



**IN THE MATTER OF**

**FortisBC Alternative Energy Services Inc.**

**Application for a Certificate of Public Convenience and Necessity  
for the Approval for the PCI Marine Gateway Thermal Energy  
Project and Approval of Rates for Thermal Energy Service  
to PCI Developments Inc.**

**DECISION**

**September 27, 2012**

**Before:**

**D.M. Morton, Commissioner/Panel Chair  
B.A. Magnan, Commissioner**

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## 1.0 EXECUTIVE SUMMARY

This is an application from Fortis Alternative Energy Services Inc. (FAES) for a Certificate of Public Convenience and Necessity (CPCN) (Application) to build and operate a Thermal Energy System (TES) (the Project) for the Marine Gateway development located in the Cambie and Marine Drive area in Vancouver. FortisBC Energy Inc. (FEI) has assigned two previous TES projects – Tsawwassen Springs and the Delta School District – to FAES at the direction of the British Columbia Utilities Commission (BCUC or the Commission). Accordingly, this is the first application for a TES, the Commission has received from FAES and the third TES application from the Fortis group of companies.

The TES consists of a ground source heat exchange system with natural gas fired back-up and peaking boilers. The system meets the City of Vancouver’s (Vancouver) development permit requirements in the “Cambie Corridor” of a 70 percent renewable energy source and a 50 percent reduction in greenhouse gases (GHGs) over a “business as usual” base case. The cost of the Project is approximately \$9 million. The Panel has found the Project to be in the public interest and approved the CPCN.

With regard to the proposed expenditures, the Panel has no issues, with the exception of the 25 percent contingency fee, which is reduced to 15 percent.

As with the previous two projects, this Project has been brought forward under General Terms and Conditions, Section 12A (GT&C 12A), a tariff approved by the Commission for FEI’s TES which provides for project specific rates based on a cost of service for that project. In the previous two TES applications, the Commission identified a number of shortcomings with respect to the cost of service model and the rate design, including:

1. The use of the Thermal Energy Services Deferral Account (TESDA) as a variance account;
2. Insufficient recovery of proportionate allocations of previously incurred TES program costs currently accumulated in the TESDA.

For the most part, FAES has remedied those shortcomings in this Application. In particular, recoveries of \$35,865 annually from this project are proposed, although FAES states that this is just a placeholder, until a more accurate figure is determined as a result of the upcoming hearing concerning the allocation of TESDA balance. FAES is directed to recalculate rates and provide the updated amount to the Commission. This is expected to be completed before the TES goes into service.

However, there are some additional issues that arise in this application and the Panel has rejected the rate and the rate design. These issues are:

1. A rate design that provides for annual revenue requirements with a variance account that will accumulate under-recoveries across test periods. The Panel denies this variance account.
2. A proposed reduced rate for the first three years, which is intended to provide rate stability and improve saleability. The Panel denies this approach.
3. A proposed 50 basis point risk premium. The Panel finds no justification for a risk premium above the benchmark utility.

The Panel directs FAES to revise the rate design and rate and submit the revisions for approval no later than 120 days prior to the Project's in service date. Alternatively, it can re-apply for a rate closer to the time that the development is complete.

There are four customer types that will be served by the TES. FAES proposes the same rate for all customer types. Two Interveners argued that these customer types should be customer classes.

The Panel disagreed with the Interveners, finding that the proposed treatment is fair and reasonable.

In addition to the above determinations, the Panel requested further clarification about the capacity cap, which includes an indeterminate charge for energy taken above the cap. The Panel also has ongoing concerns with intercompany cost allocations. FAES is a company with no

employees, and relies on FEI to provide employees and contractors for all services it provides. Further, FAES has a number of unregulated business activities in addition to the three TES projects. Accordingly, there are both inter-and intra-company cost allocation issues. The Panel has deferred any specific determination on this issue to the AES Inquiry or any subsequent Commission proceeding that reviews this matter.

## 2.0 INTRODUCTION

FAES has entered into agreements with PCI Developments Inc. (PCI) to provide thermal energy for heating, cooling and hot water generation for PCI's Marine Gateway mixed-use development (Marine Gateway, the Development). FAES will install, own, maintain and operate an on-site TES supplying the residential, commercial/retail and office components of the Project. Included in the TES is the ability to interconnect with other potential developments in the area to form a wider based District Energy System as per Vancouver's rezoning conditions.

As part of the process for seeking rezoning of the subject land, PCI was required by Vancouver to develop an energy plan that provides 70 percent of the annual space heating and domestic hot water energy requirements through renewable energy and reduces GHG emissions by 50 percent relative to business as usual.

FAES prepared a load analysis and energy demand forecast, which was then used to examine various renewable energy system options. Several studies were conducted by third parties on behalf of FAES examining various thermal energy alternatives. After an economic and environmental evaluation of these alternatives, FAES opted for a closed-loop geo-exchange system on the basis that it cost effectively met Vancouver's rezoning conditions.

The FAES Project will supply thermal energy to the following customers:

- The residential Strata Corporation (heating and hot water);
- Residential rental management company (heating and hot water);
- Office complex management company (heating, cooling and hot water);
- Commercial/retail units (heating, cooling and hot water).

The TES will include a closed-loop geo-exchange system with a loop field located on the premises serving both as a heat source and a heat sink depending upon the season and requirements of the

customers. FAES will own the loop field system along with the equipment in the Energy Centre (in-building Energy Transfer Stations (ETS), metering equipment and piping). Equipment beyond the primary meter for each building will be owned by the building owners. The Energy Centre will also contain heat pumps and gas-fired boilers to serve as a peaking supplement for the TES as well as a backup system during TES outages should they occur.

The TES is expected to become operational by the second quarter of 2015 given a start date for the Project in fourth quarter of 2012.

### 3.0 SPECIFIC ORDERS SOUGHT

The approvals sought in this Application will provide FAES with authorization to construct and operate the TES for the Project and put in place the necessary rate structures and approvals for FAES to provide thermal energy to the owners and tenants of the Development.

Specifically, FAES seeks the following approvals:

- CPCN for the construction and operation of the thermal energy system described in this Application pursuant to section 45 and 46 of the *Utilities Commission Act* (the *UCA* or the Act);
- Approval of the rates established by the Service Agreement filed with the Application and described in Section 7 Project Costs and Rate Structure herein as just and reasonable rates under sections 59-61 of the Act.

#### **4.0 REGULATORY PROCESS**

The Commission established a Written Hearing process for the review of the Application. The Regulatory Timetable (Appendix A) incorporated two rounds of Information Requests (IR) from the Commission and Registered Interveners.

Registered Interveners in this hearing were:

- the B.C. Sustainable Energy Association and the Sierra Club of British Columbia (BCSEA);
- the British Columbia Pensioners' and Seniors' Organization (BCPSO);
- the Commercial Energy Consumers Association of British Columbia (CEC); and
- British Columbia Residential Utility Consumers Association (BCRUCA).

## **5.0 REGULATORY AND POLICY FRAMEWORK**

### **5.1 Acts**

In the evaluation of this Application, the Panel is guided by the *UCA* and the *Clean Energy Act (CEA)*. The legislative framework of the *UCA* and the *CEA* can be found in Appendix A to this Decision.

### **5.2 Previous Decisions**

In addition to the legislative framework of the *UCA* and the *CEA*, a number of proceedings that preceded this hearing have raised concerns or made various directives regarding FEI's Thermal Energy Services initiatives. These hearings include:

- 2010-2011 Revenue Requirements Application
- The Thermal Energy Services Deferral Account (TESDA)
- General Terms and Conditions, Section 12A (GT&C 12A) – Alternative Energy Extensions
- FortisBC Energy Utilities 2012-2013 Revenue Requirements
- Alternative Energy Services (AES) Inquiry
- Delta School District (Delta SD, DSD) decision

The AES Inquiry is taking place concurrently and is intended to establish principles applicable to FEI's TES business. These hearings have been described in the Tsawwassen Springs decision, dated July 20, 2012, and are summarized in Appendix A to this Decision.

### **5.3 Tsawwassen Springs**

The Tsawwassen Springs Development (TS Development) TES project is the second of the TES projects brought forward to the Commission by FEI. It involves owning, operating and maintenance of four geo-exchange loop-field systems (LFS), one for each of the four phases of the residential TS Development, and charging a rate for that service.

The LFS serves only one customer, namely the residential Strata Corporation (Strata), comprised of four phases or buildings. The energy from the LFS is delivered to equipment owned and operated by the Strata. The proposed rate charged was a fixed rate for 25 years, escalated annually with the Consumer Price Index. Any variances between forecast costs and revenues were proposed to accrue in the TESDA, to be recovered ultimately by all TES customers (except the Tsawwassen Springs customer), before the shareholder would be at risk. The rate was based on a cost of service model, established under GT&C 12A. The rate was lower in the first few years, which was a result of various costs being deferred until later years to achieve a levelized rate.

The Panel had several concerns about the rate design, including the use of the TESDA as a variance account for the Project, in addition to the levelized rate. While the expenditures for purchase of the LFS were approved by the Commission, the applied for rate design and the rates were denied and the applicant was directed to apply for a rate design based on the following principles:

- Establish a separate variance account for the project with any balances in the Account to be the responsibility of the Strata. Alternatively, the Commission indicated that if the shareholder assumed all the risks and benefits of under and over recoveries, the departure from GT &C 12A would be acceptable.
- The Panel was willing to accept a levelized rate design in which FEI accepts the risks and rewards for under and over recoveries as being consistent with the intent of a firm “cost- based” 25-year contract rate. Levelized rates over a shorter period would also be accepted based on a plan showing the basis for such rates.
- A percentage of the TESDA balance needs to be allocated for the project in the event that FEI (or FAES) does not accept the risks and rewards of the Project.

Any amounts related to the cost of the provision of thermal energy to the TS Development to date were directed to be removed from the TESDA and borne by the shareholder.

As in the case of the Delta SD application, FEI was directed to assign the TS Development to a separate affiliate. FEI subsequently assigned the Project to FAES.

Regarding the economics of the Project, if the FEI (or FAES) shareholder is responsible for the economic risk, the Commission Panel approved of the 50 bps premium above the benchmark utility ROE as being justified. At the same time, the proposal to use FEI's embedded cost of debt to finance the debt portion of the capital structure was denied and instead FEI (FAES) was directed to make it consistent with the Commission's directive in the Delta SD decision and subsequent Commission Order G-71-12.

## **6.0 CPCN APPLICATION CONSIDERATIONS**

Pursuant to section 45(1) of the Act, “a person must not begin the construction or operation of a public utility plant or system, or an extension of either, without first obtaining from the commission a certificate that public convenience and necessity require or will require the construction or operation.” Sections 45 and 46 of the Act govern CPCN applications along with Guidelines issued as Appendix A to Commission Order G-50-10. The following sections discuss the CPCN application requirements.

### **6.1 Project Need**

The proposed energy system will serve the thermal energy demands of a mixed-use single site development located in Vancouver B.C. In order to receive Vancouver’s approval for rezoning and ultimately permitting to construct the Project, the developer had to meet certain policy and planning guidelines and requirements including conditions for the energy system. The Vancouver objectives included that 70 percent of the annual space heating and domestic hot water energy requirements for the Development come from renewable energy sources (excluding electricity) and that the system reduce the GHG emissions by a minimum of 50 percent relative to a “business as usual” case, defined as a mix of both natural gas and electric heating. (Exhibit B-1, Appendix Q, p. 22)

The CEC believes that FAES has demonstrated that the proposed Project can meet the needs of the PCI Marine Gateway complex. (CEC Final Submission, p. 5)

None of the Interveners challenged the need for the Project, with each of BCPSO, BCRUCA, BCSEA and CEC submitting that the Project should be granted a CPCN. (BCPSO Final Submission, p. 1; BCRUCA Final Submission, p. 2; BCSEA Final Submission, p. 1; CEC Final Submission, p. 1)

### 6.1.1 City of Vancouver Policy

In 2009, Vancouver began developing a comprehensive land use policy plan for the Cambie Corridor between 16<sup>th</sup> Avenue and the Fraser River (Cambie Corridor Planning Program). On January 22, 2010, Council adopted a set of Planning Principles for the Cambie Corridor, which included a focus on opportunities for renewable energy, district energy systems, and maximizing opportunities to reduce GHGs. On May 9, 2011, Council approved the Cambie Corridor Plan, which also requires that rezoning applications include a business case analysis to explore the viability of District Energy. (Exhibit B-1, pp. 12-13) In order to develop the site for a mixed-use development, PCI was required to file a rezoning application with Vancouver, according to the rezoning requirements of the Cambie Corridor Plan and the *Rezoning Policy for Greener Larger Sites* under the EcoDensity Charter that preceded it.

At a public hearing on July 19, 2011, PCI's rezoning application was approved by Vancouver City Council, who also included a number of requirements relating to the energy system to be used at the Development. The key conditions are that 70 percent of the annual space heating and domestic hot water energy requirements for the development would be provided through renewable energy sources, with the remaining heating energy demands to be provided by high efficiency gas boilers for peaking and back-up, and that the system shall reduce the GHG emissions by a minimum of 50 percent relative to business as usual.<sup>1</sup> (Exhibit B-1, p. 14) Other notable conditions include the requirement that:

- The energy system be designed to be capable of connecting to other future developments located in the Cambie Corridor;
- That space heating and ventilation make-up air be provided by hydronic systems without electric resistance heat or distributed heat generating equipment including gas fired make-up air heaters;

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<sup>1</sup> Business as usual as defined in the Rezoning Conditions is where residential units would otherwise be heated with electric resistance heat with natural gas combustion for heating ventilation air, common and non-residential spaces and domestic hot water, and through the use of chillers and cooling towers for any space cooling requirements.

- No heat producing fireplaces are to be installed within residential suites; and
- High efficiency gas boilers be used.

