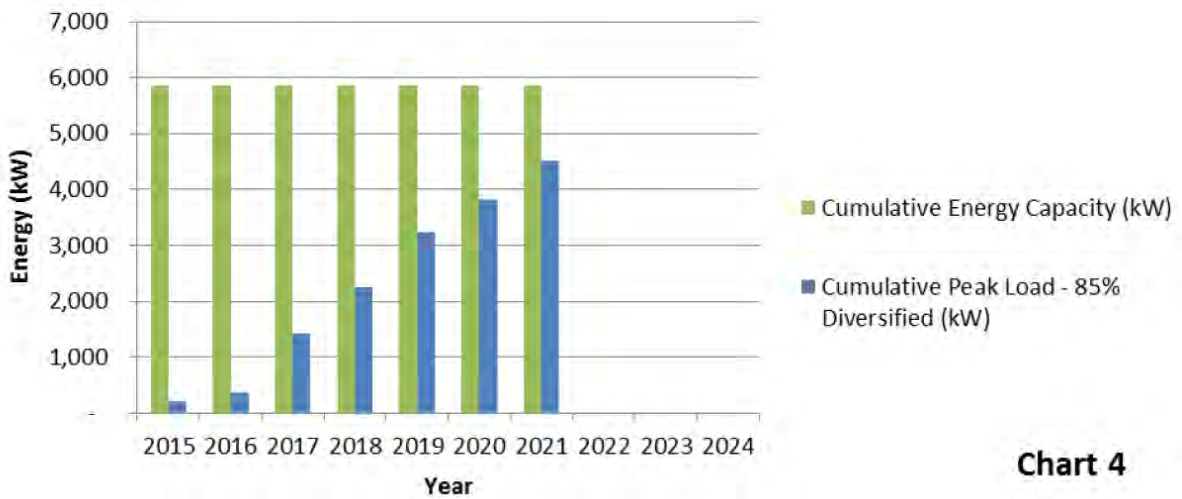


Chart 4

Figure 3 TEC-W available capacity and 85 percent diversified peak load of Wesbrook West¹¹⁰

¹⁰⁹ Exhibit B-6, BCUC IR 1.31.1.

¹¹⁰ Ibid., BCUC IR 1.31.1.

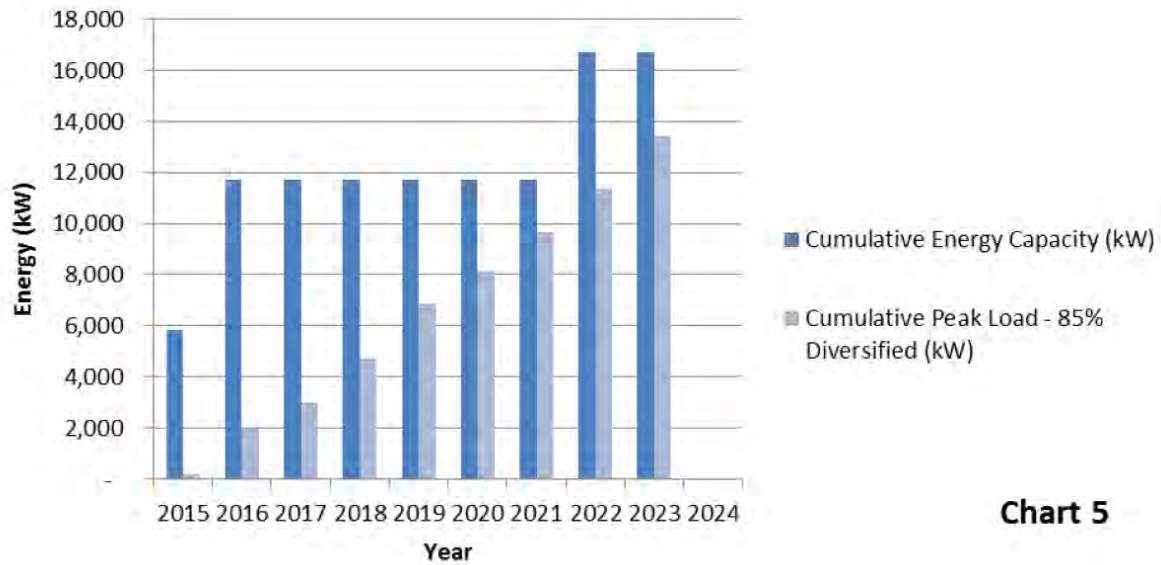


Chart 5

Figure 4 TEC-E, TEC-W and Wesbrook EC/ETS available capacity and 85 percent diversified peak load of Wesbrook Place¹¹¹

Between 2015 and 2022, the charts show that TEC-E and TEC-W would be able to supply their 85 percent diversified peak loads independently. However, beginning in 2023, the charts indicate that the 85 percent diversified peak load of Wesbrook Place will exceed the combined capacity of TEC-E and TEC-W. However, with the addition of the first 5 MW natural gas boiler associated with the Wesbrook EC/ETS, the charts indicate that an interconnected Wesbrook EC/ETS, TEC-E and TEC-W would be able to supply the forecast 85 percent diversified peak load.

In the revised Application, CMUS submits that the Wesbrook EC/ETS is currently planned to be integrated into a future residential building on Lot #27, within a mechanical room, and not a standalone building, and the cost estimate does not include building costs, only space allowance provisions.¹¹² CMUS also submits that not until Phase 2 is it planned that the Wesbrook EC/ETS will begin to function also as an ETS, and that a second 5 MW natural gas boiler will be added to the Wesbrook EC/ETS at that time.¹¹³

In BCSEA's Final Argument, it provides support for Commission approval of the CPCN under the amended scope which excludes Block F, Acadia East, Acadia West, Stadium and East Campus which is the Phase 1 Wesbrook CPCN.¹¹⁴

Commission determination

The Panel finds that CMUS' proposed phase approach to the development of the NDES to be reasonable. Further, limiting the scope of this CPCN to the infrastructure necessary to serve the approximately 23

¹¹¹ Ibid., BCUC IR 1.31.1.

¹¹² Exhibit B-1-1, pp. 55, 59.

¹¹³ Ibid., p. 51.

¹¹⁴ BCSEA Final Argument, pp. 2, 6.

buildings anticipated to be constructed in the Wesbrook neighbourhood between 2015 and 2023 is appropriate.

The Panel finds that the design basis and servicing plan for Phase 1 Wesbrook as described in section 4.3 of the revised Application and as shown in drawing G002 is appropriate. The Panel also finds it appropriate that additional capacity beyond the two temporary energy centres is necessary prior to 2024 if the 85 percent diversified peak load in Wesbrook Place develops as forecast. Accordingly, installing an additional 5 MW natural gas boiler at that time and integrating that boiler into a future residential building on Lot#27 with no building cost is appropriate.

4.2 Alignment with Clean Energy Act and Provincial Government Policy

CMUS submits that the NDES supports the public interest by serving several of British Columbia's energy objectives, which are outlined in section 2 of the *Clean Energy Act*.¹¹⁵ CMUS states that the Commission is mandated to consider the applicability of British Columbia's Energy Objectives and indicates that the relevant subsections are 2 (d), (g), (h), (i) and (j). These subsections speak to the use of innovative technologies and clean and renewable resources that support energy conservation and a reduction of greenhouse gases and waste.¹¹⁶

CMUS states that the utilization of waste heat recovered from TRIUMF in Phase 2 will result in an overall reduction in greenhouse gas (GHG) emissions when compared to the benchmark scenario.¹¹⁷ However, CMUS also states that Phase 1 will lead to higher GHG emissions than the benchmark scenario, as seen in the following figure, because the NDES energy will be supplied using the TECs operating solely on natural gas.¹¹⁸

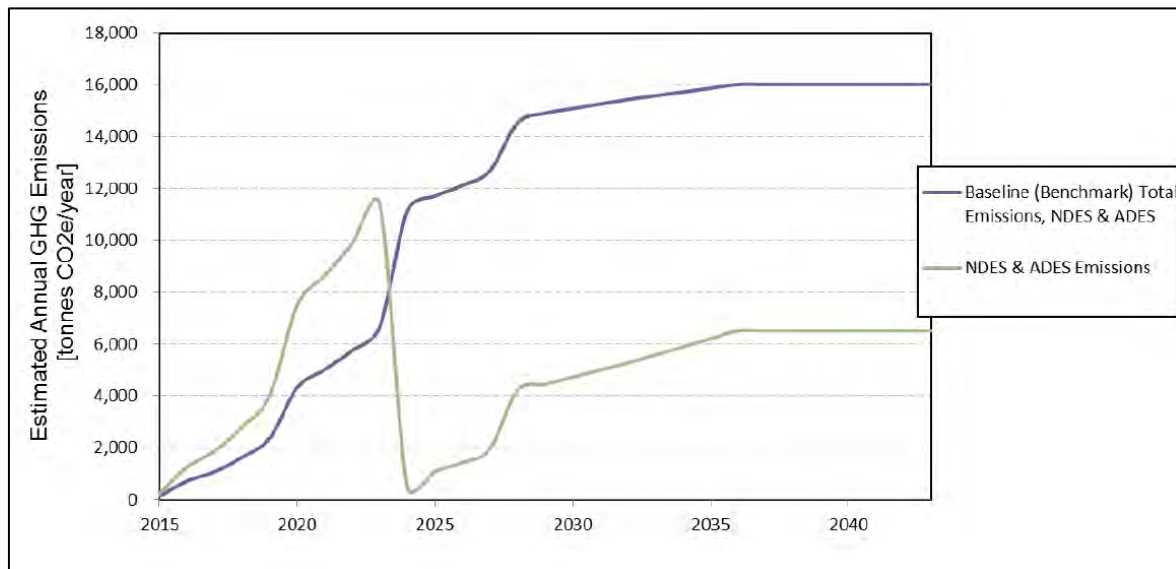


Figure 5 UBC NDES & ADES – GHG Emissions Profile Includes ADES Connection

¹¹⁵ CMUS Final Argument, p. 2.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ Exhibit B-5, BCSEA IR 1.2.2, 1.2.3.