(Exhibit B-1, Appendix K, pp. 5-6)

It is noteworthy that an energy system that does not meet these conditions cannot be built at the Development. As a result, the “need” for this Project for the purposes of this CPCN Application has been defined in part by the Vancouver rezoning requirements. (FAES Final Submission, p. 6)

### **Commission Determination**

The Panel is satisfied that the geo-exchange energy system at the Development has been designed to meet Vancouver’s rezoning conditions, as evidenced by the fact that PCI received approval of its rezoning for the Development. (Exhibit B-1, p. 9)

### **6.2 Project Description**

PCI is constructing the Marine Gateway development at Cambie Street and Marine Drive in Vancouver. The Development consists of residential units in two towers (418 strata units and 46 rental units) and a 14-storey tower with retail, office, service and entertainment uses. FAES has entered into agreements with PCI to provide thermal energy for heating , cooling and domestic hot water for the Development. (Exhibit B-1, p. 1) The Project will be constructed as a single phase. (Exhibit B-1, p. 27)

A closed-loop geo-exchange system with a loop field system (LFS) located beneath the Marine Gateway site serves as the primary heat source and sink for electrically driven heat pumps. The heat pumps, located in an Energy Center will provide either hot or chilled water to closed-loop piping systems within the Development. Pumps circulate the hot or chilled water to where it is

needed and mechanical equipment in the suites transfer heat to or from the space. Domestic hot water is pre-heated using the heat pumps and then natural gas-fired boilers raise the temperature to the required temperature for distribution to the individual suites. (Exhibit B-1, p. 28-29)

Residential units receive heating and domestic hot water. Office space and Commercial Retail Units (CRU) will be provided with heating, cooling and domestic hot water; however, CRU may be required to provide their own supplemental heating of domestic hot water. (Exhibit B-1, pp. 27-28)

The system is designed to share energy between customers producing excess heat (requiring cooling) and customers requiring heat. A separate chiller package will provide heat rejection to the atmosphere during periods when heat demand and the ability of the LFS to store additional heat is limited. (Exhibit B-1, pp. 29, 32) Natural gas boilers are included to provide back-up and meet peak heat demand. (Exhibit B-1, p. 32) The integrated nature of the Marine Gateway energy system is in part demonstrated by the fact that waste heat from refrigeration energy and from the in-building cooling system provides 28 percent of total annual heating consumption. (Exhibit B-13, BCUC 2.24.1.1)

### 6.2.1 Load Analysis and Energy Demand Forecast

The annual forecast heating and cooling load for the Development is 10,330 MWh (37,188 GJ). The forecast peak heating load is 5.6 MW and the forecast peak cooling load is 3.5 MW. (Exhibit B-1, pp. 11-12) The annual energy loads for heating and cooling were based on the specific size and design of the three buildings that will be part of the Development, and the type of energy use that will occur in the buildings (i.e., residential use, office use and retail/commercial use). These forecasts were derived based on energy simulation of energy demands provided by the base building mechanical consultant. (FAES Final Submission, pp. 8-9)

FAES was asked to calculate the Energy Use Intensity<sup>2</sup> (EUI) factors by building archetype (i.e., residential, office, CRU), which it obtained by dividing the output of the energy simulation described above by the floor space as submitted in the development permit. (Exhibit B-4, BCUC 1.8.2; Exhibit B-13, BCUC 2.3.3) The resulting EUIs are as follows:

**Table 6.1 Energy Use Intensity Factors**

	Space Heat	Space Cooling	Domestic Hot Water	Total Thermal Energy
	kWh/m <sup>2</sup> /yr	kWh/m <sup>2</sup> /yr	kWh/m <sup>2</sup> /yr	kWh/m <sup>2</sup> /yr
Residential	74.1	2.4	33.8	110.3
Commercial-Retail Units	209.8	49.6	9.4	268.8
Office	17.3	29.3	8.9	55.5

(Source: Exhibit B-13, BCUC 2.3.3)

It is not unusual for EUIs to vary significantly between different building archetypes because of the inherently different energy uses in each of them. In this case, FAES explained that the EUI for the commercial-retail units is significantly higher than the other two archetypes' EUIs because the CRU space includes a grocery store, theatre and several restaurants which all require large quantities of make-up air. (Exhibit B-13, BCUC 2.3.4)

FAES is confident in the demand forecast included in the cost of service analysis for the Development. While FAES agrees that long-term system maintenance and operation, building performance and occupants' behaviour are factors that may impact actual energy use as compared to forecast energy use, FAES believes that these factors will not significantly impact the actual energy use at the Development because:

- 1) It expects the building envelop to perform to specifications;

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<sup>2</sup> EUI is a unit of measurement that describes a building's energy use. EUI represents the energy consumed by a building relative to its size or square footage and can be used to provide a benchmark to compare buildings. The average EUI is dependent on the type of building, also known as building archetype.

- 2) It will ensure the energy system performs to specifications by ensuring design-compliant installation and commissioning, and through ongoing monitoring and maintenance programs; and
- 3) The impact of occupants' behaviour (modifying summer/winter setpoints) will be minimal since the largest energy usage is associated with the make-up air quantity, which is outside the control of occupants. (Exhibit B-13, BCUC 2.3.6)

However, in what FAES describes as an 'unlikely case of extreme variations' in actual energy use as compared to the forecast energy use, FAES discusses the potential consequences of sustained higher and lower actual energy use and the steps it would take to remedy the situation. A scenario of higher demand would translate into higher use of gas and potentially higher use of electricity (and a higher ratio of variable to fixed costs). If sustained and outside of the GHG reduction benchmark, FAES would look to adding geo-exchange capacity using retrofit technology and use Renewable Natural Gas in the boilers. (Exhibit B-13, BCUC 2.3.8, BCUC 2.3.8.1) Additional capacity would most likely occur off-site, as the geothermal capacity on-site has been fully developed. (Exhibit B-8, BCSEA 1.2.5; Exhibit B-4, BCUC 1.1.1) Alternatively, if demand is much lower, the energy system would be underutilized, translating in higher rates. If sustained, FAES would look to adding offsite customers to share in the use of the energy system. As interconnection and growth of District Energy System (DES) is a City of Vancouver objective and as the system is designed to allow interconnection, FAES believes such a plan for increasing utilization to be reasonable. (Exhibit B-13, BCUC 2.3.8) At present, no information is available to determine whether connecting future developments to the project will be economically feasible. (Exhibit B-4, BCUC 1.1.1)

### **Commission Determination**

The Panel accepts the load forecast provided by FAES.

### 6.2.2 Project Alternatives

In order to meet the site re-zoning conditions, PCI was required to provide a TES Screening and Feasibility Study to Vancouver so it could assess PCI's choice of energy system for the Development

against its planning criteria and requirements. The criteria included the use of renewable energy and GHG emission reduction requirements. FAES undertook to develop a TES and provide thermal energy to the Development by engaging engineering consultants to perform various stages of Screening and Feasibility Studies as follows:

#### Feasibility Assessments:

- Technical Memo – Open-Loop Groundwater Management, December 1, 2010;
- Preliminary Feasibility – Geo-Exchange and Sewer Heat Recovery dated March 26, 2010;
- Open Loop GHX Investigation and Concept Design Update, February 11, 2011.

#### Screening Studies:

1. Screening Study dated June 28, 2010 (Screening Study);
2. 2<sup>nd</sup> Study (Memo) dated February 9, 2011 (Study #2);
3. 3<sup>rd</sup> Study (Tech Memo) dated July 13, 2011 (Study #3);
4. 4<sup>th</sup> Study (Tech Memo) dated March 21, 2012 (Study #4).

The initial Screening Study considered eight different potential system alternatives ranging from wastewater heat recovery, solar thermal, biomass, co-generation, and geo-exchange options. The initial Screening Study favoured open loop geo-exchange and wastewater energy source options based on low GHG emissions and lowest capital costs of the screened alternatives. (Exhibit B-1, p. 21) The screening criteria of low capital cost resulted in the closed-loop geo-exchange option being screened out with a unit capital cost approximately double the open-loop option at \$3,411/kW compared to \$1,291/kW. (Exhibit B-1, Appendix A, p. 5-38) In its report DEC, the consultant hired by FAES, noted that this should not necessarily preclude closed-loop geo-exchange from further analysis as closed-loop systems have benefits that may outweigh those of open-loop. (Exhibit B-1, Appendix A, p. 6-40)

Screening Study #2 considered the significant risks associated with open-loop geo-exchange and the rising capital cost estimates of this option along with other refinements in the load sharing and costing estimates and included the closed-loop geo-exchange option. Based on this study the

capital costs of the closed-loop geo-exchange option had become less than the open-loop (\$1,805/kW at \$6.011 million total for close-loop compared to \$1,845/kW or \$6.143 million for open-loop). Operating and maintenance costs were estimated to be within 5 percent for the two options and the risk assessment of the closed-loop option was considered minimal. (Exhibit B-1, Appendix F, pp. 1-2)

When asked about the large change in costs and assumptions between Study 1 and Study 2 FAES responded: “Following the Screening Study, an open-loop intrusive investigation was conducted. Flowing artesian conditions were encountered and the artesian pressure added new challenges. Several options were investigated to manage the water flow and the cost of these options added significant cost to the original estimate. In addition, due to an optimal mix of building archetypes which benefit from energy sharing, the required closed-loop field size was decreased (due to building type mix and possible transfer of energy), thereby reducing the costs from the original estimates. Hence, this resulted in decreased cost differentials between the open-loop and closed-loop options.” (Exhibit B-4, BCUC 1.11.1.1)

In the Third Screening Study, requested by FEI, DEC concluded that the sewer heat recovery option has significant capital cost savings compared to geo-exchange but that there could be challenges for connection to the Metro Vancouver sewer system. (Exhibit B-1, Appendix G, p. 14)

Based on the above screening studies, closed-loop geo-exchange and sewage heat recovery were determined to be the two preferred energy solutions. FEI in consultation with PCI chose to move forward with a concept design and Class 3 capital cost estimate for a closed-loop geo-exchange system on the basis that the selected closed loop geo-exchange system would meet the Vancouver permitting requirements at competitive cost compared to the other alternatives and with lower reliability risks associated with open loop or sewer heat recovery options. (Exhibit B-1, p. 24)

**Table 6.2 Screening Study Capital Cost Estimates**

<b>Study / Report</b>	<b>Load Basis</b>	<b>Business As Usual<sup>3</sup></b>	<b>Open Loop GSX</b>	<b>Closed Loop GSX</b>	<b>Sewage Heat Recovery</b>
<b>Study # 1<sup>4</sup> Jan 28, 2010</b>	Peak Heat 5.0 MW	\$3.765 M \$753/kW	\$5.173 M \$1,035/kW <sup>5</sup>	\$10+ M <sup>6</sup> \$2,901/kW	\$5.65 M \$1,131/kW
<b>Study # 2 Feb 9, 2011</b>	Peak Heat 3.3 MW	Not reported	\$6.143 M \$1,845/kW	\$6.011 \$1,805/kW	Not reported
<b>Study # 3 July 13, 2011</b>	Peak Heat 4.1 MW	\$5.486 M \$1,341/kW	\$6.057 M \$1,481/kW	\$6.106 M \$1,493/kW	\$4.817 M \$1,178/kW
<b>Study # 4 Mar 21, 2012</b>	Peak Heat 5.9 MW	\$5.871 M	Not reported	\$8.227 M \$1,394/kW	Not reported

(Source: Exhibit B-1, Appendices A, F, G and H)

FAES reports that the total amount spent on the screening studies was approximately \$500,000 as of March 2012 involving at least five different consultants and site investigations over two years. (Exhibit B-7, BCRUCA 1.18.2)

The CEC stated it felt the alternative review for this project was acceptable but stated the Commission may want to ask FAES to improve its alternative review process and methodology as it approaches future projects. (CEC Final Submission, p. 7)

In reply, FAES emphasized that the alternatives analysis for this Project was driven by Vancouver's requirements and submits that a different Project in a different region or municipality may be subject to different requirements that may be more or less onerous. It further submits that: "... the issue of the choice of technology for a Project (and how that technology is selected) can also be driven by the needs, interests and desires of the customer. For some Projects, the choice of technology may have already been made by a Developer before approaching the public utility, and the role of the public utility will be to implement that particular project (as opposed to engaging in

<sup>3</sup> Natural gas boilers only as confirmed in Exhibit B-4, BCUC 1.6.4.

<sup>4</sup> Exhibit B-1, Appendix A, "Study 1" Appendix A, p. 11-55.

<sup>5</sup> Value is shown as \$1,291/kW and \$1,552/kW in Table 5-11 and 5-12, p. 5-38 of Exhibit B-1, Appendix A.

<sup>6</sup> Estimate included a range of \$4.89 million to \$7.65 million for Loop field only compared to \$407,000 for open-loop.

alternatives analysis to determine the appropriate technology). FAES does not believe that a one-size fits all approach to alternatives analysis for these Projects is workable at this time given the different requirements of different municipalities, different customers, and the specifics of each different project.” (FAES Reply Submission, p. 4)

In BCSEA’s view, the evidence supports a conclusion that FAES and PCI, with involvement of the City of Vancouver, adequately evaluated all the plausible alternatives and reasonably selected the closed-loop geo-exchange approach. (BCSEA Final Submission, p. 5)

### **Commission Determination**

The Panel notes Vancouver’s acceptance that the proposed alternative meets its thermal energy system requirements for rezoning, and therefore is satisfied that reasonable alternatives were considered and that the final selection of the closed-loop geo-exchange system is reasonable.

However, the Panel is concerned with the amount of expenditure that went into screening and feasibility study work especially given the significant variation in the estimates used to determine which alternatives should be given further consideration. The fact that the closed-loop geo-exchange system was initially eliminated due to the estimated high cost and then later became the selected option is evidence of the concern in the screening studies and their limitations.

The Commission also considers that significant expenditures were incurred in investigating the open-loop geo-exchange option which was ultimately eliminated for the risk issues identified early in the screening study work. As it develops more experience in this field, FAES should be mindful of these costs in future projects in developing practices and models that help to reduce these costs and improve on the quality and reliability of the outputs from these studies. However, the Panel also recognizes that Vancouver required certain screening studies and analysis to be conducted by the developer prior to granting rezoning permits and FAES undertook these activities on behalf of the developer.