BCSEA notes that the GHG reductions attributable to the NDES occur “only after the introduction of a low-carbon energy source.”¹¹⁹ BCSEA indicates that they are persuaded by the evidence that UBC intends to implement a low-carbon energy source as soon as it becomes economically feasible. BCSEA views the NDES as the most practical and best route toward long-term GHG emissions reductions.¹²⁰

Commission discussion

The proposed project in its entirety, including phase 1 and 2, appears to align well with both British Columbia’s energy objectives and the *Clean Energy Act* by reducing GHG emissions when compared to the business as usual case. However, when considered by itself, Phase 1 actually results in an increase in British Columbia’s GHG emissions. The Panel acknowledges that UBC intends to implement a low-carbon energy source in Phase 2, but has concerns about how the GHG emissions could be affected if TRIUMF is not connected, if TRIUMF is delayed by a number of years, or if another low carbon energy source is not utilized.

The Panel recognizes the commitment of CMUS and UBC to reducing GHG emissions, and the objectives of the CEA, but also understands that there is no binding agreement between TRIUMF and CMUS for future delivery of waste energy. The Panel encourages CMUS and UBC to pursue a definitive agreement either with TRIUMF, or an alternate biomass energy source, to provide greater certainty on the choice, costs and timing of replacement of the temporary energy systems.

4.3 Infrastructure Agreement between CMUS and UBC

The Panel has identified three parts of the Infrastructure Agreement that raise issues. Two of these, the CER and the Connection Credit, include the requirement for CMUS to include certain costs or amounts in rates. Therefore, the Panel reviews these Infrastructure Agreement provisions for compliance with section 59 of the UCA. In addition, the Infrastructure Agreement lays out conditions for extensions to the system. The Panel reviews these conditions for compliance with the Commission’s system extension requirements and guidelines.

4.3.1 Extensions

In the SRP, CMUS confirmed that its NDES extension policy, as outlined in section 4.3 of the Infrastructure Agreement and further detailed in Schedule B of the Infrastructure Agreement, will be used as an internal policy planning tool between UBC and CMUS.¹²¹ In the SRP and in its Final Argument, CMUS explains that extensions into Acadia East, Acadia West, Stadium, East Campus and Block F areas would be subject to a future CPCN or extension test.¹²² CMUS also confirms that the TES Guidelines are sufficient for CMUS to expand in accordance with the UBC Project Plan.¹²³ Section 4.3 of the IA and the relevant section of the TES Guidelines are provided below:

¹¹⁹ BCSEA Final Argument, p. 5.

¹²⁰ Ibid.

¹²¹ Transcript Volume 1, pp. 53, 54, 55.

¹²² Transcript Volume 1, pp. 56–57; CMUS Final Argument, p. 4.

¹²³ CMUS Final Argument, p. 4.

Section 4.3 of the IA, NDES Extensions, states:

Subject to BCUC approval, as applicable:

- (a) [CMUS] will use the Project Plan Pro Forma as a reference for determining the ongoing feasibility of all anticipated NDES Extensions and for determining the feasibility of unanticipated NDES Extensions;
- (b) [CMUS] will carry out all NDES Extensions contemplated in the Project Plan;
- (c) [CMUS] may carry out any NDES Extension not contemplated in the Project Plan, if:
 - (i) it would result in rates for the NDES Customers that are comparable to or lower than those projected in the then-current Project Plan; or
 - (ii) [CMUS] wishes to design, construct and install such NDES Extension at its own cost and expense;
- (d) if a proposed NDES Extension would increase any of the rates chargeable to NDES Customers above the rates projected in the then-current Project Plan, CMUS may, after first giving reasonable advance notice to UBC, apply to the BCUC for approval of the proposed NDES Extension on the basis that the NDES Extension is (or should be deemed to be), despite the anticipated increase in rates, in the public interest; and
- (e) [CMUS] may, if applicable, mitigate any anticipated increase in rates for the NDES Customers by seeking a voluntary contribution in aid of construction from UBC or any customers who seek to be connected to the NDES via the proposed NDES Extension and any applicable grants or other consideration that would reduce impacts to rates for the NDES Customers.¹²⁴

Section 2.4.5 of TES Guidelines, Extensions to a Stream B TES, state:

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.

In the event that a CPCN is not required, the TES Provider is required to file an application in the form set out in Appendix C.¹²⁵

¹²⁴ Exhibit B-3-2, pp. 12–13.

¹²⁵ TES Guidelines, p. 16.

Appendix C to the TES Guidelines clarifies that to use the form in Appendix C the planned system extensions must be below the original capital cost of the Stream B TES and the aggregate rate impact of all extensions must be less than 10 percent.¹²⁶

Commission determination

If CMUS plans to expand service to Acadia East, Acadia West, Stadium, East Campus, Block F or other areas not included in the Project Plan, the Panel directs CMUS to follow the TES Guidelines. The Panel also directs CMUS to modify the Infrastructure Agreement to ensure that it is reflective of the Commissions extension guidelines. The Panel notes that the wording in the NDES Extension section of the IA is inconsistent with the TES Guidelines.

4.3.2 Carbon Emissions Rider

CMUS submits that “[t]he CER will help achieve equity between initial and subsequent customers. The initial customers will pay the CER as a means to help finance the cost of transition to the TRIUMF energy source.” It also submits that “[CMUS] would seek Commission approval before it would divert the use of the CER funds to secure another energy source or carbon offsets.”¹²⁷

During the SRP, Ms. McLarty of CMUS stated:

...really the ultimate objective of the greenhouse gas – the carbon emission rider, is to have the early customers also pay for their carbon use. So, concurrently to that, that there is that increased cost but there is also that market mechanism that is triggering them to understand that there is a cost of carbon as they are using it, in those early years.¹²⁸

It appears to the Panel that the purpose of the CER is two-fold – to charge customers for their carbon emissions and to accumulate funds to incent CMUS to build the TRIUMF energy source and offset the costs of so doing. The following subsections will further describe the evidence regarding these two purposes of the CER, followed by the Panel’s determination on the CER.

4.3.2.1 Financing an alternative energy source

CMUS was asked in BCUC IR 1.26.3 why it is appropriate to apply the accumulated balance of the CER against the construction cost of the future alternative energy source as opposed to amortizing the balance over a shorter time period so as to mitigate inter-generational inequity issues. CMUS responded that it is reasonable that the credit against capital costs from the CER should be accounted for in a like manner as the capital costs being added to rate base in the year the costs are incurred, which effectively results in the CER credit balance being “amortized” into rates at 3 percent annually on a straight-line basis. CMUS believes that this is the best

¹²⁶ Ibid., Appendix C, pp. 1–2.

¹²⁷ CMUS Final Argument, p. 9.

¹²⁸ Transcript Volume 1, p. 156.

use of the funds because it results in a lower rate base and lower rates to all customers over the life of the low carbon energy source.¹²⁹

CMUS was also asked whether there is a fairness issue for initial customers due to the fact that only the initial Phase 1 customers are required to pay the proposed CER yet all customers, including customers who did not contribute to the CER, will receive the benefits of reduced rates in Phase 2 of the project. CMUS responded that it does not consider there to be a fairness issue because “early customers are paying for the carbon in the energy they are consuming” and “Initial customers will have the benefit of this lower cost energy during Phase 1 and will then benefit from the low carbon energy source once it is completed.”¹³⁰

In response to BCUC IR 1.26.8, CMUS provided the impact on the levelized rate if the Commission does not approve the CER. CMUS submits that there is a very minor decrease in the levelized rate if the CER is not charged to ratepayers. CMUS further submits that the CER supports UBC’s fundamental principle for the NDES of meeting stringent GHG emission targets through the utilization of a low carbon energy source.¹³¹

4.3.2.2 Charging customers for their carbon emissions

In response to BCUC IR 1.26.8, CMUS provided the impact on the levelized rate if the Commission does not approve the CER. CMUS submits that there is a very minor decrease in the levelized rate if the CER is not charged to ratepayers. CMUS further submits that the CER supports UBC’s fundamental principle for the NDES of meeting stringent GHG emission targets through the utilization of a low carbon energy source.¹³²

During the SRP, Ms. McLarty of CMUS stated:

...really the ultimate objective of the greenhouse gas – the carbon emission rider, is to have the early customers also pay for their carbon use. So, concurrently to that, that there is that increased cost but there is also that market mechanism that is triggering them to understand that there is a cost of carbon as they are using it, in those early years.¹³³

In the SRP, the Panel Chairperson raised the following concern:

Now, as I understand it, the business as usual alternative here would be to heat these buildings with baseboard heat, electric-driven baseboard heat, and you’re requiring these developers to use natural gas. So, how is it fair, then, to turn around and penalize them economically for using natural gas when what they would normally have done would have had no greenhouse gas emissions.¹³⁴

¹²⁹ Exhibit B-6, BCUC IR 1.26.3.

¹³⁰ Ibid., BCUC IR 1.26.5.

¹³¹ Ibid., BCUC IR 1.26.8.

¹³² Ibid., BCUC IR 1.26.8.

¹³³ Transcript Volume 1, p. 156.

¹³⁴ Ibid., p. 160.

Ms. McLarty of CMUS provided the following response:

I think that you are correct in the early years, there is an increased amount of greenhouse gas emissions occurring. However, over the long-term project, with the alternative, the overall goal is to reduce it down to much lower than what business as usual would be. What we don't want to do is create a situation where we have – where we don't ensure that there is a risk in an environment of low natural gas prices that there is no incentive to ever go to that renewable.¹³⁵

Mr. Wigington of CMUS further responded:

The other alternative...is to introduce the low carbon emission source sooner...the result is that the rates for customers go up significantly, and maybe more appropriate or more telling is that the risk of delays and development also increase...So, this approach is the most economic approach, and these customers are signing up and living in a community that is envisioned to be, and will be, heated by and provide energy provided by a low carbon source.¹³⁶

BCSEA supports approval of the Carbon Emissions Rider. BCSEA does not consider the rider to be an actual or perceived penalty against NDES customers. In BCSEA's view, the public is comfortable with the concept of a surcharge being applied to the consumption of relatively intensive energy, and in the case of the CER, the funds accumulated will go towards the transition to a low carbon energy source, which means that the GHG reduction benefits will come back directly to the NDES customers.¹³⁷

In the SRP, the Panel raised the issue that given its similarity to the provincial government's carbon tax, the CER "looks like a tax."¹³⁸ Mr. Henderson of UBC responded that the CER isn't a response to a need from UBC for a GHG rider. Instead, it "came about around how we can really create a framework that is going to encourage the alternative energy system to come on as soon as possible. And we felt that through the rate design that this was a quite elegant way of contributing to that."¹³⁹

Mr. Bursey, legal counsel for CMUS, stated:

From Corix's perspective to, this is conditions of the project that were given to it, and it is something that was approved by the UBC board. So a debate about that policy choice and how to frame it is, it can only go so far. From Corix's perspective, it is something that we don't have an opportunity to change, but -- and you know the points, the questions you are raising, there is some good points associated with it, but underlying it is a principle and a philosophy and there is transparency in calling it carbon emission rider rather than just adding more to the rate, because then its not clear why the rate is higher.¹⁴⁰

¹³⁵ Ibid., p. 162.

¹³⁶ Ibid., p. 163.

¹³⁷ BCSEA Final Argument, p. 4.

¹³⁸ Transcript Volume 1, p. 170.

¹³⁹ Ibid.

¹⁴⁰ Ibid., p. 171.

In the SRP, BCSEA stated that it is uncomfortable with CMUS using CER funds to purchase carbon offsets as a substitute for carbon reductions if the TRIUMF facility could not be connected as planned.¹⁴¹ BCSEA supports CMUS' commitment to obtain Commission approval before using CER funds to secure another energy source or carbon offsets.¹⁴² BCSEA further suggests that the CMUS' "annual report to the Commission should include an update on (a) the status of the development of the NDES load in relation to the size of load necessary to make the transition to a low-carbon energy source viable, and (b) the current status of TRIUMF as the presumptive candidate source of low-carbon energy and any alternatives."¹⁴³

Commission determination

In the Panel's view there are sufficient similarities between the CER and the carbon tax imposed by the provincial government to raise a public perception that the CER is a tax. To the extent that this is the case, the Panel is not persuaded that it can approve the imposition of a tax by CMUS. There is no evidence before the Panel that the UCA provides the authority to approve the imposition of such a tax. **Regardless, because it is a charge imposed by a utility, in part to finance the construction of utility infrastructure, the Panel finds that the CER is a rate and further finds, for the reasons cited below, that it does not satisfy the requirements of section 59 of the UCA.**

Rates charged by CMUS must be in accordance with section 59 of the UCA, which requires those rates not to be unjust, unreasonable, unduly discriminatory or unduly preferential. Does this rider satisfy these criteria? In particular the Panel reviews, and makes determinations on, the following:

- Does collecting amounts in rates now, to finance a construction of a subsequent phase give rise to issues of intergenerational equity?
- Is it reasonable to recover in rates amounts to offset potential costs of a phase around which uncertainty exists?
- Is it fair to levy the CER only on early connectors to the NDES?
- Is it fair to levy an emission rider on emissions generated by carbon which has already been taxed by the provincial government?

Charging initial customers the CER, to provide a benefit for which customers more than 10 years later will benefit, gives rise to a concern of intergenerational inequity. The Panel has considered the issue of intergenerational inequity in its review of the levelized rate, in particular the RDDA. The effect of the RDDA is that future customers effectively subsidize initial customers, providing a lower rate for those initial customers than would otherwise be the case. In that instance, CMUS argues that the deferral of costs to future customers "mitigates intergenerational inequity issues by ensuring that initial customers are not burdened with undue infrastructure costs while allowing customers attaching to the system in later years to enjoy the benefits of

¹⁴¹ BCSEA Final Argument, p. 5.

¹⁴² Ibid.

¹⁴³ Ibid.

lower average costs from a mature system.”¹⁴⁴ Regarding the CER, CMUS is now arguing that transferring costs from future customers to initial customers is fair. This is the opposite of its argument in the case of the RDDA.

In section 4.4.1 of this decision, the Panel discusses the use of the RDDA, agreeing with CMUS that the issue of intergenerational inequity is appropriately addressed because although future customers will face somewhat elevated rates in order to retire the RDDA, they benefit from the lower cost of operating the system.

Additionally, the Panel has concerns about the appropriateness of pre-collecting what amounts to a contribution in aid of construction (CIAC). The Panel is not persuaded that sufficient need exists to require this pre-collection. There is no evidence that CMUS will be unable to completely fund the Phase 2 development, or that rates in Phase 2 will be so high that this CIAC is necessary.

This concern is further exacerbated by the uncertainty surrounding how and when Phase 2 will proceed, particularly in light of CMUS’ submissions that the CER funds could potentially be used to purchase external carbon offsets if it is not feasible to implement the AES in the planned timeframe. While we acknowledge that CMUS will seek BCUC approval for the purchase of carbon offsets, the Panel is not persuaded that it can approve the collection of funds for this purpose. It is appropriate for a utility to recover in rates its prudently incurred costs and fair return on its investments in utility infrastructure. The purchase of carbon offsets is not an expense that is required to operate the utility, nor is it a statutory requirement with which the utility must comply.

The Panel also has a concern regarding buildings located in the Phase 1 geographical area that, while required to be NDES connection ready, are not required by UBC to connect to the NDES until Phase 2.¹⁴⁵ This raises a fairness issue for the Panel. These future customers will benefit from the reduction in rates brought about by the CER. However, they will not have paid any CER, even though they have natural gas fired thermal energy systems which emit equivalent amounts of carbon to the buildings connected to the Phase 1 NDES.

The Panel agrees that the customers of the NDES will be emitting more carbon dioxide than would a similar customer in a business as usual building. However, the connection to the NDES is not done out of choice – it is a requirement imposed by UBC. The Panel finds it unreasonable to levy a charge on these additional carbon dioxide emissions under these circumstances.

Carbon dioxide emissions from the buildings on which the CER is imposed arise largely from the natural gas that fuels the boilers in the temporary energy centers. This natural gas already has a carbon tax imposed on it by the Province, as does all natural gas sold in the province. While the Panel agrees with BCSEA that the public is comfortable with the concept of a surcharge being applied to the consumption of relatively intensive energy, the Panel is not persuaded that the public is comfortable with a double surcharge. The Panel questions whether it is appropriate to levy the CER when the customer is already paying a carbon tax on those emissions.

The Panel also reiterates the concern that it previously expressed regarding fairness. There are other developments in the franchise area that are “DES ready” because they are required by UBC to connect to the

¹⁴⁴ Exhibit B-6, BCUC IR 1.24.2

¹⁴⁵ Ibid., BCUC IR 1.28.2, 1.28.3, 1.30.4..

NDES in Phase 2. These buildings also emit increased greenhouse gas relative to the business as usual case, although in their case the emissions come from the natural gas boilers installed on-site. There is no evidence that these future customers of the NDES will be charged a CER.

Accordingly, the Commission Panel denies the inclusion of the Carbon Emissions Rider as part of CMUS' proposed rate design.

The Panel will address BCSEA's comments regarding reporting requirements in section 5.3.1.

4.3.3 Connection Credit

CMUS submits that the Connection Credit is necessary to ensure that early low-rise buildings in Wesbrook Place have the required hydronic systems to connect to the NDES and that the Connection Credit is essential to building load and lowering rates for all NDES customers.¹⁴⁶ CMUS states that in the absence of a Connection Credit, UBC was considering an exemption to hydronic systems for low-rise construction and that UBC has previously provided an exemption for a hydronic system to one building and has paid directly for hydronic systems for two projects.¹⁴⁷

During the SRP, UBC was asked why, given that existing buildings in the last few years have been built with hydronic systems at UBC, there is still a need to incentivize developers. Mr. Henderson of CMUS provided the following response:

...these early developments which were developed under a kind of district energy-ready framework were kept whole by UBC and UBC doesn't wish to continue keeping the developers whole for those incremental costs and so the choice was to lose that load or to put in a connection credit and allow mandatory requirements for district energy-ready.¹⁴⁸

CMUS further states in its Final Argument:

UBC's Board of Governors imposed a requirement for new buildings to connect to the NDES, but did so specifically on the condition that developers would be offered the Connection Credit. If the Connection Credit is not approved, UBC would need to reconsider both its support for the NDES project and for the mandatory connection to the NDES.¹⁴⁹

BCSEA supports approval of the Connection Credit. It accepts CMUS and UBC's assertions that the incremental load and revenues attracted by the Connection Credit more than offset the incremental costs plus the Connection Credit.¹⁵⁰

¹⁴⁶ Exhibit B-1-1, pp. 8, 26.

¹⁴⁷ Exhibit B-1-1, p. 26.

¹⁴⁸ Transcript Volume 1, p. 191.

¹⁴⁹ CMUS Final Argument, p. 10.

¹⁵⁰ BCSEA Final Argument, p. 4.

Commission determination

The Panel accepts that there are incremental costs incurred in the development of low-rise buildings with hydronic heating systems relative to the business as usual case. The Panel will consider two questions: Should the connection credit be recovered in rates and if so, is the proposed recovery method consistent with section 59 of the UCA?

Should the connection credit be recovered in rates?

The Panel notes that the Connection Credit is a condition of the UBC Board of Governors and that without it, UBC would reconsider its support for the project. Accordingly, the Panel is of the view that the collection of the Connection Credit is in the nature of a franchise fee, which is consideration payable for a franchise. Franchise fees are typically collected on behalf of a municipality to help defer the municipality's costs incurred with regard to the franchised utility. The evidence indicates that UBC has previously been "keeping the developers whole for those incremental costs" and that the Connection Credit will be used to keep UBC and CMUS whole for these costs. Further, unlike a franchise fee that is calculated as a percentage of a customer's bill, only the actual connection costs incurred by CMUS are charged to customers.

Is the proposed recovery method consistent with section 59 of the UCA?

The Panel accepts that, as BCSEA submitted, the load and revenue attracted by the Connection Credit more than offset the cost of the Connection Credit. However, while in the longer term, the benefits may outweigh the costs from the perspective of the NDES, there is a potential issue of intergenerational inequity in that all of the connection costs are paid by initial customers while the benefits accrue to future customers. A longer deferral period would mitigate this issue. In this regard the Panel notes that CMUS proposes an amortization period of no less than 10 years.

Accordingly, the Panel approves the recovery of the connection costs in rates through the inclusion of the Connection Credit deferral account in CMUS' proposed rate design. The Panel determines that a fixed amortization period of 10 years is appropriate as it strikes an acceptable balance between the issues of intergenerational inequity and incurring ongoing carrying costs.

The Panel further directs that if the Connection Credit is still required beyond the year 2021, CMUS must apply to the Commission for additional amounts to be added to the deferral account.