### **6.3 Adequacy of Public and First Nations Consultation**

PCI began working with Vancouver to explore planning policies and opportunities with regard to the Marine Gateway development in 2007. Vancouver conducted an extensive consultation process to determine planning policy to maximize benefits and opportunities created by the new rapid transit Canada Line, including the Marine Gateway Site. The plans presented in the development review process carried out by Vancouver included the proposed energy system and have been discussed with the public through 19 public meetings, 8 workshops, 7 group meetings, and 3 public hearings. Information describing the energy system was also presented at an open house and disclosure statements were provided by PCI to the purchasers of the residential units. Both of these were included in the appendices of the Application. (Exhibit B-1, p. 62; Exhibit B-7, BRUCA 1.16.2)

The disclosure statements provided to purchasers of the residential units state: “The Project will be serviced by a thermal energy system (the TES) to provide an efficient approach to delivering thermal energy...regulated by the BC Utilities Commission...”. In Exhibit C of the disclosure statement, PCI has also included the “Residential Strata Interim Budget for District Energy Heat and Hot Water” based on the cost of service information provided to them by FAES. (Exhibit B-1, p. 62; Exhibit B-4, BCUC 1.47.1)

As detailed in the Application, much of the public consultation in relation to this project has occurred through Vancouver’s rezoning process. FAES submits that the public consultation that has occurred with respect to this Project is sufficient and reasonable. (Exhibit B-1, p. 63; FAES Final Submission, p. 14)

Development of the Marine Gateway project and all components of the Project for which approval is sought in this Application will be constructed on private land owned by PCI or the Vancouver. (Exhibit B-1, p. 63) No First Nations issues have arisen in this Proceeding.

CEC believes FAES's public consultation efforts in respect of the Project have been adequate and sufficient. (CEC Final Submission, p. 13) No other Interveners commented on this issue.

### **Commission Panel Determination**

The Panel is satisfied that the public consultation is adequate.

#### **6.4 Alignment with Applicable Energy Objectives**

##### 6.4.1 Clean Energy Act

Section 2 of the CEA sets out British Columbia's energy objectives. These are listed in Appendix A for ease of reference. FAES states that the Project supports the following BC energy objectives:

- 2(d) To use and foster the development in British Columbia of innovative technologies that support energy conservation and efficiency and the use of clean or renewable resources. The proposed closed-loop geo-exchange system for this Project utilizes clean and renewable resources because it both extracts renewable energy from and rejects heat to the earth as a source of heating and cooling. (Exhibit B-1, p. 64)
- 2(g) To reduce BC greenhouse gas emissions  
The closed-loop geo-exchange system will reduce GHG emissions by approximately 60 percent relative to the "business as usual" case as shown by Table 3-10 at page 25 of the Application. (Exhibit B-1, p. 64)
- 2(i) To encourage communities to reduce greenhouse gas emissions and use energy efficiently.  
The Marine Gateway Project is directly supportive of this energy objective and assists the City of Vancouver in its pursuit of energy efficiency and GHG emission reductions. (Exhibit B-4, BCUC 1.49.2)
- 2(j) To reduce waste by encouraging the use of waste heat, biogas and biomass.  
FAES stated that waste heat from refrigeration energy and from the in-building cooling system helps meet BC Energy Objective (j). As described in Table 3-9 on page 29 of the Application, waste heat from these two sources provides 28 percent of total consumption. (Exhibit B-13, BCUC 2.24.1.1)

BCSEA concurs that this Project furthers the four aforementioned B.C. energy objectives. (BCSEA Final Submission, p. 4)

### **Commission Determination**

The Panel finds that the Project is generally consistent with the objectives of the CEA. The Panel acknowledges that the Development has been designed to be energy efficient, in the sense that the optimal mix of building types in the Development allows for waste heat recovery and energy sharing between customer types, resulting in a more efficient and smaller required loop field system, the heating system utilizes mixed use (heat recovery) with efficient heat pumps.

## 7.0 PROJECT COSTS AND RATE STRUCTURE

### 7.1 Capital Costs

FAES provides an AACE Class 3 total capital cost estimate for the project of \$9.2 million before AFUDC and excluding sustainment capital (estimated at \$2.5 million). This estimate includes development costs of \$0.68 million for engineering and studies to date, the AACE Class 3 estimate of \$8.23 million prepared by DEC Design Mechanical Consultants Ltd., and \$250,000 for metering estimated by FAES. (Exhibit B-1, Tab 5, p. 41)

FAES has also assumed a construction contingency of 25% of the direct capital. This is based on the AACE International Recommended Practice No. 18R-97: "Expected Accuracy Range: Typical accuracy ranges for Class 3 estimates are -10% to -20% on the low side, and +10% to + 30% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination..." (Exhibit B-1, Tab 4, p. 39)

FAES indicated they used additional sources to estimate the PCI Energy Centre capital costs:

- Supplier pricing for all major equipment;
- 2011 RS Means Mechanical Cost Data for all minor equipment; and
- FAES for metering costs.

(Exhibit B-1, Tab 5, pp. 41-42)

The estimate by DEC was prepared by an Engineer in Training and reviewed by a Professional Engineer. (Exhibit B-1, Appendix H, p. 15) The cost estimate includes a contingency of \$1.128 million or 25 percent of the equipment total of \$4.512 million. (Exhibit B-1, Tab 4, Table 5-1, p. 43) The capital cost estimate includes \$30,000 for a valve chamber at the property line that would enable future connection to a larger 'district' energy system though no plans exist to use this connection at the present time. (Exhibit B-6, CEC 1.1.1)

Sustaining capital is forecast to be \$2.5 million in current year dollar terms over the 20-year contract term. This represents an annual sustaining capital addition beginning in year 6 forecast at 1.5 percent of the opening gross plant in service balance or just over 3 percent of the installed capital of approximately \$4.0 million for equipment such as pumps, heat pumps, valves and controls that would be expected to require replacement over the 20-year period.

### **Commission Determination**

**The Panel approves a CPCN expenditure of \$8.1 million subject to the AACE Class 3 estimate accuracy range. The Panel also approves the sustaining capital estimate.**

The Panel finds the costs of the Project, excluding the 25 percent contingency funds of \$1.128 million, to be reasonable. Cost estimates from suppliers and estimators normally include contingency funds. As this estimate was made using AACE Class 3 estimates, it includes an expected accuracy range percent excluding major changes in scope, extraordinary events, management reserves and escalation and currency effects. The evidence does not support an additional contingency factor to the estimate of the magnitude used by FAES. **As a result, the Panel finds the 25 percent contingency is excessive. However the Panel is prepared to accept a contingency of 15 percent.**

The Panel also finds the forecast sustainment capital estimate of \$2.5 million is reasonable. With respect to the \$30,000 expenditure for the valve chamber for potential interconnection to a future district energy system, the Panel notes that this is a relatively small amount and is required as part of the Vancouver Development Permitting process. Accordingly, this expenditure is approved.

#### 7.1.1 AFUDC

FAES indicates that the revenue requirement includes AFUDC estimated at \$305,000, calculated at 6.66 percent of the estimated capital over the Project's Implementation Schedule. The AFUDC rate

applied is based on the FAES capital structure and includes an equity return of 4.00% (10% ROE x 40% Equity Ratio) and an After-tax Debt return of 2.66% [5.91% Cost of Debt x 60% Debt Ratio x (1-25% tax rate)]. (ExhibitB-1, p. 48)

### **Commission Determination**

**The Panel does not approve the AFUDC estimate as calculated.** Later in this Decision, the Panel makes determinations on the cost of debt and the ROE. FAES is directed to recalculate the AFUDC rate based on the revised cost of debt of 5.37 percent and the revised ROE to arrive at the new estimate.

#### **7.2 Cost of Service Model**

The Commission has previously granted approval to FEI for the use of GT&C 12A for the provision of thermal energy services. GT&C 12A is based on a cost of service model that determines the rate a customer will pay for the service associated with the alternative energy extension. In this Application, FAES states: “Prior to the issue of the DSD Decision, it was contemplated that FEI would be the proponent in this Application, and for that reason, the rates were discussed on the basis of the requirements of GT&C 12A. As set out above, as a result of the DSD Decision, FAES is the proponent for the Project and FAES will enter into agreements with PCI. As the agreements were negotiated to comply with GT&C 12A, should the AES Inquiry result in a determination that FEI can provide thermal energy services as a separate class of service (i.e., FEI’s preferred model in the AES Inquiry), then an assignment of the agreements back to FEI will not raise any issues with respect to compliance with GT&C 12A, as they comply with these general terms and conditions.” (Exhibit B-1, p. 50)

FAES stated that it has not conducted a study to assess rate design methodologies used for all thermal energy systems throughout North America, and therefore is unable to provide examples of where the regulated cost of service rate methodology is employed elsewhere in North America, for thermal energy systems of this scale and type. FAES submits that it is not aware of any other

thermal energy projects of this nature which have a regulatory asset base outside of BC, because other jurisdictions in Canada do not regulate thermal energy services. Furthermore, FAES notes that, in the absence of regulation, suppliers and customers are free to negotiate thermal rates in the manner they see fit. (Exhibit B-13, BCUC 2.9.2.4; BCUC 2.9.4; BCUC 2.9.5)

FAES deferred further discussion of the merits of other rate-setting methodologies to the AES Inquiry, but commented that cost-of service rates can co-exist with alternative rate designs, arguing that each approach offers a different value proposition for customers, which they should be free to choose between. In light of the support expressed by PCI for the proposed rate model, FAES does not believe there is a compelling reason to consider these broader issues. FAES submits that the evidence *in this proceeding* establishes that cost of service rates are appropriate *for this project* and should be approved. (FAES Final Submission, pp. 17-18, emphasis in the original; Exhibit B-13, BCUC 2.12.2-3)

The Proceeding explored whether the traditional annual cost of service revenue requirements rate setting mechanism encourages improved efficiency and cost-reduction, relative to other rate-setting mechanisms, which are used for thermal systems elsewhere in the world. FAES submitted that the motivation to improve efficiency and reduce costs is found within the *UCA* itself in section 60(1)(b)(iii), which provides that in setting rates, the Commission is directed to “encourage public utilities to increase efficiency, reduce costs and enhance performance.” FAES submits that the process of annual review and Commission scrutiny will motivate FAES to “ensure that its forecast cost of service results in just and reasonable rates, which includes a consideration of whether FAES is making efforts to improve efficiency, reduce costs, and enhance performance when feasible to do so.” (Exhibit B-13, BCUC 2.12.1; BCUC 2.10.1)

FAES has developed the cost of service based rate with the agreement of PCI, who has also provided a letter of support. (Exhibit B-1, p. 50) PCI provides three reasons for its support of the public utility service to be provided by FAES, including the cost of service rate. The reasons cited include: working closely with FAES to select a technical solution that best balances the costs, risks

and benefits within the rezoning requirements; ongoing oversight of service levels and rates; and providing a solution which manages the capital cost impact of the selected thermal energy option. (Exhibit B-1, Appendix Z; Exhibit B-13, BCUC 2.9.1) FAES did not discuss any alternative rate models with PCI, and believes that the annually reviewed cost of service rate is appropriate. (Exhibit B-4, BCUC 1.26.2)

FAES believes the annual rate review process is preferable to allow the flow through of cost of service changes, particularly changes in commodity costs, as opposed to a fixed rate. FAES does not provide a comparison to a formula-based rate, which would allow the pass through of “uncontrollable” costs such as fuel costs, “changes in the Commission approved ROE, tax rates, and accounting policies” with minimal scrutiny, while limiting the ability to pass on increases in “controllable” operational costs. (Exhibit B-4, BCUC 1.26.1) The other benefit of an annual rate review process cited by FAES includes the ability to flow through annual changes in demand.

“Although FAES is confident in the demand forecast included in the PCI cost of service analysis, the actual demand may vary from the current forecast as the development matures. As such, FAES considered the annual rate setting process to be an appropriate mechanism to pass on impacts to the thermal energy rate for changes in demand over time.” (Exhibit B-4, BCUC 1.26.1)

### **Commission Determination**

While FAES is not bound by the terms of GT&C 12A, FAES submits that the Project has been developed to comply with its terms, to avoid any future compliance issues in the event of the assignment of the agreements back to FEI. Accordingly, the Panel accepts the use by FAES of GT&C 12A for this Project.

The Panel notes that there is mutual agreement between FAES and the developer on the cost of service approach. While FAES and PCI may both agree on the rate and chosen rate setting methodology, this does not imply that it is best from the customer’s perspective or the only form of regulation possible. However, the Panel agrees that this Proceeding is not the appropriate forum

for resolving this issue. The Panel encourages FAES and other thermal energy services providers to consider other rate setting mechanisms, other than the traditional cost of service rate model, in future applications, particularly in light of the need to reduce regulatory oversight and encourage operational efficiency and minimize costs.

### **7.3 Rate Design**

#### 7.3.1 Rate Smoothing

FAES will provide thermal energy service to the four types of customers under separate Service Agreements and will charge them the same per kWh rate, based on the cost of service inputs that are subsequently discussed in Section 7.4 of this Decision.

FAES proposes to fix the rates for the first three years of the Project (2015-2017) at a level mutually agreed upon by PCI and FAES to ensure the competitiveness of the thermal energy rates. (Exhibit B-1, p. 57) FAES developed these rates based on the recent guidance from Commission Order G-2-12, which approved the rates for River District Energy. (Exhibit B-1, p. 57) In that decision, the Commission approved using a benchmark to establish the rates, based on BC Hydro residential electricity rates at 50 percent Tier 1 and 50 percent Tier 2, plus a premium of up to 10 percent above that electricity benchmark to recognize the additional intangible benefits that district energy can provide to consumers. (Exhibit B-4, BCUC 1.43.1)

Aiming to follow this methodology, FAES first estimated the British Columbia Hydro and Power Authority (BC Hydro) electricity benchmark for 2012 and then forecasted the residential electricity tariffs for the years 2013 to 2017, using a number of assumptions regarding rate increases and the BC Hydro Deferral Account Rate Rider (DARR). As a result, the rates proposed by FAES for the first three years of this Project actually correspond to FAES' rate forecasts for BC Hydro for 2015-2017.