4.4 Rate design and risk to ratepayers

CMUS addresses ratepayer risk in its Final Argument, stating that even during Phase 1 of the project, the risk to ratepayers is low.¹⁵¹ However, in the Panel's view, there are elements of the proposed rate design which may pose a risk to ratepayers and thus are examined in more detail in the following sections.

¹⁵¹ CMUS Final Argument, p. 5.

4.4.1 Revenue deficiency deferral account

As described in Section 3.5.1, CMUS proposes to implement a 20-year levelized rate structure which results in CMUS under-recovering its cost of service during the early stages of the NDES and recording these under-recovered amounts in the RDDA. Based on CMUS' proposed rate design, the RDDA will be reduced to zero at the end of 20 years.

CMUS submits that during Phase 1, the scope and pace of the NDES development can largely be adjusted to match that of the residential building development so that the NDES costs and revenues stay in relative balance, with the exception of some advance building of distribution infrastructure.

With regards to the risks to ratepayers of over-paying in certain years due to the use of the levelized rate structure and the RDDA, CMUS submits that ratepayers would only overpay for the recovery of costs if the RDDA balance dropped below zero but that annual Commission review will ensure such a situation does not occur.¹⁵²

Based on CMUS' annual forecast revenue requirement, the RDDA will reach a maximum balance of \$8.1 million in year 2027. At the end of the initial 10 years of the project, the RDDA balance is forecast to be \$3.2 million.¹⁵³

When asked about the risk of accumulating a balance of approximately \$8.1 million in the RDDA, CMUS provided the following response:

...while \$8 million at the peak is a significant amount, as a percentage of the total capital it's approximately...10 percent of the total capital outlay. So when we were doing the analysis to see what, as a company, we were comfortable with in order to manage that risk, we felt that we were well within the lines of what we could manage.¹⁵⁴

CMUS further submits that the use of a levelized approach to smooth the costs of providing utility service as the service area and energy loads grow mitigates intergeneration inequity issues by ensuring that initial customers are not burdened with undue infrastructure costs while allowing customers attaching to the system in later years to enjoy the benefits of lower average costs from a mature system.¹⁵⁵

CMUS describes its proposed levelized rate as being the result of a cost of service approach to revenue requirements.¹⁵⁶ However, unlike in a traditional cost of service revenue requirement, where the utility is responsible for any variances between forecast and actual controllable revenues/costs, CMUS proposes to record actual results in the RDDA. Thus, if the demand is lower than forecast or the costs are higher than forecast, the RDDA balance will increase. While CMUS submits that it is confident that the current cost estimates in the financial model are reasonably accurate,¹⁵⁷ it is reasonable to expect that the forecasts become less

¹⁵² *ibid*, pp. 3, 8–9.

¹⁵³ Exhibit B-6, BCUC IR 1.24.1.

¹⁵⁴ Transcript Volume 1, p. 94.

¹⁵⁵ Exhibit B-6, BCUC IR 1.24.2.

¹⁵⁶ *Ibid.*, BCUC IR 1.23.5.

¹⁵⁷ *Ibid.*, BCUC IR 1.18.5.

certain as the time frame expands. Given that CMUS requests approval to set rates for 10 years, the forecast risk is relatively high.

BCSEA submits that it is satisfied that the proposed RDDA is reasonable because it is consistent with the deferral accounts approved by the Commission in other thermal energy service projects. BCSEA further submits that the rate-smoothing mechanism of the RDDA provided in the early years of the NDES is necessary because of the project's capital intensiveness coupled with low operating costs when compared to the business as usual alternatives.¹⁵⁸

Commission discussion

The Panel agrees that the RDDA is a reasonable mechanism to achieve a levelized rate structure, and is consistent with other Commission-approved thermal energy service projects. Although deferring the recovery of costs does, on the face of it, give rise to a concern about intergenerational inequity, the Panel accepts CMUS' position that future ratepayers will benefit from the lower average costs required for the mature system.

While \$8.1 million is a significant balance to accumulate in the RDDA, the Panel recognizes that this balance is reasonable when viewed in the context of CMUS' overall planned project capital for the proposed 20-year levelized rate period.

The Panel considers the risks surrounding the RDDA balance are somewhat mitigated by the fact that CMUS is required to file annual reports with the Commission in accordance with the TES Guidelines. However, with regard to the forecast risk associated with a 10-year rate approval period, the Panel is of the view that CMUS should accept at least a portion of that risk. While it is acceptable that ratepayers should pay for variances in costs that are uncontrollable by the utility, they should not also be responsible for variances in controllable costs. The Panel notes the TES Framework Guidelines state the Commission's principle that rates for Stream B TES projects should "restrict the ability of the utility to pass controllable costs onto ratepayers."¹⁵⁹

This issue will be further discussed in the Commission decision on the levelized rate structure in Section 5.2.1 of the decision.

4.4.2 What costs should be included in the rate design?

CMUS states in its Final Argument that it is not applying for CPCN approval of NDES extensions into the Acadia Block and Block F areas as part of the Phase 1 Application; however, the projected costs and revenues associated with the Acadia Block and Block F are included in the financial models for indicative rates and thus form part of the proposed rate design.¹⁶⁰

There was a substantial discussion during the SRP regarding the appropriateness of including various elements in the rate design, including whether or not Acadia or Block F should be excluded or whether or not all

¹⁵⁸ BCSEA Final Argument, p. 3.

¹⁵⁹ TES Framework Guidelines, p. 15.

¹⁶⁰ CMUS Final Argument, pp. 7–8.

components of the Project with the exception of the Wesbrook costs and revenues should be excluded from the rate design.

Mr. Radelet, consultant for CMUS, provided the following commentary:

...the indicative costs that we've put into the model, are in respect of all the costs of the whole project, including what will be Phase 2, based upon best engineering estimates, because it all works together...

However, we have done a run of the model where we took out Block F and the load and building associated with that, and it causes then the indicative costs to increase somewhat I think on the order of...about 7 percent...It was more problematic to try to take out Acadia East from the whole plan because if you did that, if you never built it, then it's quite a different way of looking at the engineering of the entire project.¹⁶¹

Mr. Metras of UBC provided the following rationale for including the Acadia Block within the financial model as part of the Phase 1 rate design approval: "So, UBC does control the Acadia, broader Acadia area, as we've talked about earlier. And it is certainly our intent to develop those in the long term. We don't control Block F obviously, but Acadia we do."¹⁶²

CMUS re-affirms in its Final Argument that the financial model filed during the SRP shows that if the NDES could not be extended into Block F, the rates would increase slightly but would still be competitive with electricity rates.¹⁶³

BCSEA submits that it accepts the evidence of Mr. Metras and other representatives of UBC during the SRP that future expansion of the NDES into new development of the Acadia Block is a certainty within UBC's plan. BCSEA therefore considers it reasonable for the indicative rates to be based on the inclusion of revenues and costs from the Acadia Block.¹⁶⁴

The Panel also explored the impact of approving a rate design based only on Phase 1 Wesbrook project costs during the SRP. The Panel Chairperson asked the following: "If only the costs that are being approved in this CPCN application, if only those costs are approved to be included in the rate, would that change the initial rate? Or would that just change the deferral account? The timing of the build-up of the deferral account?"¹⁶⁵

Mr. Radelet responded: "That would just change the deferral account...It would not change the rate that we [CMUS] are asking for."¹⁶⁶

¹⁶¹ Transcript Volume 1, pp. 58–59.

¹⁶² Ibid., p. 62.

¹⁶³ CMUS Final Argument, p. 5.

¹⁶⁴ BCSEA Final Argument, p. 3.

¹⁶⁵ Transcript Volume 1, p. 73.

¹⁶⁶ Ibid., pp. 73–74.

Mr. Bursey, legal counsel for CMUS, commented on the Panel Chairperson's proposed scenario as follows:

...looking at Wesbrook with just the gas as the source of the heat for the Phase 1, creates problems, because that's a completely different concept than what UBC is trying to do...

...this project relates to try to move to an alternative to gas, a low carbon source, so the whole reason d'être and the whole purpose is...not just to provide an energy solution, it is a specific type of energy solution, a low carbon energy solution.¹⁶⁷

Mr. Miller, legal counsel for the Commission, voiced concerns regarding CMUS' proposed rate design due to the fact that CMUS requests approval to incorporate in its rate design project costs which are no longer being requested as part of the CPCN (i.e. non-Wesbrook costs).¹⁶⁸ Mr. Miller further states: "My concern is...it's almost like you're asking for recovery on rate base that's not yet been built..."¹⁶⁹

Mr. Bursey provides the following response:

Right, so that is a question for the Commission to decide whether that makes sense and it's in the public interest in this case. And UBC representatives have tried to explain why it's in the public interest that this is a worthwhile project to pursue.¹⁷⁰

Commission determination

The Panel finds that it is appropriate that CMUS' levelized rate only recover costs that are approved under the CPCN. Therefore, CMUS must only include in its rate design the costs related to Phase 1 Wesbrook.

In the CMUS UniverCity Decision, the Commission stated:

In accordance with Section 60 in the *UCA*, the Commission Panel must ensure that rates being charged to customers are just and reasonable while allowing the utility to earn a fair return. Commission Panel finds that while it is not uncommon to permit "Greenfield" start-up utilities to charge levelized rates, it is imperative that rates being charged to customers fairly represent the type of service being offered, specifically, natural gas service as approved in Section 6.1 above.¹⁷¹

In that proceeding, a similar project was considered – a first phase with a temporary natural gas fired DES, followed by a further build out of the DES and the replacement of the temporary energy supply with a

¹⁶⁷ Ibid., p. 82.

¹⁶⁸ Ibid., p. 108.

¹⁶⁹ Ibid., p. 111.

¹⁷⁰ Ibid., p. 113.

¹⁷¹ Corix Multi-Utility Services Inc. Neighbourhood Utility Service At UniverCity Burnaby Certificate Of Public Convenience And Necessity Decision, May 6, 2011, p. 49.

permanent biomass energy centre. In that instance, the Commission granted a CPCN for the first phase only and approved rates only on the capital costs of that phase.¹⁷²

The Panel affirms the approach of the Commission in the UniverCity proceeding and is of the view that the levelized rates proposed in this Application should include only those costs that are approved in the CPCN.

4.4.3 Risk of stranded assets

CMUS expects that the two TECs will be removed once Phase 2 begins.¹⁷³ The fact that the Application proposes to build two TECs which will then be replaced by a permanent CEP raises a concern with respect to stranded assets. CMUS states that it will attempt to sell or otherwise re-deploy for value the temporary boilers, to the benefit of ratepayers, but recent experience indicates that the expected salvage value is sufficiently indeterminable that no amount has been included in the financial analysis.¹⁷⁴ Therefore, in the financial analysis provided as part of the Application, CMUS has assumed that the temporary boilers will remain in rate base and will be recovered in rates through annual depreciation expense and the return earned on the assets for the entirety of the 30-year project.

When asked about the potential stranded asset risk associated with the TECs, CMUS responded that it has accounted for this risk by assuming that the salvage value is zero, which means that any value in plant and equipment has been assumed to be off-set by remediation costs associated with the removal of the TECs. CMUS considers this treatment to be appropriate because it believes that the temporary boilers are the lowest cost and most viable option for serving the initial loads and are being installed for the benefit of customers. Further, CMUS considers this to be the most conservative approach because any actual net salvage value will reduce the future revenue requirement.¹⁷⁵

At the end of the initial 10 years of the project, 76 percent of TEC-W and 79 percent of TEC-E will remain undepreciated, resulting in an ending net book value of \$784,768 and \$832,060 for TEC-W and TEC-E, respectively.¹⁷⁶

Commission determination

Based on the information provided, it is evident that if the project proceeds to Phase 2 as planned and the TECs are replaced with a permanent CEP by 2024, the temporary TECs will be less than 25 percent depreciated. While the Panel accepts that CMUS has taken a conservative approach with regards to the forecast revenue requirement by not including a salvage value in its financial modeling, this does not address the issue that the TECs will be less than 25 percent utilized based on depreciated value at the expected time of removal. Further, by CMUS' own admission, it is highly uncertain at this time whether CMUS will be able to sell or otherwise re-deploy the TECs. Should a situation occur where the TECs cannot be sold or re-deployed, under CMUS' proposed plan ratepayers would bear the costs to remove and de-commission the TECs.

¹⁷² Ibid, p. 1

¹⁷³ Exhibit B-1-1, p. 25.

¹⁷⁴ Ibid.

¹⁷⁵ Exhibit B-6, BCUC IR 1.9.1.

¹⁷⁶ Exhibit B-6, BCUC IR 1.9.2.

It is this lack of certainty regarding the continued deployment of these assets beyond Phase 1, coupled with the large undepreciated value of the TECs at the expected time of removal that raises concerns with the Panel. Although the Panel notes CMUS' assertion that that proceeds from the sale or redeployment of the boilers is to the benefit of ratepayers, **based on the evidence in the proceeding, the Panel finds the risk of stranded assets is high.**

4.5 Adequacy of public and First Nations consultation

4.5.1 Public and key stakeholder consultation

Prior to selecting CMUS as the utility company, UBC presented its NDES feasibility study to the UNA, TRIUMF, and the UBC Board of Governors. All three stakeholders supported the plan and the Board of Governors gave approval to proceed with implementation of the NDES in April 2014.¹⁷⁷

After CMUS was selected, CMUS and UBC undertook public consultation by way of two open houses in November 2013 and June 2014. CMUS reports that around 40,000 contacts were notified of each open house and that attendees included UBC students and campus residents.¹⁷⁸ Concerns raised by participants included: the cost of the project and comparisons to other systems and other fuel source alternatives; mandatory connection of future buildings to the NDES; the delay in connecting to TRIUMF; the location and appearance of the TEC; and the rate structure.¹⁷⁹

In addition to the public open houses, CMUS and UBC also provided information to and met with two specific stakeholders – the UNA in July 2014 and the Musqueam First Nation in September 2013 in their capacity as land owners of Block F.¹⁸⁰ As discussed earlier, Block F was removed from the Application in the Commission's Streamlined Review Process. Another of the project's key stakeholders, UBC, provided a letter of support for the project in this proceeding.¹⁸¹

4.5.2 First nations consultation

First Nations consultation must be addressed separately from public consultation and consultation with the Musqueam as land owners of Block F because UBC land, unlike much other land held in fee simple, is governed by the *University Act*, RSBC 1996, c. 468, which requires the Government of BC to approve any dispositions of land by UBC. In determining whether to approve a requested disposition, the Government has a duty to consult First Nations where there is a potential impact to First Nations' rights.¹⁸²

¹⁷⁷ Exhibit B-1-1, p. 44.

¹⁷⁸ *Ibid.*, p. 47.

¹⁷⁹ *Ibid.*, p. 48, and Appendix 4, Second Public Consultation Summary Report, June 2014, pp. 3–4.

¹⁸⁰ *Ibid.*, p. 46.

¹⁸¹ Exhibit C1-2.

¹⁸² BC Ministry of Advanced Education, Capital Asset Reference Manual, p. 87, as referenced in Exhibit B-6, BCUC IR 1.33.2.1.

First Nations consultation is a legal requirement of the Crown whenever it contemplates an activity that could potentially impact aboriginal or treaty rights asserted or established under section 35(1) of the *Constitution Act*, 1982. There is a significant body of law that sets out the requirements of both the Crown and First Nations for consultation. The Commission has the jurisdiction to assess the adequacy of First Nations consultation.¹⁸³

Regarding this project, neither CMUS nor UBC are part of the Crown and thus they do not hold the duty to consult First Nations.¹⁸⁴ The Government of BC, as mentioned above, holds the duty in relation to land dispositions at UBC. The Crown can delegate the duty to third parties but it has not done so to CMUS.¹⁸⁵

CMUS submits that “the Crown’s involvement in the project is limited to granting ordinary-course approvals for any dispositions of land by UBC to [CMUS] (e.g. leases, statutory rights of way)”.¹⁸⁶ CMUS further submits that the duty to consult is not triggered for the project because it assesses there are no new impacts to First Nations rights resulting from the project.¹⁸⁷

Commission determination

The Panel finds CMUS’ public consultation for the project adequate based on the facts that CMUS provided widespread notification of consultation on the project and provided two opportunities for the public to provide comment. As well, CMUS met individually with two stakeholders with greater interest in the project, the UNA and the Musqueam First Nation. It is unclear whether any aspects of the proposed project were changed based on the comments received from these consultations. The Panel is of the view that a consultation process should not only receive comments, it should also respond to these comments if possible, and that information should be included in a CPCN application. However, there is no evidence before the Panel that CMUS has not adequately responded to any such comments.

Regarding First Nations consultation, given that pursuant to the *University Act* the Crown holds the duty to consult for UBC land and that it has not delegated the duty to CMUS who is the applicant for this CPCN, the issue of First Nations consultation is appropriately addressed, if necessary, between the Crown and any impacted First Nations. At this point of approval of the CPCN, there is no evidence that First Nations consultation has not been adequately addressed.

5.0 COMMISSION DECISIONS

The Panel finds, pursuant to Section 46(3) of the UCA, that there is sufficient evidence to support partial acceptance of this CPCN Application. Therefore, the Panel will grant a CPCN, provided the conditions outlined below are met, for the natural gas fuelled temporary energy centres component of the permanent Wesbrook EC/ETS, distribution piping systems and Energy Transfer Stations to meet expected demand to 2024 in Phase 1

¹⁸³ *Rio Tinto Alcan Inc. v. Carrier Sekani Tribal Council*, [2010] 2 SCR 650, 2010 SCC 43, para. 73.

¹⁸⁴ Exhibit B-6, BCUC IR 33.2.

¹⁸⁵ *Ibid.*

¹⁸⁶ *Ibid.*, BCUC IR 33.2.1.

¹⁸⁷ *Ibid.*, BCUC IR 33.3.

Wesbrook as outlined in the Application. However, for the reasons stated below, the Panel denies the rate design in its current form.

5.1 CPCN

The Panel has previously acknowledged in Section 4.2 that the proposed NDES aligns well with both British Columbia's energy objectives and the *Clean Energy Act*, although the first phase of this development produces an increase in greenhouse gas emissions above a business as usual scenario. However, we acknowledge the intent of the parties, as part of Phase 2 of the project, to develop a central energy plant based on renewable energy. In particular, the stewardship role of UBC with respect to the development of the University Endowment Lands (UEL) and its commitment to the well-being of the community is a key component of this commitment. Phase 1 Wesbrook is a necessary first step to that goal, and, for this reason, we consider that Phase 1 Wesbrook of this project contributes to meeting applicable BC energy objectives.

Notwithstanding the high risk of stranded assets, we are satisfied that there has been sufficient rigor in preparing the proposal for the temporary TEC. Accordingly, the Panel believes the TEC to be in the public interest and are prepared to issue, upon satisfaction of the condition outlined below, a CPCN for the construction and operation of Phase 1 Wesbrook.

With regard to the condition to be met prior to issuance of a CPCN for Phase 1 Wesbrook, the Panel has previously discussed its findings concerning the CER. This rider is required by the proposed Infrastructure Agreement and forms an element of the rate design. The Panel has found this rider to be unduly discriminatory and accordingly is unable to approve the Infrastructure Agreement in its current form. In addition, the Panel has previously noted that with regard to extensions, the wording of the IA is inconsistent with the TES Guidelines. Accordingly, the Panel is unable to issue a CPCN for the Phase 1 Wesbrook development at this time. **However, provided the Applicant files, within 60 days, an executed revised Infrastructure Agreement with the CER removed and appropriate modification made to the wording of the NDES Extension section, the Panel will issue the CPCN for Phase 1 Wesbrook.**

5.2 Rate Design

The Panel is satisfied that a levelized rate design is appropriate given the capital intensive nature of this greenfield project. The Panel has previously reviewed the risks to ratepayers of deferring the recovery of costs required to levelize the rate and found that this risk is justified in this case.

However, as discussed in Section 4.4.2 of the decision, the Panel is not persuaded it is appropriate to include project costs and revenues beyond what are included in the CPCN approval in the rate design. **Because the Panel is only prepared to issue a CPCN for Phase 1 Wesbrook, we are unable to approve the rate design as proposed by CMUS. CMUS is directed to file an application for approval of the revised rate structure and rates no later than 6 months prior to commissioning the Phase 1 Wesbrook DES.**

In order to assist CMUS to prepare a revised rate design that the Panel is prepared to approve, in the following sections, we make further determinations relating to the following:

- Levelized rate structure;
- Carbon Emissions Rider and Connection Credit;
- Allocation of annual rate based on proposed fixed/variable charge;
- Capital structure;
- System operating costs; and
- Project development costs.