They are:

- \$0.109/kWh for 2015
- \$0.115/kWh for 2016

- \$0.120/kWh for 2017  
(Exhibit B-1, p. 58)

Through the IR process, a number of errors in the underlying assumptions to derive the BC Hydro rate forecasts were uncovered and corrected. (Exhibit B-4, BCUC 1.43.2; BCUC 1.43.4; Exhibit B-13, BCUC 2.22.5.1) The corrected method to calculate the BC Hydro electricity benchmark for F2013 to F2018,<sup>7</sup> plus the 10 percent premium is found in the Table in BCUC 2.22.5.1 and copied below as Table 7.1 for ease of reference. In that Table, FAES used the Commission-approved rate increase of 1.44 percent for F2014 and a DARR set at 5 percent for F2013 and F2014 (Commission Order G-77-12) and then assumed BC Hydro rates would increase annually by 5 percent. The DARR has been assumed to remain at 5 percent for the remaining years.

**Table 7.1 Methodology used by FAES to Calculate rates in the First Three Years**

BCH Fiscal Year	F2013 (\$/kWh)	F2014 (\$/kWh)	F2015 (\$/kWh)	F2016 (\$/kWh)	F2017 (\$/kWh)	F2018 (\$/kWh)	FAES Comments
BCH Fiscal Year	April 1 2012 to March 31, 2013	April 1 2013 to March 31, 2014	April 1 2014 to March 31, 2015	April 1 2015 to March 31, 2016	April 1 2016 to March 31, 2017	April 1 2012 to March 31, 2013	FAES added for clarifications
PCI Service Agreement Rates				Used as First Year Rate	Used as Second Year Rate	Used as Third Year Rate	FAES added for clarifications
a BCH Electric Tariff Forecast (50% Step 1 and 50% Step 2) (line a * BCH Rate Escalation line b)	\$0.085	\$0.086	\$0.091	\$0.095	\$0.100	\$0.105	FAES updated
b BCH Rate Escalation Based on Order G-77-12 until F2014	-	1.44%	5.00%	5.00%	5.00%	5.00%	FAES corrected percentage based on new format
c Rate Rider @ 5% for all years	\$0.004	\$0.004	\$0.005	\$0.005	\$0.005	\$0.005	FAES corrected calculations for DARR
d Rate forecast including DARR (line a + line c)	\$0.089	\$0.091	\$0.095	\$0.100	\$0.105	\$0.110	formula
e 10% premium (line d * 0.10)	\$0.009	\$0.009	\$0.010	\$0.010	\$0.010	\$0.011	formula
f Energy Rate for Marine Gateway (line d + line e)	\$0.098	\$0.100	\$0.105	\$0.110	\$0.115	\$0.121	formula
g Table 6-7 in Application	\$0.093	\$0.099	\$0.104	\$0.109	\$0.115	\$0.120	same as Application
h Variances	-5.56%	-0.59%	-0.55%	-0.73%	-0.25%	-0.88%	formula

(Source: Exhibit B-13, BCUC 2.22.5.1)

<sup>7</sup> FAES confirmed that “2012 rates” refers to rates as of April 1, 2012, which corresponds to BC Hydro’s F2013. Thus, F2013 to F2018 rates in table 7.1 above correspond to 2012 to 2017 rates in the Application. (Exhibit B-4, 1.43.3)

Had FAES used the correct method and assumptions in the Application, the proposed energy rates for Marine Gateway in the first three years of the Project would have been those of line *f* in the last three columns of the table above. These rates are slightly different than proposed in Table 6-7 of the Application, which are highlighted in yellow in the table above. FAES submits that since the variances (between the rates provided in the application in line *g* and those provided in line *f*) in the first three years of the Project (i.e., last three columns of the table) are all less than 1 percent (from -0.88 to -0.25 percent), the rates initially proposed remain reasonable. FAES also emphasizes that these rates have been negotiated with PCI. (Exhibit B-13, BCUC 2.22.7) Ultimately, FAES explains that following this benchmarking methodology does not mean that electricity is the comparable “business as usual” for this service (Vancouver defined the BAU case for this Project) or that the 2015-2017 proposed rates should adjust precisely with electricity rates in those years; it only meant to provide a reasonable level of rates for the first three years, that will provide the rate stability and predictability that is desired, at rates that are reasonably comparable to other thermal energy rates recently approved, such as River District. (Exhibit B-13, BCUC 2.22.6)

In the fourth year, FAES states that the rate will transition to a cost of service rate but will also include a “rate smoothing” mechanism, which is an allocation or amortization of the deferral account balance to provide manageable rates for the customer. (Exhibit B-4, BCUC 1.29.1; BCUC 1.29.2) The proposed deferral account is specific to this Project and is designed to capture the difference between the rates charged and the cost of service. (Exhibit B-1, p. 51) The forecasted rates that FAES would charge from year 4 onwards are shown in the table below:

**Table 7.2 Cost of Service (After Smoothing) Rates**

<u>Cost of Service (after smoothing)</u>																	
Year	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Rate \$/kWh	0.126	0.131	0.137	0.142	0.147	0.152	0.156	0.16	0.164	0.168	0.172	0.176	0.18	0.184	0.187	0.191	0.193

(Source: Exhibit B-13, Attachment 39.2, updated Schedule 12, Cost of Service (After Smoothing) Rates \$/kWh)

FAES indicates the “rate smoothing” mechanism is to benefit customers and to ensure they receive predictable and stable rates in the first few years, but ultimately, the rates are Cost of Service rates. (Exhibit B-4, BCUC 1.29.3)

FAES’ proposal for the “rate smoothing” mechanism results in charging rates that are somewhat less than the cost of service initially and then rates that are slightly higher than cost of service in the latter years. FAES describes “the smoothing effect to refer to the allocation or amortization of the deferral account balance to provide manageable rates for the customer. This is to ensure that customers will not experience undue rate volatility.” (Exhibit B-4, BCUC 1.29.1, BCUC 1.29.3)

The CEC and BCSEA generally support the rate design and rates. The CEC believe that the proposed rates design at this stage would appear to be fair to the customers and submits that the Commission should approve the proposed rates as fair, just and reasonable and not unduly discriminatory. (CEC Final Submission, p. 14)

The BCSEA takes the position that the proposed rate design is just and reasonable and not unduly discriminatory. In particular, the BCSEA considers that the use of a negotiated fixed rate for the first three years is not unreasonable for the Marine Gateway TES. It is understood that the effect is to lower the initial cost of energy for unit purchasers to make it more comparable to the cost of energy in a BAU alternative, given the fact that the TES is more capital intensive than BAU. (BCSEA Final Submission, pp. 6-7)

The BCRUCA and the BCPSO have made submissions on other aspects of the proposed rate design which are addressed elsewhere in this Decision.

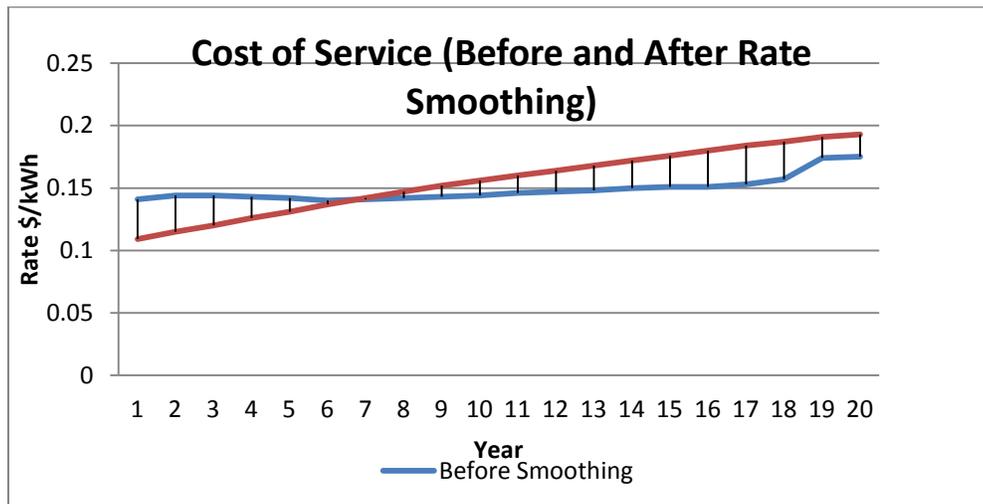
### **Commission Determination**

**The Panel does not approve the rate smoothing approach proposed by FAES.**

FAES’s justification of its proposed rate smoothing mechanism is based on a need for “predictability

and stability” in the first three years. However, the rate smoothing mechanism proposed is not the only way to achieve that end. In that regard, the Panel notes that the rate before smoothing is also relatively stable, and if a test period of, say, three years is selected, would also be predictable. For illustrative purposes, a graph of the proposed cost of service rates (after smoothing) versus cost of service rates (before smoothing) is shown below:

**Graph 7.1**



(Source: Exhibit B-4, Attachment 1.39.2, Schedule 12)

The Panel is of the view that the term cost of service in GT&C 12A should be interpreted as it is normally used in rate regulation matters. A cost of service based rate is designed to recover all the forecast costs of service within a specified test period. While there are instances where it may be justifiable to defer the recovery of an expense to a subsequent period, such a deferral must be just, fair and reasonable to ratepayers. It appears to the Panel that some of the actual costs of the project in the first few years are being shifted onto future ratepayers in part to “ensure the competitiveness of the thermal energy rates.” However, the Panel finds there is not sufficient evidence to determine to what degree a rate that is not smoothed would or wouldn’t be competitive. In this regard the Panel notes that the residential project is fully subscribed, and there is no evidence on how the cost of energy affects the saleability or rentability of any of the remaining units. In addition, the Panel is not persuaded that there is sufficient evidence to show

that deferring costs to a future period in order to provide a competitive rate, is just, fair and reasonable, as required by the *UCA*.

Accordingly, the Panel finds that the rate smoothing as proposed is not appropriate for this project. If FAES wants to provide rate predictability and stability for the first three years, the Panel suggests that FAES select a three year test period upon which to base its cost of service rate. Therefore, **FAES is directed to select a test period and recalculate the rate to reflect the cost of service for that test period. The Panel further directs that the revised rate be filed with the Commission no later than 120 days prior to the in-service date of the Project.**

### 7.3.2 The Project Deferral Account

The rate has been developed using traditional annual cost of service rate regulation. Subject to BCUC approval, FAES will be providing a forecast of the revenue requirement to the Commission for review and approval of the rates each year after the initial three-year period. (Exhibit B-1, pp. 56-57) FAES has requested approval for the project specific Marine Gateway Deferral Account to capture variances between the actual cost of service and revenues from rates charged for future refund to or recovery from Marine Gateway customers. The proposed Project Deferral Account provides a mechanism to “true-up” actual costs. (Exhibit B-1, p. 59) The list of cost of service items to be “trued up to actual” includes both controllable (O&M) and uncontrollable items (such as fuel costs and property taxes). (Exhibit B-7, BCRUCA 1.15.1) The proposed Marine Gateway Deferral Account is fully separate from the TESDA, and will be segregated from other FAES project deferral accounts. The TESDA currently resides with FEI, and the Project Deferral Account will be a stand-alone deferral account within FAES pending the outcome of the AES Inquiry. (Exhibit B-4, BCUC 1.35.4; BCUC 1.37.4)

BCSEA submits that the use of a cost of service rate, including recovery of the Marine Gateway Deferral Account and a share of recoveries from the TESDA, is appropriate to ensure recovery of the full costs of the Marine Gateway TES from FAES’s Marine Gateway TES customers. (BCSEA Final Submission, p. 7)

## **Commission Determination**

**The Panel finds that the proposed project deferral account is not fair, just and reasonable.**

**Accordingly the Marine Gateway Deferral Account is not approved.**

The Project Deferral Account serves two purposes. One is to record under-recoveries during the first few years, when the rate has been set below the rate necessary to recover all of the costs. The Panel has previously denied this approach.

The second purpose is to accumulate any variances in expenses or revenues relative to the forecasted expenses and revenues. Any balances in the variance account would be carried forward to future periods. FAES states that it intends to come forward with a “revenue requirements” application every year, thereby allowing opportunities to “true-up” the variance account. FAES also states the purpose of this is to provide rates with less variance.

With regard to this second usage of the variance account, the Panel has previously found that the term Cost of Service in GT&C 12A should be interpreted within the usual meaning of that term. Under Cost of Service regulation, a utility is provided with the opportunity to recover its forecast costs, but not necessarily its actual costs. With a deferral account to record all variances, there is little or no incentive for the utility to control costs or improve efficiencies. Any cost overruns will be recovered in due course from the customers.

There may be instances where there is a justification to record some costs in a deferral account. For example, it may be appropriate for a deferral account to recover fluctuations in flow-through costs, such as commodity costs. However, the Panel finds no evidence that the proposed deferral account is justified on any such exceptional grounds.

**The Panel accepts FAES’ proposal to apply to the Commission to review revenue requirements annually, after the first three years of operation, or other such test period as proposed by FAES.**

However, it notes that it would also be acceptable to select longer test periods – for example two, or even three years. Doing so could reduce costs and increase regulatory efficiency and the Panel encourages FAES to consider this.