These items were described in detail in Sections 3.0 and 4.0 of the decision, including the approvals sought by CMUS. As such, the Panel has limited its discussion in the following sections to its determinations on each item.

5.2.1 Levelized rate structure

The Panel has previously discussed its concerns about approving a levelized rate design based on costs that have not been approved as part of a CPCN review. Accordingly, we are unable to approve the rate design applied for. However, the Panel will approve a 20-year levelized rate design based solely on the Phase 1 Wesbrook revenues and costs subject to further determinations laid out below.

The Panel makes no determination on the initial 2015 rate, or on the annual escalation factor to be applied to the levelized rate. These components will be reviewed by the Commission as part of CMUS' NDES rates application.

The Panel recognizes that under a levelized rate approach, there will be over-earning in the latter years that compensate for the under-earnings in the early years of the project. **The Panel therefore accepts that the use of the Revenue Deficiency Deferral Account is a reasonable way to implement the levelized rate structure.**

The Panel has previously expressed its concern that CMUS' proposed rate design passes all cost variances, including those considered controllable, to ratepayers. This approach is inconsistent with the approach contemplated in the TES Guidelines. The Panel would prefer to see a forecast (annually, for example) of controllable costs, where forecast amounts are charged to the RDDA and CMUS is then responsible for any variances between actual spending and forecast costs.

However, the Panel recognizes that the issue of recovering variances in controllable costs was not examined during this proceeding. Accordingly, the Panel directs CMUS to provide a scenario in its 2015 Rates Application whereby CMUS would only record variances in the RDDA related to the uncontrollable components of the revenue requirement. As part of the information filed in the 2015 Rates Application, CMUS must discuss which components of the revenue requirement should be classified as uncontrollable versus controllable and provide an explanation for why the proposed classifications are appropriate.

If CMUS provides a 20-year levelized rate design based solely on the Phase 1 Westbrook revenues and costs, and a satisfactory mechanism to deal with variances in controllable costs, the Panel will approve the RDDA. Further, the Panel will approve the inclusion of the RDDA in rate base and to earn a return based on CMUS' approved after-tax weighted average cost of capital.

5.2.2 Carbon Emissions Rider and Connection Credit

Determinations on the Carbon Emissions Rider and the Connection Credit were previously made in Sections 4.3.2 and 4.3.3, respectively. For ease of reference, the Panel briefly summarizes these determinations as follows:

- **The Panel denies the inclusion of the Carbon Emissions Rider in rates.**
- **The Panel approves in principle the accounting treatment of the Connection Credit, including approval to include the deferred amounts in rate base earning a return based on CMUS' approved after-tax weighted average cost of capital. If the Connection Credit is still required beyond the year 2021, CMUS must apply to the Commission for additional amounts to be added to the deferral account.**
- **The Panel directs that the Connection Credit deferral account be amortized over 10 years.**

5.2.3 Fixed versus variable charges

The Panel agrees with CMUS' rationale for designing a rate structure that better matches revenue streams with cost characteristics. **Therefore, the Panel will approve a rate design with an initial allocation of the NDES rate proposed by CMUS of 66.3 percent fixed charge and a 33.7 percent variable charge. However, the Panel directs that CMUS recalculate the variable and fixed components of the rate based on the revised 20-year levelized rate structure as directed in this decision.** CMUS shall include its revised calculations of the fixed versus variable charge in its 2015 Final Rates Application.

5.2.4 Capital structure

The Panel will approve a rate design that includes CMUS' proposed deemed capital structure of 57.5 percent debt and 42.5 percent equity. The Panel will also approve an equity risk premium of 75 basis points over the benchmark low risk utility return on equity of 8.75 percent. The Panel finds this to be consistent with the determinations in the Commission's Generic Cost of Capital Stage 2 Decision regarding the Minimum Default Capital Structure and Equity Risk Premium for similar small thermal utilities.

The Panel will further approve CMUS' proposed debt rate of 4 percent. The Panel finds CMUS' calculation of its proposed debt rate to be consistent with the approach for calculating a default debt rate for thermal energy system utilities as outlined in the Commission's Generic Cost of Capital Stage 1 and 2 Decisions.

5.2.5 System operating costs

The Panel makes no determination on CMUS' forecast system operating costs at this time. **The Panel directs CMUS to file a revised revenue requirements forecast as part of its 2015 Final Rate Application which includes only the system operating costs related to Phase 1 Westbrook.**

5.2.6 Project development costs

The Panel approves in principle CMUS' request to capitalize both CMUS' and UBC's project development costs for recovery in rates. The Panel also approves for CMUS to amortize these project development costs over 30 years.

However, the Panel makes no determination at this time on the amount of project development costs approved for recovery in rates. CMUS must file for final approval of project development costs as part of its 2015 Rate Application.

5.2.7 System Extensions

The Infrastructure Agreement provides CMUS with a franchise to operate the NDES in the territory defined by UBC. **The Panel approves a single thermal rate in this territory regardless of where the energy is served from.** The TES Framework Stream B system extension policy enables CMUS to extend the NDES upon filing with the Commission the form in Appendix C of the TES Guidelines, provided the sum of all future NDES extensions does not exceed the "initial TES capital cost" and that the aggregate rate impact of the extensions is less than 10 percent. **For the purpose of the allowed system extension costs, the Commission finds that the "initial TES capital cost" is \$11,193,073 in real 2014 dollars.** If a future NDES extension causes the cumulative sum of all NDES extensions to exceed \$11,193,073 in real 2014 dollars, the TES Guidelines require a CPCN application to be filed.

5.3 Reporting Requirements

5.3.1 CPCN Annual Project Progress Reporting

Considering CMUS proposes a phased approach whereby the installation of DPS and energy sources is being scheduled and sized to match the development construction in the area, **the Panel considers it necessary to include specific CPCN reporting requirements and directs CMUS to report annually on the following:**

- **The CPCN estimated number of buildings and floor area connected vs. the actual number of buildings and floor area connected, for each project year, including projections to 2024 using tables Table II: 2, 3 and 4 and Table JJ: 2, 3 and 4 (response to BCUC IR 1.28.2) to make the comparisons. Comment on any variance of the number of buildings or floor area connected or not connected as compared to the CPCN estimate.**
- **The CPCN estimated load vs. the actual load, by year, for each of Wesbrook East, Wesbrook West, and the interconnected Wesbrook East, Wesbrook West and Wesbrook EC/ETS system, including projections to 2024 using tables. Comment on any load variance from the CPCN estimate.**
- **The CPCN estimated demand vs. the actual demand, by year, including projections to 2024 using Charts 3, 4 and 5 (response to BCUC IR 1.31.1) to make the comparison. Comment on any demand variance from the CPCN estimate.**
- **The CPCN estimated O&M costs to the actual O&M costs, by year, including projections to 2024. Use IR1-Table N (response to BCUC IR 1.19.2) to make the comparison. Comment on any variance from the CPCN estimate.**

- **The CPCN estimated capital costs to the actual costs, including all line items, by year, including projections to 2024 using Exhibit B-10, and tables 7-1b, 7-2b, and table 7-3b (response to BCUC IR 1.10.2) to make the comparison. Comment on any variance of any single line item greater than +/-20% of the CPCN estimate.**

The report should discuss:

- major risks to the project;
- major issues requiring management attention;
- major accomplishments this period;
- plans for next period;
- the status of the development of the NDES load in relation to the size of load necessary to make the transition to a low-carbon energy source viable; and
- the current status of TRIUMF as the presumptive candidate source of low-carbon energy and any alternatives.

5.3.2 Other Reporting Requirements

As part of CMUS' annual reporting requirements, the Panel directs CMUS to include a report showing the calculations and balance of the RDDA annually. This report must separately show the annual addition to the RDDA, the annual carrying cost, and the opening and closing balance. Additionally, the Panel directs CMUS to include in its Annual Report the forecast versus actual results of its annual revenue requirements with an accompanying explanation for key variances.

6.0 SUMMARY OF DIRECTIVES

	Directive	Page No.
1.	The Panel finds that CMUS' proposed phase approach to the development of the NDES to be reasonable. Further, limiting the scope of this CPCN to the infrastructure necessary to serve the approximately 23 buildings anticipated to be constructed in the Wesbrook neighbourhood between 2015 and 2023 is appropriate.	23
2.	The Panel finds that the design basis and servicing plan for Phase 1 Wesbrook as described in section 4.3 of the revised Application and as shown in drawing G002 is appropriate. The Panel also finds it appropriate that additional capacity beyond the two temporary energy centres is necessary prior to 2024 if the 85 percent diversified peak load in Wesbrook Place develops as forecast.	24
3.	If CMUS plans to expand service to Acadia East, Acadia West, Stadium, East Campus, Block F or other areas not included in the Project Plan, the Panel directs CMUS to follow the TES Guidelines. The Panel also directs CMUS to modify the Infrastructure Agreement to ensure that it is reflective of the Commissions extension guidelines.	27
4.	Regardless, because it is a charge imposed by a utility, in part to finance the construction of utility infrastructure, the Panel finds that the CER is a rate and further finds, for the reasons cited below, that it does not satisfy the requirements of section 59 of the UCA.	30
5.	Accordingly, the Commission Panel denies the inclusion of the Carbon Emissions Rider as part of CMUS' proposed rate design.	32
6.	Accordingly, the Panel approves the recovery of the connection costs in rates through the inclusion of the Connection Credit deferral account in CMUS' proposed rate design. The Panel determines that a fixed amortization period of 10 years is appropriate as it strikes an acceptable balance between the issues of intergenerational inequity and incurring ongoing carrying costs.	33
7.	The Panel further directs that if the Connection Credit is still required beyond the year 2021, CMUS must apply to the Commission for additional amounts to be added to the deferral account.	33
8.	The Panel finds that it is appropriate that CMUS' levelized rate only recover costs that are approved under the CPCN. Therefore, CMUS must only include in its rate design the costs related to Phase 1 Wesbrook.	37