### 7.3.3 Separate Customer Classes

FAES identifies four types of customers served by this Project (residential strata, residential rental, office space and commercial retail units) and proposes to charge the same rate to all customer types. The BCRUCA and BCPSO both submit that providing a single rate for all customer types is not just and reasonable. BCRUCA believe that the residential customers are unduly burdened with, at minimum, the costs related to the cooling system because they do not have access to cooling feature of the system. In support of its argument, BCRUCA cites section 60(1)(c) of the *UCA* which identifies the segregation of and setting rates for each distinct classes of service. (BCRUCA Final Submission, pp. 2-3)

For its part, BCSEA submits that a single rate for the Marine Gateway TES is appropriate. To determine separate rate for separate classes of customers – such as residential and commercial – would require a fully allocated cost of service study (FACOS). In BCSEA's view, that would be impractical because it would be expensive and, in any event, there is no operational data to examine yet. In BCSEA's view, the cost of providing heat energy to residential customers is reduced in part by the recovery of waste heat from the cooling service provided to other customers. Therefore, it is not clear whether or to what extent the existence of the cooling function within the TES class would favour residential customers compared to commercial customers in terms of the cost of service. (BCSEA, Final Submission, p. 7)

Along the same lines, the CEC believes that the proposed project is quite integrated in its use of energy sources including integration with customer sources. This would make cost allocation approaches for the rate setting quite challenging. Therefore, the CEC is prepared to accept the rate designs and their simplicity over more complicated designs at this time and is prepared to reserve

such further consideration until such time as more experience has developed and more sophisticated analysis and design may prove to be useful in providing additional fairness in the rates, if such can in fact be done. (CEC Final Submission, pp. 13-14)

FAES states that in an integrated thermal energy system that provides both heating and cooling by balancing load characteristics, such as that proposed in this Application, both heating and heating/cooling customers contribute to the overall efficiency of the system and hence the rates that are produced. Therefore, FAES believes that a single rate for thermal energy is an efficient and equitable rate design for the service. (Exhibit B-4, BCUC 1.19.3, BCUC 1.19.4)

FAES submits that section 60(1)(c)(ii) applies to different classes of service, and not to different customer types within a class of service and that the different customer types at the Development will all fall within a single class of service (i.e. thermal energy service). Accordingly, section 60(1)(c)(ii) does not apply. (Fortis Reply Submission, p. 5)

FAES also submits that customers that require only heating (in this case residential customers) will generally have lower load factors. All things being equal (such as capital, O&M, and fuel consumptions), residential customers who have lower load factors than office or CRU customers should have higher rates. FAES further submits that the integrated energy system results in lower rates because the system is more efficient than a non-integrated system as it reduces the size and cost of certain equipment. (FAES Final Submission, pp. 19-20; FAES Reply Submission pp. 5-6)

Further, FAES confirmed that it has not developed a set of revenue-to-cost ratios by customer type either, as it would require actual costs and demand history to perform this type of analysis. As Marine Gateway is a new development, this type of data is not available. (Exhibit B-4, BCUC 1.19.4)

FAES also stated that given the simplicity, equitability and administrative efficiency single thermal energy rate proposed, the administrative cost and complexity of performing a detailed cost of

service allocation study is not warranted. (Exhibit B-4, BCUC 1.19.3) Furthermore, FAES confirmed that there is no explicit charge to the residential customers for the waste heat capture. (Exhibit B-13, BCUC 2.4.1)

### **Commission Determination**

**The Panel is not persuaded there is sufficient justification for separate customer classes.** In making this determination, the Panel acknowledges that residential customers benefit from the integrated nature of the system that enables the use of waste heat from commercial customers (from refrigerated cases, coolers, or computer servers) at no explicit charge. In addition, residential customers benefit from a lower delivery charge for natural gas that supplies the peaking boilers as the amount of energy used by the Development will be large enough to allow it to be a Schedule 3 Large Customer of FEI.

While the Panel acknowledges the support of this proposal from the BCSEA and the CEC, the Panel also finds there is no clear evidence that the rates charged to residential customers are unfair or unjust. Further, the Panel accepts FAES's contention that a cost allocation study would be expensive, and would not resolve the issue of measurement and valuation of the waste heat.

#### 7.3.4 Fully Variable Rate

FAES proposes to charge a single, fully variable \$ per kWh rate to each of the four types of customers at the Development. (FAES Final Submission, p. 16) FAES argues that the fully variable rate is appropriate as it will:

- (a) enable customers to easily identify their effective costs of thermal energy;
- (b) provides a conservation incentive for customers to limit their energy consumption; and
- (c) a 100% variable rate is an administratively efficient, easily communicated and equitable method of allocating costs between customers.

(FAES Final Submission, p. 18; Exhibit B-4, BCUC IR 1.31.1)

In response to concerns in the proceeding about the risk of annual demand changes, and the relative merits of a rate with both fixed and variable components, FAES argues that a rate with a fixed component provides only a small and not material benefit from a rate stability and predictability perspective, or from a revenue stabilization perspective. Over the life of the project the ratio of variable to fixed costs is estimated to be 1:2. (FAES Final Submission, p. 13; Exhibit B-13, BCUC 2.13.4)

FAES confirms that the fully variable rate will have more revenue variance from year to year than a rate with some proportion of fixed charge. However it notes the use of the Marine Gateway Deferral Account to collect variances and amortize the balance to smooth rates, thus tempering the impact on customers of revenue variability. (FAES Final Submission, p. 13; Exhibit B-13, BCUC 2.10.2; BCUC 2.13.5)

FAES acknowledges that fully variable rates will not always be the most appropriate solution, and cites the example of a mature utility with multiple rate classes, where a fixed/variable rate design can be used to create incentives for customers to self-select into the proper rate class. FAES believes introducing a fixed component to the rate can weaken the incentive for customers in this Project to conserve as well as for the operator to forecast accurately. FAES submits that a fixed/variable rate would not send appropriate energy efficiency or demand side management price signals for the customer. (FAES Final Submission, p. 18; Exhibit B-13, BCUC 2.10.2; Exhibit B-13, BCUC 2.13.1; Exhibit B-13, BCUC 2.13.4)

FAES believes the variable rate design in this Project is appropriate as there is only one class of service, with a single variable rate that is always above the avoidable costs of providing service, thus preventing any undue price discrimination potential between customers. Under the current rate design with a single rate, a fixed/variable rate design levied on all users, large or small, "... has the potential to adversely affect small users if their usage characteristics are not in line with others in (the) rate class or group." (Exhibit B-13, BCUC 2.13.5) FAES concludes that for the Marine

Gateway service, where there is only going to be a single rate charged to all customers, there is no compelling rationale for a fixed/variable rate design. (FAES Final Submission, p. 18)

In further support of the 100 percent variable rate, FAES submits that the variable rate structure was approved for the Delta SD and is the rate format that FAES is utilizing for TES projects at this time. (Exhibit B-4, BCUC 1.31.1) In contrast, River District, Dockside and Corix UniverCity employ a tariff that combines a fixed and variable component. (Exhibit B-4, BCUC 1.41.2) For this aspect of the risk assessment, FAES describes the project as higher risk than the other thermal projects employing fixed and variable rates, as “fully variable means revenues (are) dependent on sales.” (Exhibit B-4, BCUC 1.41.4)

BCSEA agree with FAES that a fully variable rate enhances the energy conservation price signals to consumers, allocates costs fairly, and is administratively efficient. (BCSEA Final Submission, p. 6)

The CEC believes that the rate design being a variable cost to the customer will be effective in ensuring cost efficient use. (CEC Final Submission, pp. 14-15)

### **Commission Determination**

In the context of the highly energy efficient nature of this Project, the Panel is not convinced of the need to “over-signal” or incent further conservation, beyond what would be provided by the variable portion of a rate with a fixed component. The Panel does not accept the energy conservation argument as a compelling rationale for using fully variable rates in the Marine Gateway project. Further, the Panel notes that in the absence of the Project Deferral Account, the fully variable rate will have more revenue variance than it would otherwise have had.

While a fully variable rate was approved for the Delta SD project, the approval was in the context of a single customer, and in the absence of any concerns about cross-subsidization or fairness between customers with different usage or demand characteristics. In contrast, the Marine Gateway project includes different customers, of different types.

However, the Commission agrees that given the scale of the project and its integrated nature, in the absence of multiple rate classes and, assuming a single rate, a fixed charge component has the potential to adversely affect small users if their usage characteristics are not in line with others in their rate class or group. **Given the nature of the Project, the lack of current consumption data and difficulty with determining a fair fixed component which would not unfairly discriminate between customers, the Panel accepts the current use of fully variable rates as just and reasonable.**

#### **7.4 Cost of Service Calculation**

The rates from this Project are designed to recover the cost of service from the customers who will receive the service. (FAES Final Submission, p. 12) FAES has included the following cost of service inputs into its calculation of the rates: depreciation and negative salvage/removal expenses, O&M and overhead (including capitalized overhead), cost of natural gas and electricity, cost of debt and ROE, and taxes. FAES proposes to provide a forecast of the revenue requirement to the Commission for review and approval of the rates each year. (Exhibit B-1, pp. 50-57)

Each of these cost-of-service items is discussed in the following sections.

##### 7.4.1 Cost of Natural Gas and Electricity

FAES indicates that electricity will be used to operate heat pumps and pumps that circulate fluid throughout the buildings. Natural gas will be used to add heat energy to the building fluid loop or for heating domestic hot water. FAES is treating the natural gas and electricity costs as direct flow-throughs to the Rate in the 20-year analysis. The forecast for natural gas is based on the commodity price forecasts published by the GLJ Petroleum Consultants and electricity forecast is based on the F2012 – F2014 BC Hydro Revenue Requirements. FAES proposes that the difference between the forecast costs and the actual costs incurred will be recorded in the project deferral account and be recovered in subsequent years. (Exhibit B-1, pp. 54-55)

The Delta SD decision identified a need for FEI to investigate the appropriateness of the rate classification of thermal project gas customers, which in the case of geo-exchange systems are low load factor natural gas customers. FEI submitted that in the absence of thermal customers with sufficient operating experience, it is not yet possible to address the load factor variations of thermal projects through rate design. The Commission encouraged FEI to address these issues in a more suitable forum in the near future, noting that if a super-peaking rate reflecting the fully allocated cost of service for low load factor natural gas customers were to be implemented in the future, it could unfavourably affect the future rate charged to Delta SD. (Delta SD Decision, p. 51)

### **Commission Determination**

The Panel has reviewed the proposed natural gas and electricity costs for this Project and is satisfied that flowing these costs through to the customer is just and reasonable.

As FAES is a customer of FEI's for natural gas purposes, the Panel notes that should FEI decide in a future rate design proceeding that there is merit in developing a separate rate class for thermal projects of this nature, which use natural gas primarily for peaking and backup, this could increase the cost of natural gas to the Marine Gateway Project.

#### 7.4.2 Operating and Maintenance Costs

FAES confirms that the cost of service each year will include the actual O&M expenses that have been incurred in that year. (Exhibit B-1, Tab 6, p.53) For forecasting purposes FAES has included an estimate of \$102 thousand per year (escalated at 2 percent over the 20 years for inflation) to cover materials and labour costs to cover routine maintenance and minor repairs (major repairs and replacement included in sustainment capital). O&M expenses reported do not include cost of energy inputs for electricity or gas. This estimate was provided with the Class 3 estimate by DEC and represents approximately three percent of the installed capital of approximately \$4.0 million that would require maintenance.

FAES has also capitalized 14 percent of the ongoing operating and maintenance costs to align with the direction provided in Commission Order G-31-12 in the Delta School District project. However, FAES believes that capitalized overhead should only relate to O&M incurred in the course of constructing an asset and is therefore not relevant after the original construction of the assets is complete. (Exhibit B-1, p. 54)

### **Commission Determination**

The Commission accepts these O&M costs as reasonable.

#### **7.4.2.1 TESDA Recovery**

The cost of service for the Project includes an amount for recovery of overhead, which in turn includes an annual amount for TESDA recovery. (FAES Final Submission, p. 23) FAES also include a forecast amount of \$51 thousand per year escalated at inflation to cover ongoing overhead costs related to managing the service contract including billing, customer support and recovery of some share of the TESDA. FAES stated that FEI will track and charge to FAES all such overhead costs and variance between the forecast and actual amounts to be recovered or credited to customers in subsequent years. (Exhibit B-1, Tab 6, p. 54)

An overhead amount of \$35, 865 annually (as included in the total estimated overhead costs of \$51,000) is an estimated contribution by the Project towards the corporate overheads, TESDA and other miscellaneous costs. Although FAES does not have a precise breakdown of these estimated costs between the three elements, FAES expects that the majority of this amount will be related to TESDA recovery. (Exhibit B-4, BCUC 1.37.1) FAES has confirmed that this estimated annual amount is a placeholder and can be adjusted subject to BCUC approval from time to time. (Exhibit B-13, BCUC 2.18.1) The results of any changes due to the upcoming application by FEI to resolve the allocation of the TESDA balance to TES projects will therefore be reflected in the future cost of service of the Project. (FAES Final Submission, pp. 11, 24-25; Exhibit B-13, BCUC 2.17.1; 2.18.1)

Recovery of a portion of the TESDA balance will begin in 2015 once the Project goes into service. (Exhibit B-4, BCUC 1.37.4)

In addition to the annual allocation of the TESDA balance to Marine Gateway project O&M, the TESDA is also recovered through the allocation of Project Development Costs included in Capital in Year 1. (Exhibit B-4, BCUC 1.37.3)

### **Commission Determination**

The Panel approves FAES' proposal to recover \$35,865 annually, from the Marine Gateway customers for overhead costs accumulated in the TESDA. The Panel notes, however, that this amount is an estimate only, and will be adjusted once FEI's upcoming application to resolve the TESDA allocation has been completed. This Application is expected to be completed prior to the in- service date of 2015 for this Project. **FAES is directed to recalculate the rate for this Project when that proceeding has completed.**

### 7.4.3 Property Taxes

While currently there is no property tax being incurred in relation to the assessed property value using the mill rates, FAES is including a provision of 1 percent of revenues for the in-lieu tax that is levied by municipalities based on utility revenues collected within municipal boundaries. FAES also proposes to adjust the cost of service rate each year for any changes that the BCUC makes that affect the cost of service including tax expense. (Exhibit B-1, p. 56)

### **Commission Determination**

The Panel is satisfied that the Property Tax assumptions are reasonable.

#### 7.4.4 Depreciation and Amortization Expense (Negative Salvage)

The depreciation expense included in the cost of service relates to the capital equipment associated with the thermal energy system. FAES states that the depreciation rates for the Project are set according to generally accepted accounting standards to recover the cost of the assets over their useful lives. The depreciation rates for sustaining capital and capitalized overhead reflect the average service lives of the equipment. (Exhibit B-1, p. 52)

FAES also included a provision related to the forecasted removal costs of the capital equipment associated with the thermal energy system. (Exhibit B-1, pp. 52-53) The annual negative salvage rates for the project are set to recover the forecasted removal costs of the assets over their useful lives.

#### **Commission Determination**

The Panel is satisfied that the depreciation and amortization expenses (negative salvage) are reasonable.

#### 7.4.5 Income Taxes

FAES forecasts a combined federal and provincial corporate tax rate of 25 percent for the 20-year analysis. As this Project is a geo-exchange project, a class 43.2 depreciation rate of 50 percent has been used as the CCA rate, which produces a significant tax benefit in the early years of the Project.

#### **Commission Determination**

The Panel approves the income tax calculations for the Project but with a word of caution. The 25 percent corporate tax rate (Federal 15 percent and Provincial – 10 percent) may not persist for the whole period of the project. There have been some proposals in the past two years to potentially increase corporate taxes in the near term future.

#### 7.4.6 Financing Costs

##### 7.4.6.1 Project Risks

In its Final Submission, FAES indicates that development risk is low because residential units are 100 percent sold out, major commercial tenants, which represent over 50 percent of retail space have been committed, and vacancy risk is mitigated through contractual terms with PCI. (FAES Final Submission, p. 11) FAES submits that there is minimal risk that the system will not perform as designed because the technology selected is “proven” technology and has been applied in a number of other FEI/FAES projects. FAES also indicates that it will take reasonable steps in the commissioning process (FAES Final Submission, p. 11) and the performance bond of the contractor provides a financial assurance that the contractor will complete all the terms and conditions of the contract including system design. (Exhibit B-1, p. 38) FAES further submits that capital cost overrun risk is mitigated by the inclusion of a 25 percent contingency.

In terms of operational risks, FAES submits that a closed-loop geo-exchange system is a low risk option and there is limited to no risk in operating and maintaining the system as analyzed in its studies. (Exhibit B-1, p. 39) FAES also indicates that stranded asset risk is low because the project is diversified over several customers at a large real estate development and if there is no renewal at the end of the terms, the Service Agreements require the customers to pay an asset that recovers the customer’s proportionate share of the rate base value of the assets in service. (FAES Final Submission, p. 12) Further, FAES submits that the project does not risk the surrounding physical, biological or social environment and therefore does not present any risks to the Vancouver or its residents. (Final Submission, p. 12)

During this proceeding, FAES was asked to rank its level of risk on various risk factors of this project compared to other thermal energy projects approved by the Commission. FAES ranked many of the risk factors to be low to medium with the exception of the 100 percent variable rate design and

the utility size, which FAES found to be higher risk than other projects. Other risk factors explored are detailed in Exhibit B-4, BCUC 1.41.4.

The BCPSO questions the need for an equity risk premium above the benchmark and suggests that Fortis Inc.'s diversification into thermal energy services creates less, not more, risk for investors. (BCPSO Final Submission, pp. 2-3) The BCRUCA seems to suggest that the cost of debt, capital structure, and return on equity should be lower but its position on the project's risk assessment is unclear. The CEC agrees that the rates reflect a fair return on equity based on overall business and financial risk associated with this project (CEC Final Submission, p. 3) and submits that the risk factor comparison to other projects indicates an acceptable level of risk and is therefore reasonable. (CEC Final Submission, p. 10)

The CEC submits that while the risk of under-subscription is not entirely absorbed by the commitments made to date, given the possibility of economic decline and possible default by residential purchasers and large commercial tenants, it appears as a reasonably stable client base. (CEC Final Submission, p. 9)

The CEC identified the sensitivity of the annual uncertainty with respect to the demand volumes and its relationship with the proposed deferral account. CEC also recognizes that these risks are managed for the FAES but are borne by the customers. (CEC Final Submission, p. 8)

With respect to stranded asset risk, FAES stated that the contracts are intended to eliminate as many risks as are reasonably possible. However, in the extremely unlikely circumstance where all PCI customers leave the system, FAES would recover any remaining stranded costs from other FAES customers through the TESDA. (Exhibit B-5, BCOAPO 1.6.2)

With regard to development risk, FAES was asked what would have occurred to the costs of the development activities should the PCI Marine CPCN not been brought forward. It responded that "[t]he development costs of this service would have contributed to the balance in the TESDA, for

recovery from other FAES customers, had this Project not been brought forward.” (Exhibit B-7, BCRUCA 1.1.3)

### **Panel Determination**

The Panel accepts FAES’ portrayal of the Project as low risk both from an operational and revenue perspective.

However the Panel has concerns about the treatment of both the development risks and the stranded asset risk. While the contracts do provide significant protection against stranded asset risk, any residual risk lies with other thermal system customers. This may be a reasonable approach for a distribution utility. However, the Panel questions whether it is appropriate in the case of a utility providing service to customers that are not networked in the same the way as are distribution customers. Each customer has a stand alone “island” infrastructure, and is not connected with other customers in any way other than through this shared this assumption of risk. Issues that should be considered include the number of thermal projects over which the risk is spread across and the relative risk of each project. The Panel finds there is insufficient evidence in this hearing to persuade the Panel that this approach is not appropriate. **Accordingly, the Panel accepts this risk mitigation approach, but recommends that the TESDA allocation hearing consider this matter further.**

With regard to the development risk, the Panel has similar concerns but also finds insufficient evidence to direct a different approach and recommends that the TESDA allocation hearing address this issue also.

**The Panel will make a further determination on the risk premium in a subsequent section of this Decision.**

#### 7.4.6.2 Capital Structure

FAES is proposing a capital structure of 40 percent equity and 60 percent debt. FAES will also adjust the cost of service rate each year for any changes that the BCUC makes that affect the cost of service including the ROE. (Exhibit B-1, p. 55)

#### **Commission Panel Determination**

**The Commission Panel accepts the proposed capital structure.** There is no compelling reason why any different capital structure or deemed capital structure should be used for this project. The 60/40 Debt to Equity ratio has been accepted by the Commission for various thermal energy and district energy projects such as Delta SD, Corix UniverCity, Dockside Green and River District.

#### 7.4.6.3 Cost of Debt

For the cost of debt, FAES initially proposed to apply a cost of debt rate of 5.91 percent to the debt component of the Marine Gateway capital structure, following the methodology directed in Commission Order G-31-12 in the Delta School District Project. This rate is different from the FEI corporate rate of 6.9 percent and is consistent with an entity with a BBB rating (investment grade) including an additional premium to reflect the extra cost to arrange an incremental small debt issue. (Exhibit B-1, p. 55)

During the IR process, FAES reduced its proposed cost of debt rate to 5.37 percent to align with Directive 1d) of Commission Order G-71-12, which specifically directed FAES to base the cost of debt rate on BBB-rated distribution utilities, such as AltagGas Ltd. and Emera Inc., as a proxy for the TES classes of service.

No Interveners raised an objection to the amended cost of debt rate proposed by FAES.

## Commission Determination

**The Commission Panel finds that the deemed cost of debt rate of 5.37 percent is appropriate and the methodology to calculate it to be consistent with that approved in both the DSD decision and the Tsawwassen Springs decision.** Further, going forward, if the Commission approves, in the Generic Cost of Capital (GCOC) proceeding, a methodology to establish a deemed interest rate automatic adjustment mechanism (Interest AAM), FAES is directed to update its cost of debt rate annually using that Interest AAM. Alternatively, if the Commission does not approve an Interest AAM in the GCOC proceeding, FAES is directed to review its deemed cost of debt rate in its revenue requirements annual filing starting in Year 4, using the same methodology as directed in this Decision. FAES is also directed to adjust its cost of service, including the cost of debt, each year for any changes that the BCUC makes.

### 7.4.6.4 Return on Equity

FAES relies on evidence provided by Ms. McShane in the Delta SD application. (Exhibit B-1, Appendix W) which supports a 50 bps equity risk premium above the benchmark utility was reasonable based on the business risk of TES projects generally relative to the benchmark utility. Specifically, TES projects have higher business risk relative to the benchmark because of factors such as “the greenfield characteristics of these projects including their lack of an established customer base, relatively high upfront capital costs, and competition from both conventional sources of energy and other providers of TES service, among others.” (FAES, Final Submission, p. 22)

These general characteristics appear to be contrary to FAES’ discussion of the project-specific risks as previously discussed in section 7.4.6.2 of this Decision, which seems to suggest this project’s risk to be relatively low.

FAES further submits that the risk premium requested for this Project is reasonable given the similar risk profiles of other projects such as the DSD project, Corix UniverCity, and River District,

each of which have similar risk profiles (albeit not identical) and for which the Commission allowed a 50 bps risk premium. (FAES, Final Submission, p. 23)

### **Commission Determination**

#### **The Panel denies the 50 basis point premium.**

The Panel acknowledges the greenfield nature of the Development. Under certain circumstances a greenfield project can lead to increased risk, as Ms. McShane suggested. However, in the case of this Project, the residential portions of the Project are already sold and several of the larger commercial/retail facilities already under lease contract. The only apparent risk appears to be in the leasing of the office tower. This minimizes the risk to which FAES is likely to be subjected to and reduces the need for an additional risk premium.

Additionally, the Panel has previously found there is virtually no stranded asset risk for FAES. Although the variance account has been denied, FAES assumes an amount of risk for each revenue requirement period that is not significantly more than that assumed by any other utility. Accordingly, the Panel is of the view that FAES faces no more risk than the “benchmark” utility.

## **8.0 OTHER ISSUES**

### **8.1 Sharing of Utility Resources and Inter-Company Cost Allocation**

The previous directions to FEI in the Delta SD and Tsawwassen Springs decisions to assign the contracts to a separate company were accompanied by a longer term direction to increase the degree of operational separation between FAES and FEI. (Tsawwassen Springs Decision, p. 51) As a result of this directive, following the DSD and Tsawwassen Springs decisions, FEI decided to bring this Project forward through FAES. (FAES Final Submission, p. 10) FAES has been an active business since its inception as FAES (formerly Terasen Energy Services or TES Inc.) in 2006. (Exhibit B-4, BCUC 1.26.2) FAES stated that it has no employees, although it provided a headcount of 22 FEI employees that provide service to FAES. (Exhibit B-4, BCUC 1.4.0) FAES currently owns and operates nine other TES projects developed prior to 2010 by TES Inc. in addition to the Delta SD and Tsawwassen Springs projects. The pre-2010 systems involve customer care, billing, and the operation and maintenance of equipment, although they are currently not regulated. FAES stated that the pre-2010 projects within FAES will ultimately need to receive BCUC approval. However, FAES and FEI are waiting for the Tsawwassen Springs and the AES Inquiry decisions, which may impact how these projects get filed for approval with the BCUC, before filing these applications. (Exhibit B-8, BCSEA 2.1).

Subject to the outcome of the AES Inquiry, FEI will provide the following services to FAES for the Marine-Gateway Project, with the support of contractors where appropriate:

- overall project management,
- operations and routine maintenance,
- measurement,
- monitoring,
- asset management,
- project development,
- contract administration,

- customer contact,
- sales & development,
- customer call out and maintenance response,
- office facilities,
- regulatory affairs,
- billing services and financial reporting functions.

Fortis Holdings Inc. (FHI) provides billing, financial reporting, shareholder services and corporate finance, in addition to aspects of billing and financial reporting.

FEI/FAES have proposed the use of FEI's current Transfer Pricing Policy) (TPP) as the basis for cross-charges between FEI and FAES, with the exclusion of the overhead charge and facilities fee. This is consistent with the proposals in the FortisBC Energy Utilities (FEU) 2012-2013 Revenue Requirements Application (2012-2013 RRA), the AES Inquiry, and most recently in the DSD Project Compliance Filing. FAES confirms that this adjusted TPP methodology will remain in place until the Commission orders otherwise. (Exhibit B-1, p. 51; FAES Final Submission, p. 24; Exhibit B-4, BCUC 1.27.1)

The FEU 2012-2013 RRA decision accepted the use of the TPP for cross-charges between FEU and FortisBC Inc, two standalone regulated utilities. In contrast, FAES is not a standalone entity and relies wholly on intercompany transfers to function. In the DSD Project Compliance Filing, the Commission stated that it " ...is not convinced that the TPP is appropriate for cross charges between FEI and FAES and continues to be of the view that the TPP needs to be reviewed in a further Commission process at some point in the future following the conclusion of the AES Inquiry and the FEU." (Order G-71-12, Reasons for Decision, p. 4) Despite Commission concerns, "FAES continues to believe that the existing TPP, with the exclusion of overhead facilities and fees for charges between two regulated entities or projects, is appropriate for cross-charges between FEI and FAES. The TPP policy has governed the relationships between FEU and non-regulated businesses regarding the provision of utility resources since 1997 and the circumstances between

FEI and FAES are not significantly different than previous and current relationships governed by this policy.” (Exhibit B-4, BCUC 1.32.1)

BCSEA submits that it would be reasonable for the Commission to approve the FAES Marine Gateway application with provision for a future transfer from FAES to FEI depending on the outcome of the AES Inquiry. (BCSEA Final Submission, p. 8)

### **Commission Panel Determination**

The Panel identifies two issues affecting the sharing of monopoly resources. One is the allocation of costs between FEI and FAES. The second is the presence of both regulated and non-regulated activities within FAES between regulated and non-regulated business. This latter issue requires FAES to allocate direct costs correctly to each project and then allocate overhead in a reasonable manner.