9.	Based on the evidence in the proceeding, the Panel finds the risk of stranded assets is high.	39
10.	The Panel finds CMUS' public consultation for the project adequate based on the facts that CMUS provided widespread notification of consultation on the project and provided two opportunities for the public to provide comment.	40
11.	The Panel finds, pursuant to Section 46(3) of the UCA, that there is sufficient evidence to support partial acceptance of this CPCN Application. Therefore, the Panel will grant a CPCN, provided the conditions outlined below are met, for the natural gas fuelled temporary energy centres component of the permanent Wesbrook EC/ETS, distribution piping systems and Energy Transfer Stations to meet expected demand to 2024 in Phase 1 Wesbrook as outlined in the Application. However, for the reasons stated below, the Panel denies the rate design in its current form.	40
12.	However, provided the Applicant files, within 60 days, an executed revised Infrastructure Agreement with the CER removed and appropriate modification made to the wording of the NDES Extension section, the Panel will issue the CPCN for Phase 1 Wesbrook.	41
13.	Because the Panel is only prepared to issue a CPCN for Phase 1 Wesbrook, we are unable to approve the rate design as proposed by CMUS. CMUS is directed to file an application for approval of the revised rate structure and rates no later than 6 months prior to commissioning the Phase 1 Wesbrook DES.	41
14.	The Panel has previously discussed its concerns about approving a levelized rate design based on costs that have not been approved as part of a CPCN review. Accordingly, we are unable to approve the rate design applied for. However, the Panel will approve a 20-year levelized rate design based solely on the Phase 1 Wesbrook revenues and costs subject to further determinations laid out below.	42
15.	The Panel therefore accepts that the use of the Revenue Deficiency Deferral Account is a reasonable way to implement the levelized rate structure.	42
16.	If CMUS provides a 20-year levelized rate design based solely on the Phase 1 Wesbrook revenues and costs, and a satisfactory mechanism to deal with variances in controllable costs, the Panel will approve the RDDA. Further, the Panel will approve the inclusion of the RDDA in rate base and to earn a return based on CMUS' approved after-tax weighted average cost of capital.	43
17.	The Panel denies the inclusion of the Carbon Emissions Rider in rates.	43

18.	The Panel approves in principle the accounting treatment of the Connection Credit, including approval to include the deferred amounts in rate base earning a return based on CMUS' approved after-tax weighted average cost of capital. If the Connection Credit is still required beyond the year 2021, CMUS must apply to the Commission for additional amounts to be added to the deferral account.	43
19.	The Panel directs that the Connection Credit deferral account be amortized over 10 years.	43
20.	Therefore, the Panel will approve a rate design with an initial allocation of the NDES rate proposed by CMUS of 66.3 percent fixed charge and a 33.7 percent variable charge. However, the Panel directs that CMUS recalculate the variable and fixed components of the rate based on the revised 20-year levelized rate structure as directed in this decision.	43
21.	The Panel will approve a rate design that includes CMUS' proposed deemed capital structure of 57.5 percent debt and 42.5 percent equity. The Panel will also approve an equity risk premium of 75 basis points over the benchmark low risk utility return on equity of 8.75 percent	43
22.	The Panel will further approve CMUS' proposed debt rate of 4 percent.	43
23.	The Panel directs CMUS to file a revised revenue requirements forecast as part of its 2015 Final Rate Application which includes only the system operating costs related to Phase 1 Westbrook.	43
24.	The Panel approves in principle CMUS' request to capitalize both CMUS' and UBC's project development costs for recovery in rates. The Panel also approves for CMUS to amortize these project development costs over 30 years.	44
25.	However, the Panel makes no determination at this time on the amount of project development costs approved for recovery in rates. CMUS must file for final approval of project development costs as part of its 2015 Rate Application	44
26.	The Panel approves a single thermal rate in this territory regardless of where the energy is served from.	44
27.	For the purpose of the allowed system extension costs, the Commission finds that the "initial TES capital cost" is \$11,193,073 in real 2014 dollars.	44

28.	<p>The Panel considers it necessary to include specific CPCN reporting requirements and directs CMUS to report annually on the following:</p> <ul style="list-style-type: none"> • The CPCN estimated number of buildings and floor area connected vs. the actual number of buildings and floor area connected, for each project year, including projections to 2024 using tables Table II: 2, 3 and 4 and Table JJ: 2, 3 and 4 (response to BCUC IR 1.28.2) to make the comparisons. Comment on any variance of the number of buildings or floor area connected or not connected as compared to the CPCN estimate. • The CPCN estimated load vs. the actual load, by year, for each of Wesbrook East, Wesbrook West, and the interconnected Wesbrook East, Wesbrook West and Wesbrook EC/ETS system, including projections to 2024 using tables. Comment on any load variance from the CPCN estimate. • The CPCN estimated demand vs. the actual demand, by year, including projections to 2024 using Charts 3, 4 and 5 (response to BCUC IR 1.31.1) to make the comparison. Comment on any demand variance from the CPCN estimate. • The CPCN estimated O&M costs to the actual O&M costs, by year, including projections to 2024. Use IR1-Table N (response to BCUC IR 1.19.2) to make the comparison. Comment on any variance from the CPCN estimate. • The CPCN estimated capital costs to the actual costs, including all line items, by year, including projections to 2024 using Exhibit B-10, and tables 7-1b, 7-2b, and table 7-3b (response to BCUC IR 1.10.2) to make the comparison. Comment on any variance of any single line item greater than +/-20% of the CPCN estimate 	44
29.	<p>As part of CMUS' annual reporting requirements, the Panel directs CMUS to include a report showing the calculations and balance of the RDDA annually. This report must separately show the annual addition to the RDDA, the annual carrying cost, and the opening and closing balance. Additionally, the Panel directs CMUS to include in its Annual Report the forecast versus actual results of its annual revenue requirements with an accompanying explanation for key variances.</p>	45

DATED at the City of Vancouver, in the Province of British Columbia, this 12th day of December 2014.

Original signed by:

D. M. MORTON
PANEL CHAIR/COMMISSIONER

Original signed by:

C. A. BROWN
COMMISSIONER

Original signed by:

I. F. MACPHAIL
COMMISSIONER



**BRITISH COLUMBIA
UTILITIES COMMISSION**

**ORDER
NUMBER C-11-14**

SIXTH FLOOR, 900 HOWE STREET, BOX 250
VANCOUVER, BC V6Z 2N3 CANADA
website: <http://www.bcuc.com>

TELEPHONE: (604) 660-4700
BC TOLL FREE: 1-800-663-1385
FACSIMILE: (604) 660-1102

IN THE MATTER OF
the *Utilities Commission Act*, RSBC 1996, Chapter 473

and

Corix Multi-Utility Services Inc.
an Application for a Certificate of Public Convenience and Necessity
for Phase 1 of the University of British Columbia Neighborhood District Energy System

BEFORE: D. M. Morton, Panel Chair/Commissioner
C. A. Brown, Commissioner December 12, 2014
I. F. MacPhail, Commissioner

O R D E R

WHEREAS:

- A. On August 8, 2014, Corix Multi-Utility Services Inc. (CMUS) applied to the British Columbia Utilities Commission (Commission) for a Certificate of Public Convenience and Necessity (CPCN) to construct and operate Phase 1 of the proposed community-based district energy system at the University of British Columbia (UBC) (Project), pursuant to sections 45 and 46 of the *Utilities Commission Act* (UCA) (Application);
- B. CMUS requested:
- a. Approval under section 45 of the UCA of the Infrastructure Agreement between Corix and UBC including endorsement of the proposed project plan;
 - b. Approval under sections 56, 59, 60 and 61 of the UCA of the revenue requirements, rate design and rates as described in the Application and outlined below; a revised financial model showing final revenue requirements, rate design and rates will be filed in the spring of 2015:
 - i. The indicative rate base as provided in Section 2.7 of the Application;
 - ii. The indicative revenue requirement as provided in Section 2.9 and consistent with the recent Commission decision in the Phase 2 Generic Cost of Capital proceeding applicable to small thermal energy utilities:
 1. a deemed capital structure of 57.5 percent debt and 42.5 percent equity;
 2. long-term debt financing costs estimated at 4.0 percent;
 3. a return on equity of 9.5 percent, which is based on the current low risk benchmark equity return plus 75 basis points to account for the additional risk related to the development of the small scale alternative energy utility;
 4. operating costs as provided in Section 2.6.2; and

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5. the proposed 10-year levelized rate structure through which the company defers a portion of its annual revenue requirements in the early stages of development in order to provide affordable rates for customers;
- iii. Approval of the accounting treatment of the following:
 1. a revenue deficiency deferral account which is used to record those portions of revenue requirements which are not recovered in the early stages of development, with the goal of complete recovery of the funds over the 20-year period;
 2. the proposed Connection Credit for low rise buildings connected prior to 2021;
 3. the Carbon Emission Rider; and
 4. the indicative rate design as provided in Section 2.10 of the Application; and
 - iv. Approval to capitalize and amortize Corix' and UBC's project development costs over 30 years and to have these costs included in rates AFUDC;
- C. Phase 1 of the Project is to provide service to new buildings in Wesbrook Place that are scheduled for completion between 2015 and 2023 and Acadia East and Block F buildings to be built between 2020 and 2023. It involves construction of two separate district heating loops. One loop will be fed initially by two 6.0 MW temporary natural gas boiler plants located within Westbrook place, plus a portion of the Wesbrook Energy Centre/Energy Transfer Station (EC/ETS) in 2022. The second loop will likely be served by purchased energy from the existing UBC Academic District Energy System;
 - D. On August 29, 2014, by Order G-125-14, the Commission determined that a public hearing was appropriate to review the Application and established a Preliminary Regulatory Timetable including one round of written information requests followed by a Streamlined Review Process (SRP). However, the Commission determined that further submissions were necessary to determine whether an SRP or written hearing process is require;
 - E. On September 9, 2014 CMUS provided a letter supporting an SRP. On September 10, 2014, UBC and the British Columbia Sustainable Energy Association and Sierra Club of B.C. (BCSEA) registered as Interveners. Neither party provided comment on the SRP. On September 25, 2014, the Commission determined that an SRP was appropriate and confirmed the Preliminary Regulatory Timetable;
 - F. The SRP, wherein CMUS removed Acadia East and Block F from the CPCN application was held on October 30, 2014. The revised project, Phase 1 Wesbrook, is to provide service to new buildings in Wesbrook Place that are scheduled for completion between 2015 and 2023. It involves construction of two independent thermal energy supply loops, one to serve new customers in the east part of Wesbrook Place and one to serve new customers in the west part of Wesbrook Place. In 2022 and 2023, these two sub-systems are expected to be interconnected and connected to a permanent 5 MW natural gas boiler to be installed inside the Wesbrook EC/ETS. Each sub-system is initially supplied by its own temporary energy centre consisting of two 2.9 MW natural gas boilers housed within a standard shipping container. CMUS expects that the temporary energy centres will be removed once Phase 2 begins. CMUS projects that 11 new high rise buildings and 12 new low rise buildings, with a total floor space of 342,207m², will connect to the Neighbourhood District Energy System in Wesbrook Place during this time;

- G. On November 6, 2014, CMUS submitted its Final Argument whereby it clarifies it is requesting approval under sections 59, 60 and 61 of the UCA of the proposed methodology for establishing revenue requirements, rate design and rates as described in the Application and it is not seeking approval of final rates. CMUS further clarifies it is requesting a rate design methodology which includes the projected costs and revenues associated with all phases of the project, including Acadia and Block F and confirms that only the capital cost of Phase 1 Wesbrook, or \$11,193,073 in real 2014 dollars, is included in the CPCN approval request;
- H. On November 10, 2014 BCSEA submitted its Final Argument and on November 14, 2014 CMUS submitted a letter confirming it has no reply to BCSEA's submission; and
- I. The Commission has reviewed the Application and has determined that if certain revisions are made, it is in the public interest to grant approval of this CPCN Application.