The Panel defers the appropriateness of the current TPP to the AES Inquiry or other such future Commission process, but notes that the current fully business structure requires a great deal of diligence to prevent cross-subsidization between the gas and thermal business areas and also across separate thermal customers. Accordingly, the Panel reiterates the previous direction in the Delta SD decision to increase the degree of operational separation between FAES and FEI.

### **8.2 Contract Energy Demand Caps**

FAES has filed the Service Agreements under Appendix V as Confidential. The Service Agreements include a section that sets a maximum consumption limit under each of the four customer types. FAES submits that these limits provide another incentive to encourage energy conservation at the peak. (Exhibit B-13, BCUC 2.13.3; BCUC 2.26.1)

Without revealing the details of those Service Agreements the section of interest is section 3 (b) and includes wording that would permit the utility to assess additional fees for usage exceeding

such limits as established in the Service Agreement and providing the utility the right to suspend or limit the service provided. On further review it would appear that the maximum consumption limit on aggregate for the Project (including all customer types) is approximately equal to the system design heating capacity of 5.9 MW and cooling capacity of 3.7 MW, as established in the engineering design. (Exhibit B-1, Appendix H, Table 6, p.10)

### **Commission Panel Determination**

With the issuance of a CPCN, the Commission grants a privilege to a utility to operate in a franchise area - in this case the Marine Gateway complex. Accordingly, FAES has an obligation to serve customers who apply for service in this complex. In the Panel's view, this includes serving not only new customers, but also serving existing customers whose loads increase over time. This could potentially happen if, for example, a commercial tenant with significant refrigeration needs replaced one with less such needs. The Panel questions what additional fees and charges a customer could be charged in these circumstances. The Panel also questions why service would be suspended to reduce load on the TES in the case of the 6.1 MW heating cap being reached.

FAES is directed to provide the following information to the Commission within thirty days of the date of this Decision:

- A description of the circumstances under which additional fees would be charged.
- What the amounts of the additional fees would be.
- An explanation of the circumstances under which FAES would suspend or limit service.
- What steps FAES would take if it appeared that either the load forecast was too low, or significantly higher load materialized subsequent to commissioning of the TES:
  - What percentage of the total energy capacity is represented by the load forecast.
  - Confirmation of the system peak heating and cooling energy design, plus any excess design capacity in the system, and what the energy delivery limiting equipment or sub-system would be how much additional capacity could be added to the system before FAES could begin adding additional charges.

- According to the load forecast, when would the project likely reach peak capacity?
- What, if any restrictions are there on the type of tenant (especially in the office/commercial/retail part of the complex) based on possible high energy demand

## 9.0 SUMMARY OF COMMISSION PANEL DECISIONS

This Summary is provided for the convenience of readers. In the event of any difference between the Directions in this Summary and those in the body of the Decision, the wording in the Decision shall prevail.

	<b>Directive</b>	<b>Page</b>
1.	The Panel approves a CPCN expenditure of \$8.1 million subject to the AACE Class 3 estimate accuracy range. The Panel also approves the sustaining capital estimate.	25
2.	The Panel finds the 25 percent contingency is excessive. However the Panel is prepared to accept a contingency of 15 percent.	25
3.	The Panel does not approve the AFUDC estimate as calculated.	26
4.	The Panel does not approve the rate smoothing approach proposed by FAES.	32
5.	FAES is directed to select a test period and recalculate the rate to reflect the cost of service for that test period. The Panel further directs that the revised rate be filed with the Commission no later than 120 days prior to the in-service date of the Project.	34
6.	The Panel finds that the proposed project deferral account is not fair, just and reasonable. Accordingly the Marine Gateway Deferral Account is not approved.	35
7.	The Panel accepts FAES' proposal to apply to the Commission to review revenue requirements annually, after the first three years of operation, or other such test period as proposed by FAES.	35
8.	The Panel is not persuaded there is sufficient justification for separate customer classes.	38
9.	The Panel accepts the current use of fully variable rates as just and reasonable.	41
10.	FAES is directed to recalculate the rate for this Project when that proceeding has completed.	44
11.	The Panel accepts this risk mitigation approach, but recommends that the TESDA allocation hearing consider this matter further.	48
12.	The Panel will make a further determination on the risk premium in a subsequent section of this Decision.	48

13.	The Commission Panel accepts the proposed capital structure.	49
14.	The Commission Panel finds that the deemed cost of debt rate of 5.37 percent is appropriate and the methodology to calculate it to be consistent with that approved in both the DSD decision and the Tsawwassen Springs decision.	50
15.	The Panel denies the 50 basis point premium.	51

**DATED** at the City of Vancouver, in the Province of British Columbia, this 27<sup>th</sup> day of September 2012.

*Original signed by:*

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D.M. MORTON  
PANEL CHAIR/COMMISSIONER

*Original signed by:*

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B.A. MAGNAN  
COMMISSIONER

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



**BRITISH COLUMBIA  
UTILITIES COMMISSION**

**ORDER  
NUMBER C-10-12**

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

IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

An Application by FortisBC Alternative Energy Services Inc.  
for a Certificate of Public Convenience and Necessity for the Approval for the PCI Marine Gateway Thermal  
Energy Project and Approval of Rates for Thermal Energy Service to PCI Developments Inc.

**BEFORE:** D.M. Morton, Panel Chair/Commissioner September 27, 2012  
B.A. Magnan, Commissioner

**CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY**

**WHEREAS:**

- A. On May 25, 2012, FortisBC Alternative Energy Services Inc. (FAES) applied (the Application) pursuant to sections 45 and 46 of the Utilities Commission Act (the Act) for a Certificate of Public Convenience and Necessity (CPCN) for the construction and operation of the thermal energy project for the PCI Marine Gateway development (the Project) as described in the Application;
- B. FAES also seeks approval of the rates and rate design as set out in the Service Agreements between FAES and 8440 Cambie Nominee Corp. (PCI) and as described in the Application;
- C. The energy system will provide space heating, cooling and domestic hot water to meet the thermal energy demands for the Marine Gateway development, comprising residential, office and commercial customers;
- D. On June 5, 2012, the British Columbia Utilities Commission (Commission) by Order G-72-12 established a Written Hearing process for the review of the Application;
- E. The Commission has reviewed the Application and submissions filed during the course of the Written Hearing and has determined that it is in the public interest to grant a CPCN for this Project.

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

**ORDER  
NUMBER** C-10-12

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**NOW THEREFORE** the Commission orders as follows:

1. A CPCN is granted to FAES for the Project.
2. FAES shall use as its control budget for the Project the AACE Class 3 estimate of \$8.1 million plus a contingency of 15 percent.
3. The Panel does not approve the Allowance for Funds Used During Construction (AFUDC) estimate as calculated. FAES is directed to recalculate it based on the approved cost of debt and Return on Equity (ROE).
4. The rate design and rates as proposed pursuant to sections 59-61 of the Act and established by the Service Agreements filed with the Application in Appendix V, and described in Section 6 Cost of Service and Rate Design of the Application, are denied. The following determinations are included in the Decision issued concurrently with this Order:
  - a. FAES' proposed rate smoothing approach is denied;
  - b. FAES is directed to select an appropriate test period and recalculate the rate to reflect the forecast cost of service for that test period;
  - c. FAES' proposal to apply to the Commission to review revenue requirements annually, after the first three years, or other such test period as determined by FAES, of operation is approved;
  - d. The proposed project deferral account is denied;
  - e. The use of fully variable rates is accepted;
  - f. The proposed capital structure of 60 percent debt, 40 percent equity is accepted;
  - g. The requested 50 basis point premium on the benchmark utility return on equity is denied;
  - h. The deemed cost of debt rate of 5.37 percent is accepted;
  - i. A single customer class for the Project is accepted;
  - j. A new rate application shall be submitted no later than 120 days prior to the in-service date of the Project.
5. Provide to the Commission within 30 days of this Order, information further specified in the Decision concerning the Contract Energy Demand Cap.
6. The current Proceeding will be closed and a new proceeding established following FAES filing of a new rate application with the Commission including notification to the current proceeding Interveners.

**BRITISH COLUMBIA  
UTILITIES COMMISSION**

**ORDER  
NUMBER** C-10-12

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7. FAES shall file Annual Progress Reports on the Project showing planned versus actual schedule and costs with any variances or difficulties that the Project may be encountering. The Annual Progress Reports will be filed within 30 days of the end of each reporting period on a calendar year basis.

**DATED** at the City of Vancouver, in the Province of British Columbia, this 27<sup>th</sup> day of September 2012.

BY ORDER

*Original signed by:*

D.M. Morton  
Panel Chair/Commissioner

## REGULATORY AND POLICY FRAMEWORK

There are a number of hearings that preceded this hearing that have made various directions regarding FEI's Thermal Energy Services initiative. In addition, the AES Inquiry is taking place concurrently, and is intended to establish principles applicable to the TES business.

### Utilities Commission Act

#### Certificate of Public Convenience and Necessity

Subsection 45(1) of the *Act* states:

“Except as otherwise provided, after September 11, 1980, a person must not begin the construction or operation of a public utility plant or system, or an extension of either, without first obtaining from the commission a certificate that public convenience and necessity require or will require the construction or operation.”

The requirement of a CPCN before the utility begins construction provides the Commission a degree of regulatory control over expenditures at the planning stage.

Subsection 46(3) sets out the Commission's powers with respect to granting a CPCN, and states in part that the Commission:

“...may attach to the exercise of the right or privilege granted by the certificate, terms, including conditions about the duration of the right or privilege under this Act as, in its judgement, the public convenience or necessity may require.”

Subsection 46(3.1) requires the Commission, in deciding to issue a CPCN to a public utility other than British Columbia Hydro and Power Authority, to consider British Columbia's energy objectives, the most recent long-term resource plan filed by the utility under section 44.1 of the *Act* and the extent to which the application is consistent with the requirements under sections 6 and 19 of the *Clean Energy Act (CEA)*.

### **Setting of Rates**

The Panel must address the setting of rates under sections 59 and 60 of the *Act*. Section 60 allows the Commission to consider cost-of-service and other rate setting methodologies. It also introduces the concept of a self-contained unit, which is relevant to this Application and will be addressed in subsequent Sections of this Decision.

### **Fair Return Standard**

The Commission also has a mandate to protect the utility's financial integrity. Subsection 59(5)(b) of the *Act* stipulates that a rate is "unjust" or "unreasonable" if the rate is insufficient to yield a fair and reasonable compensation for the service provided by the utility, or a fair and reasonable return on the appraised value of its property.

Under subsection 60(1)(b)(iii), in setting a rate under the *Act*, the Commission must have due regard to setting a rate that provides the public utility for which the rate is set, a fair and reasonable return on any expenditure made by it to reduce energy demands.

### **Clean Energy Act and other Related Policies**

The applicable British Columbia Energy Objectives are defined in section 2 of the *Clean Energy Act*.

### **2010-2011 Revenue Requirements Application**

#### **The Thermal Energy Services Deferral Account (TESDA)**

By Commission Order G-141-09 dated November 26, 2009, the Commission approved for FEI a Negotiated Settlement Agreement (NSA) for the 2010-2011 Revenue Requirements Application (RRA) proceeding, which included approval for the provision of Alternative Energy Services (AES) described as including geo-exchange, solar thermal and district energy systems. During the hearing, issues of cross-subsidization of the nascent AES business from the gas distribution

ratepayers were raised by various interveners. By Order G-141-09, the Commission approved a new deferral account, the New Energy Solutions Deferral Account, as an "...appropriate mechanism to address allocation issues between TGI's gas customers and TGI's AES customers." (Order G-141-09, pp. 8-9)

The New Energy Solutions Deferral Account was ordered to remain in effect pending a future rate design application at an unspecified future date after 2011. The approved NSA specified that the following amounts were to be captured and recorded (plus Allowance for Funds Used During Construction (AFUDC)) for recovery from AES customers:

- Direct costs associated with AES projects as outlined on pages 267-268 of the Revenue Requirements Application, including cost of design, equipment, etc. constructing and financing. The costs listed on pages 267-268 of the application are Capital Expenditures, O&M Expenditures, Inflation, Income Tax, Depreciation, Capital Cost Allowance, TGI Capital Structure/Cost of Debt, Thermal Requirements, Carbon Costs and Avoided Cost of Equipment in Individual Units; and
- Sales and marketing Operations and Maintenance (O&M) and other development costs will be directly charged to the deferral account by time sheets or other direct charge (estimated at \$1.0 million in 2010 and \$1.5 million in 2011, representing a portion of the agreed upon Gross O&M reduction from gas customers of \$4.0 million in 2010 and \$5.5 million in 2011); and
- An appropriate overhead allocation, which the parties have agreed will be \$500,000 in each of F2010 and F2011 (representing a portion of the agreed upon Gross O&M reduction from gas customers of \$4.0 million in 2010 and \$5.5 million in 2011).

Revenues received from customers for all AES projects, which are based on contracts approved by the Commission, will be recorded in this deferral account. The risk of non-recovery of amounts in this deferral account will not be borne by natural gas ratepayers; any debit balance will not be recovered through natural gas rates and any credit balance will not be applied to reduce natural gas rates.

The New Energy Solutions Deferral Account was subsequently renamed the Thermal Energy Services Deferral Account (TESDA).

### **General Terms and Conditions, Section 12A – Alternative Energy Extensions**

The NSA also accepted General Terms and Conditions Section 12A: Alternative Energy Extensions (GT&C 12A) and an economic screening tool for AES projects and provided that FEI could make application for acceptance of project-specific contracts as a rate under the AES class of service. The NSA also provided that when the Commission reviews these applications it may review and adjust the economic test and GT&C 12A.