NOW THEREFORE the Commission:

- 1. Denies a Certificate of Public Convenience and Necessity, pursuant to sections 45 of the *Utilities Commission Act* (UCA), for Phase 1 Wesbrook of the proposed Neighbourhood District Energy System (NDES) at the University of British Columbia, as set out in the revised Application. However, provided, within 60 days of the date of this Order, the Applicant files an executed revised Infrastructure Agreement with the Carbon Emission Rider removed and a revised System Extension Policy that is aligned with the Commission's Thermal Energy Systems Regulatory Framework Guidelines (2014) (TES Guidelines), the Commission will approve a CPCN for Phase 1 Wesbrook.
- 2. Approves \$11,193,073 in real 2014 dollars for the project capital cost, which is based on total Phase 1 Wesbrook project capital cost estimate up to and including the year 2023. For the purpose of the TES Guidelines, the Commission finds that amount is also the initial TES capital cost.
- 3. Approves the Connection Credit, including approval to include the deferred amounts in rate base earning a return based on Corix Multi-Utilities Services' (CMUS) approved after-tax weighted average cost of capital. CMUS is directed to amortize the Connection Credit deferral account over 15 years. If the Connection Credit is still required beyond the year 2021, CMUS must apply to the Commission for approval to include additional amounts in the deferral account.
- 4. Does not approve the rate design applied for, but will approve, subject to CMUS filing a revised rate design and rates no later than 6 months prior to commissioning the Phase 1 Wesbrook NDES, a 20-year levelized rate design based solely on the Phase 1 Wesbrook revenues and costs and including the following:
 - a. an initial allocation of the NDES rate proposed by CMUS of 66.3 percent fixed charge and a 33.7 percent variable charge. However, the Panel directs that CMUS recalculate the variable and fixed components of the rate based on the revised 20-year levelized rate structure as directed in Section 5.2.1;
 - b. CMUS' proposed deemed capital structure of 57.5 percent debt and 42.5 percent equity;
 - c. an equity risk premium of 75 basis points over the benchmark low risk utility return on equity of 8.75 percent;
 - d. the proposed debt rate of 4 percent; and

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- e. The amortization of the approved project development costs for Phase 1 Wesbrook over 30 years.
5. Makes no determination on CMUS' forecast system operating costs. CMUS is directed to file an updated revenue requirements forecast as part of its revised rate design and rates application.
 6. Upon approval of the 20-year levelized rate and a satisfactory mechanism to deal with variances in controllable costs, will approve the establishment of the revenue deficiency deferral account (RDDA). The RDDA can be included in annual rate base and earn a return based on CMUS' approved after-tax weighted average cost of capital. CMUS is directed to file as part of its revised rate design application a scenario whereby CMUS only records only the annual variances between forecast and actual results in the RDDA which are related to uncontrollable components of the revenue requirement. CMUS must identify which components of the revenue requirement are uncontrollable versus controllable along with a detailed explanation of the rationale for each classification.
 7. Approves a single thermal rate in this territory regardless of where the energy is served from.
 8. Directs CMUS to file annual project progress reports by March 31 every year, including all the items outlined in Section 5.3.1 of the Decision.
 9. Directs CMUS to submit the calculations and balance of the RDDA by March 31 every year. This report must separately show the annual addition to the RDDA, the annual carrying cost, and the opening and closing balance. Additionally, CMUS is directed to include in its annual report the forecast versus actual results of its annual revenue requirements with an accompanying explanation for key variances.
 10. Directs CMUS to comply with all applicable directives of the Commission set out in the decision issued concurrently with this order.

DATED at the City of Vancouver, in the Province of British Columbia, this 12th day of December 2014.

BY ORDER

Original signed by:

D. M. Morton
Panel Chair/Commissioner

REGULATORY TIMETABLE

ACTION	DATE (2014)
Registration of Interveners and Interested Parties	Friday, September 12
Intervener Comments on the Streamlined Review Process	Friday, September 12
Commission Information Request No. 1 to CMUS	Wednesday, September 17
Participant Assistance Cost Award Budget Deadline	Friday, September 19
Intervener Information Request No. 1 to CMUS	Friday, September 26
CMUS Response to Commission and Intervener Information Request No. 1	Friday, October 10
Streamlined Review Process (tentative)	Thursday, October 31
CMUS Final Argument	Thursday, November 6
Intervener Final Argument	Monday, November 10
CMUS Reply Argument	Wednesday, November 12

LIST OF ACRONYMS

ACEC-BC	Association of Consulting Engineering Companies British Columbia
ADES	Academic District Energy System
AES	Alternative energy sources
Application	Application for a CPCN under sections 45 and 46 of the Act to construct and operate the NDES to serve new developments at UBC.
BCSEA	BC Sustainable Energy Association and the Sierra Club of British Columbia
CEEP	Community Energy and Emissions Plan
CER	Carbon Emissions Rider
CIAC	Contribution in aid of construction
CMUS	Corix Multi-Utility Services Inc.
CPCN	Certificate of Public Convenience and Necessity
DPS	Distribution piping system
EC/ETS	Energy Centre/Energy Transfer Station
EUI	Energy use intensities
GCOC	Generic Cost of Capital
GHG	Greenhouse gas
GST	Goods and Services Tax
IA	Infrastructure Agreement
NDES	Neighbourhood District Energy System
Phase 1 Wesbrook	the Wesbrook portion of Phase 1
RDDA	Revenue deficiency deferral account
ROE	Return on equity
SRP	Streamlined Review Process
TEC	Temporary energy centre
TES Guidelines	British Columbia Utilities Commission's Thermal Energy Systems Regulatory Framework Guidelines (2014)
UBC	University of British Columbia
UBC Properties Investment Ltd.	UBC Properties Investments Ltd.
UCA	<i>Utilities Commission Act</i>
UEL	University Endowment Lands
UNA	University Neighbourhood Association
WACC	Weighted average cost of capital

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University of British Columbia

EXHIBIT LIST

Exhibit No.

Description

COMMISSION DOCUMENTS

- | | |
|-----|---|
| A-1 | Letter dated August 22, 2014 – Appointment of Panel |
| A-2 | Letter dated August 29, 2014 – Order G-125-14 Establishing a Regulatory Timetable |
| A-3 | Letter dated September 17, 2014 – Commission Information Request No. 1 to Corix |
| A-4 | Letter dated September 25, 2014 – Confirmation of Streamlined Review Process |
| A-5 | Letter dated October 29, 2014 – Streamlined Review Process Information |

APPLICANT DOCUMENTS

- | | |
|-------|---|
| B-1 | CORIX MULTI-UTILITY SERVICES INC. (CMUS) – Letter dated August 8, 2014 - Certificate of Public Convenience and Necessity Application For Phase 1 of the Neighbourhood District Energy System at the University of British Columbia |
| B-1-1 | Letter dated August 29, 2014 – CMUS Submitting Revised Application |
| B-2 | Letter dated September 9, 2014 – CMUS Submitting Comments |
| B-3 | Letter dated September 12, 2014 – CMUS Submitting Infrastructure Agreement |
| B-3-1 | Letter dated October 23, 2014 – CMUS Submitting Updated Project Plan |
| B-3-2 | Letter dated October 27, 2014 – CMUS Submitting Updated Infrastructure Agreement - updates previously filed documents contained in Exhibit B-3 and Exhibit B-4 |
| B-4 | Letter dated September 16, 2014 – CMUS Submitting Draft Energy Services Agreement |

Exhibit No.	Description
B-5	Letter dated October 10, 2014 – CMUS Submitting Response to BCSEA IR No. 1
B-6	Letter dated October 10, 2014 – CMUS Submitting Response to BCUC IR No. 1
B-6-1	Confidential Letter dated October 10, 2014 – CMUS Submitting Confidential Attachments to BCUC IR No. 1
B-7	Submitted at SRP October 30, 2014 – PRESENTATION BY UBC/CORIX
B-8	Submitted at SRP October 30, 2014 – NDES at 10,20,30 years
B-9	Submitted at SRP October 30, 2014 – TABLE
B-10	Submitted at SRP October 30, 2014 – REVISED ATTACHED F WITH LEVEL OF EFFORT COLUMN ADDED

INTERVENER DOCUMENTS

C1-1	UNIVERSITY OF BRITISH COLUMBIA (UBC) Letter dated September 10, 2014 – Request for Intervener Status by Orion Henderson, Trent Berry and Dean O'Leary
C1-2	Letter dated October 29, 2014 – UBC Submitting Letter of Support
C2-1	BC SUSTAINABLE ENERGY ASSOCIATION AND THE SIERRA CLUB OF BRITISH COLUMBIA (BCSEA) Letter dated September 10, 2014 – Request for Intervener Status by William J. Andrews and Thomas Hackney
C2-2	Letter Dated September 26, 2014 – BCSEA Submitting Information Request No.1 to Corix

INTERESTED PARTY DOCUMENTS

D-1	TRIUMF Letter dated September 10, 2014 – Request for Interested Party Status by Remy Dawson
D-2	UNIVERSITY NEIGHBOURHOODS ASSOCIATION (UNA) Letter dated September 12, 2014 – Request for Interested Party Status by Jan Fialkowski and Ralph Wells