The key elements of GT&C 12A are:

- Section 12A.1 describes, in general terms, the nature of the thermal energy systems that are contemplated under GT&C 12A;
- Section 12A.2 requires that FEI own all thermal energy extensions,
- Section 12A.3 requires that the cost-of-service model will determine the rate that a customer will pay for the service associated with the alternative energy extension, and that service will be provided under the terms and conditions of the Service Agreement between FortisBC Energy and the Customer;
- Section 12A.4 sets out requirements for determining consumption and number of customer estimates to be used in the cost-of-service model;
- Section 12A.5 sets out the required cost elements for the cost-of-service model.

By Commission Order G-223-11, GT&C 12A was subsequently declared interim effective January 1, 2012, pending the resolution of, among other issues, whether the suitability of the traditional cost-of-service model for thermal energy services should be dealt with in the AES proceeding.

### **FortisBC Energy Utilities 2012-2013 Revenue Requirements Application**

In the FortisBC Energy Utilities (FEU) (comprising FortisBC Energy Inc., FortisBC Energy (Vancouver

Island) Inc. and FortisBC Energy (Whistler) Inc.) 2012-2013 Revenue Requirements and Natural Gas Rates Application (RRA Application), the Commission reviewed the TESDA account, and determined that the \$500,000 overhead allocation from FEI's distribution customers to the TESDA was insufficient. Accordingly, FEI was directed to increase the allocation to \$750,000 for each year of the test period.

FEI explained in the RRA Application: "It is also our intention to include in the [TESDA] TES project costs related to sales and marketing O&M, and overhead costs that have been incurred to-date and going forward. The methodology of how such costs will be allocated will be discussed in the first AES project to be filed in the coming months." (RRA Application, Exhibit B-9, FEU response to BCUC 1.164.6)

### **AES Inquiry**

This project falls within the broader alternative or thermal energy service class of service being considered in the AES Inquiry. The Inquiry was established by Order G-95-11 in response to a complaint about FEI's AES activities. The Inquiry is not intended to be a means to re-open past Decisions of the Commission or to impinge on any regulatory processes currently underway before the Commission. It is a forward-looking assessment with the aim to establish principles that can be applied to future regulatory processes in the area of AES and other new initiatives.

To this end, by Order G 95-11, the Commission provided a Scoping Decision in the AES Inquiry in which it stated: "The Panel agrees that it is not appropriate for this Inquiry to be used as a vehicle to re-open past Decisions of the Commission. With respect to ongoing processes that may have some degree of overlap with the issues being considered by this proceeding, the Panel believes that such processes will be decided on the basis of the evidence put before them. While it may be beneficial to have the outcome of this proceeding known before similar issues are dealt with in other ongoing proceedings, it would be inefficient and potentially unfair for such proceedings to be delayed. The Panel sees the outcome of this proceeding as being applied in a forward looking

manner and not impinging on past or current ongoing proceedings. The Commission does encourage interested parties to look at past Decisions and only where appropriate bring forward portions of decisions that may be of assistance to the Panel in determining the principles that should be applied to resolve the issues before the Inquiry.”

In this Decision, the Commission Panel does not pre-judge the AES Inquiry findings and will assess this project solely within the existing regulatory context. The Panel will defer any determinations of higher-level principles to the AES Inquiry.

### **Delta School District Decision**

The FEI Marine Project is the third AES project that FEI has brought before the Commission since the AES Inquiry was begun. The first was an application for a CPCN for approval of contracts and rates for public utility service to provide thermal energy service to Delta SD. This was the first application of its kind received by the Commission. In the Reasons for Decision accompanying Order G-31-12, the Commission made a number of directives that may also have applicability to this Application:

- FEI sought to provide thermal service to Delta SD under GT&C 12A. However, the thermal service included sites with both GSHPs in combination with high-efficiency boilers and stand-alone gas boilers. The Commission deferred to the AES Inquiry a decision on the inclusion of stand-alone natural gas boilers in the tariff.

The Commission directed that the thermal services to be provided to Delta SD be done so by a separate corporate entity. FEI was further directed to develop a consistent cost allocation methodology and to follow its transfer pricing policy, if applicable, to allocate appropriate costs to Delta SD thermal services. FEI was also directed to track and charge to its affiliate all overhead costs incurred for the provision of services to Delta SD.

The Commission directed that the rate and rate design be based upon a 60/40 debt equity capital

structure which contains the following modifications:

- The rate schedule is restricted to Delta SD's current and future sites;
- The rate must include allowances for capitalized overhead, cash working capital, inflation and escalation on capital replacements/sustaining capital items and replace "unpaid time" by FEI employees with "paid time";
- The rate must include a cost of debt rate based on an entity with a BBB rating with an additional premium to reflect the extra cost to arrange an incremental small debt issue; and
- The rate should provide for a maximum 50 bps premium above the benchmark Return on Equity or a lower negotiated equity premium.

The Delta SD Decision also deferred to the AES Inquiry the consideration of the respective definitions of AES and TES, if they are equivalent, and if thermal energy services (TES) constitute a separate class of service (Delta SD Decision, pp. 4, 79). Any reference to a thermal class of service in this decision is not intended to affect or prejudge the deliberations of the AES Inquiry in any way.

Other issues deferred to the AES Inquiry include the framework for FEI's activities in a competitive thermal energy market, and the degree of regulation required for discrete energy systems, which have natural competitive characteristics. (Delta SD Decision, p. 4)

List of Acronyms

AAM	Automatic Adjustment Mechanism
AES	Alternative Energy Services
AFUDC	Allowance for Funds Used During Construction
Application	Application for a Certificate of Public Convenience and Necessity to build and operate a Thermal Energy System for the Marine Gateway development
BCPSO	British Columbia Pensioners' and Seniors' Organization
BCRUCA	British Columbia Residential Utility Consumers Association
BCSEA	B.C. Sustainable Energy Association and the Sierra Club of British Columbia
BCUC or Commission	British Columbia Utilities Commission
CCA	Capital Cost Allowance
CEA	<i>Clean Energy Act</i>
CEC	Commercial Energy Consumers Association of British Columbia
CPCN	Certificate of Public Convenience and Necessity
CRU	Commercial Retail Units
DARR	Deferral Account Rate Rider
Delta SD, DSD	Delta School District
DES	District Energy System
ETS	Energy Transfer Station
EUI	Energy Use Intensity
FACOS	Fully Allocated Cost of Service
FAES	Fortis Alternative Energy Services Inc.
FEI	FortisBC Energy Inc.
FEU	FortisBC Energy Utilities

LIST OF ACRONYMS

FHI	Fortis Holdings Inc.
GCOC	Generic Cost of Capital
GHG	Greenhouse Gas
GT&C 12A	General Terms and Conditions, Section 12A
IR	Information Request
LFS	Loop-Field System
Marine Gateway, the Development	PCI's Marine Gateway mixed-use development
MW	Megawatt
MWh	Megawatt hour
O&M	Operations and Maintenance
PCI	PCI Developments Inc.
Project	Applied for Thermal Energy System for heating, cooling and hot water for Marine Gateway development.
ROE	Return on Equity, Return on Common Equity
Strata	Strata Corporation
TES	Thermal Energy System
TESDA	Thermal Energy Services Deferral Account
TPP	Transfer Pricing Policy
TS Development	Tsawwassen Springs Development
<i>UCA or the Act</i>	<i>Utilities Commission Act</i>
Vancouver	City of Vancouver

IN THE MATTER OF  
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

FortisBC Alternative Energy Inc.  
Application for a Certificate of Public Convenience and Necessity  
for the Approval for the PCI Marine Gateway Thermal Energy Project  
and Approval of Rates for Thermal Energy Service to PCI Developments Inc.

**LIST OF EXHIBITS**

<b>Exhibit No.</b>	<b>Description</b>
<i>COMMISSION DOCUMENTS</i>	
A-1	Letter dated June 5, 2012 – Order G-74-12 Establishing a Written Public Hearing
A-2	Letter dated June 8, 2012 – Appointment of Panel
A-3	Letter dated June 20, 2012 – Information Request No. 1 to FAES
A-4	<b>CONFIDENTIAL</b> Letter dated June 20, 2012 – CONFIDENTIAL Information Request No. 1 to FAES
A-5	Letter dated July 4, 2012 – Order G-94-12 revising the Regulatory Timetable
A-6	Letter dated July 25, 2012 – Information Request No. 2 to FAES
A-7	<b>CONFIDENTIAL</b> Letter dated July 25, 2012 – CONFIDENTIAL Information Request No. 2 to FAES
A-8	Letter dated August 22, 2012 – Appointment of Commissioner B. Magnan to Panel
A2-1	Letter dated July 25, 2012 – Commission staff filing Journal of Law, Economics, & Organization article, Spring 1985: Vertical Integration and Long-term Contracts: The Case of Coal-Burning Electric Generating Plants
A2-2	Letter dated July 25, 2012 - Commission staff filing Coming in from the Cold: Improving District Heating Policy in Transition Economies; International Energy Agency publication, 2004
A2-3	Letter dated July 25, 2012 - Commission staff filing District Heating and Cooling in the United States: Prospects and Issues; National Research Council, 1985 (extract)

EXHIBIT No.	DESCRIPTION
<i>APPLICANT DOCUMENTS</i>	
B-1	<b>FORTISBC ALTERNATIVE ENERGY INC. (FAES)</b> Letter dated May 25, 2012 - Application for a Certificate of Public Convenience and Necessity for the Approval for the PCI Marine Gateway Thermal Energy Project and Approval of Rates for Thermal Energy Service to PCI Developments Inc.
B-1-1	<b>CONFIDENTIAL</b> Letter dated May 25, 2012 – CONFIDENTIAL APPENDICES to the Application
B-2	Letter dated June 27, 2012 – FAES Submitting Comments Regarding Filing Dates
B-3	Letter dated July 11, 2012 – FAES Delay for Filing Response to Information Requests No. 1
B-4	Letter dated July 12, 2012 – FAES Submitting Responses to BCUC Information Requests No. 1
B-4-1	<b>CONFIDENTIAL</b> Letter dated July 12, 2012 – FAES Submitting CONFIDENTIAL Responses to BCUC Information Requests No. 1
B-5	Letter dated July 12, 2012 – FAES Submitting Responses to BCOAPO Information Requests No. 1
B-5-1	<b>CONFIDENTIAL</b> Letter dated July 12, 2012 – FAES Submitting CONFIDENTIAL Responses to BCOAPO Information Requests No. 1
B-6	Letter dated July 12, 2012 – FAES Submitting Responses to CEC Information Requests No. 1
B-6-1	<b>CONFIDENTIAL</b> Letter dated July 12, 2012 – FAES Submitting CONFIDENTIAL Responses to CEC Information Requests No. 1
B-7	Letter dated July 12, 2012 – FAES Submitting Responses to BCRUCA Information Requests No. 1
B-8	Letter dated July 12, 2012 – FAES Submitting Responses to BCSEA Information Requests No. 1
B-9	Letter dated August 8, 2012 – FAES Submitting Responses to CEC Information Requests No. 2

EXHIBIT No.	DESCRIPTION
B-10	Letter dated August 8, 2012 – FAES Submitting Responses to BCSEA Information Requests No. 2
B-11	Letter dated August 8, 2012 – FAES Submitting Responses to BCPSO Information Requests No. 2
B-12	Letter dated August 8, 2012 – FAES Submitting Responses to BCRUCA Information Requests No. 2
B-13	Letter dated August 8, 2012 – FAES Submitting Responses to BCUC Information Requests No. 2
B-13-1	<b>CONFIDENTIAL</b> Letter dated August 8, 2012 – FAES Submitting <b>CONFIDENTIAL</b> Responses to BCUC Information Requests No. 2
B-13-2	<b>CONFIDENTIAL</b> Letter dated August 8, 2012 – FAES Submitting <b>CONFIDENTIAL</b> Responses to BCUC Information Requests No. 2-Attachment-19.1

*INTERVENER DOCUMENTS*

C1-1	<b>WESGROUP PROPERTIES LTD. (WP)</b> Letter dated June 8, 2012 – Request for Intervener Status by John Conicella
C2-1	<b>BC RESIDENTIAL UTILITY CUSTOMERS ASSOCIATION (BCRUCA)</b> Online Registration Dated June 11, 2012 – Request for Intervener Status by Guy Leroux, Leroux Regulatory Consulting Ltd.
C2-2	Letter dated June 22, 2012 – BCRUCA issuing Information Request No. 1
C2-3	Letter dated July 25, 2012 – BCRUCA Submitting Information Request No. 2 to FAES
C3-1	<b>BC SUSTAINABLE ENERGY ASSOCIATION (BCSEA)</b> Letter Dated June 15, 2012 – Request for Intervener Status by William J. Andrews
C3-2	Letter Dated June 27, 2012 – BCSEA Submitting Information Request No. 1 to FAES
C3-3	Letter dated July 25, 2012 – BCSEA Submitting Information Request No. 2 to FAES

EXHIBIT No.	DESCRIPTION
C4-1	<b>BRITISH COLUMBIA PENSIONERS' AND SENIORS' ORGANIZATION (BCPSO ET AL)</b> (previously BC Old Age Pensioner Organization et al) Letter Dated March June 20, 2012 – Request for Late Intervener Status by Leigha Worth, Tannis Braithwaite and James Wightman
C4-2	Letter Dated June 27, 2012 – BCOAPO Submitting Information Request No. 1 to FAES
C4-3	Letter dated July 23, 2012 – BCOAPO Submitting notice of Name Change to British Columbia Pensioners' and Seniors' Organization (BCPSO)
C4-4	Letter received July 25, 2012 – BCPSO Submitting Information Request No. 2 to FAES
C5-1	<b>COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BC (CEC)</b> Letter Dated March June 20, 2012 – Request for Late Intervener Status by Christopher Weafer
C5-2	Letter Dated June 27, 2012 – CEC Submitting Information Request No. 1 to FAES
C5-3	Letter dated July 25, 2012 – CEC Submitting Information Request No. 2 to FAES

*INTERESTED PARTY DOCUMENTS*

D-1	<b>FRASER, JANET (JF)</b> Letter Dated June 14, 2012 – Request for Interested Party Status by Janet Fraser
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