IN THE MATTER OF

FORTISBC ENERGY INC.

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY
FOR APPROVAL OF CONTRACTS AND RATE FOR
PUBLIC UTILITY SERVICE TO PROVIDE THERMAL ENERGY SERVICE TO
DELTA SCHOOL DISTRICT NUMBER 37

DECISION

March 9, 2012

BEFORE:

L.A. O'Hara, Commissioner/Panel Chair
D.M. Morton, Commissioner
R.D. Revel, Commissioner

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1.0 EXECUTIVE SUMMARY

In this Decision the Commission Panel grants FortisBC Energy Inc. (FEI) a conditional Certificate of Public Convenience and Necessity (CPCN) to construct and operate an energy system to provide thermal energy to Delta School District Number 37 (Delta SD). A CPCN is granted on the condition that the Energy System Service Agreements and the Rate Development Agreement are assigned to an affiliate of FEI. FEI's application entails a complex project with many issues at play. By necessity, the Executive Summary is brief and the reader is referred to the Introduction Section 2.0 for a better understanding of the Project.

The Project involves the replacement of conventional boilers with high efficiency, condensing boilers at eight sites, the conversion of existing thermal plants to state-of-the art geo-exchange systems at 11 sites, and retrofit/replacement of existing mechanical infrastructure at all 19 sites to accept the new technologies. The Project, totalling an estimated cost of $6.5 million, will take place over two years. It is driven by Delta SD's need to replace aging infrastructure and desire to implement energy systems that reduce greenhouse gases emissions and use cost-effective renewable energy sources. Furthermore, Delta SD's budgetary constraints were influential factors in the proposal.

The Panel acknowledges that the contracts were negotiated in good faith by two sophisticated parties and is reluctant to interfere. Nevertheless, even with the level of sophistication of the parties, the service offering is new, the regulatory environment very complex, and there are issues that could not have been easily anticipated by the parties. Furthermore, both parties seek regulatory protection under the *Utilities Commission Act* (*UCA*). Specifically, Delta SD states "if the Commission deems that the thermal energy service as currently structured is not in the best interests of Delta SD, Delta SD would appreciate the Commission making the necessary alterations to the CPCN...".

Accordingly, approval of the proposed rate and rate design as applied for is denied. The Commission will accept for filing no later than 30 days from the date of the Order a rate and rate

design provided it is modified to correct the input deficiencies identified in the Order. By way of this conditional approval the Panel gives Delta SD and FEI a thirty-day window to review the Decision and, where appropriate, reconsider and renegotiate in accordance with the guidelines provided by the Panel. FEI and Delta SD are encouraged to revisit the cost-of-service model (COS) and consider a pricing model that may better allocate risk between the parties. The Commission Panel will approve the rates and contracts once the conditions have been met. Should the parties come back to the Commission with a rate based on a pricing model other than the COS model, some further expedited process will be required.

The Project falls within the thermal class of service being addressed under the ongoing Alternative Energy Solutions (AES) Inquiry established by Order G-118-11. In this Decision the Commission Panel will not pre-judge the AES Inquiry findings and will assess the Delta SD Project solely within the existing regulatory context. The Panel will defer any determinations of higher level principles to the AES Inquiry. This Decision applies solely to the Delta SD Project. It neither contemplates the addition of other thermal energy projects beyond Delta SD to a general thermal energy services pool nor the use of this ruling as a guide for subsequent applications.

This Discrete Energy System application is the first of its kind received by the Commission. The technologies included in it and the nature of service proposed were neither adequately developed nor contemplated in the context of a regulated utility in 1980 when the *UCA* was enacted. Questions have been raised whether the Project should even be considered a public utility. The Commission Panel finds that the provision of thermal energy service to Delta SD by FEI or an affiliate of FEI is a regulated service under the *UCA.*

Significant issues and questions that have arisen include:

- Does the proposed structure provide sufficient protection for natural gas customers?
- Is there a potential for abuse of monopoly power, including cross-subsidization?
- Are the risks and rewards appropriately balanced between Delta SD and FEI?

- What are the true characteristics of the service provided?
- What is the fundamental need for the Project?
- Is 'green' at any cost necessarily good?
- Is the cost-of-service model the best pricing mechanism for the Project?
- Does the General Terms & Conditions Section 12A– Alternative Energy Extensions of FEI's Tariff apply?
- Is the thermal energy class of service a self-contained unit as required by section 60(1)(c) of the *UCA?*
- What is an adequate separation for a class of service in terms of corporate structure?

Key findings and determinations include the following:

1. The Panel is of the view that Delta SD needs to replace aging infrastructure and the Project presents Delta SD with the opportunity to reduce its GHG emissions thereby helping to mitigate its exposure to potentially increasing carbon offset costs in the future. Accordingly, the Panel will consider this a justification for the Project to proceed;
2. The Project is generally consistent with British Columbia's energy objectives;
3. Considering the nature of the Project the public consultation has been adequate;
4. The pooled or package rate for Delta SD's 19 current sites is acceptable. However, the Panel does not approve the extension of the pool beyond Delta SD's current and future sites;
5. The Panel refers any further consideration of the GT&C 12 A to the AES Inquiry and considers only the agreements between FEI and Delta SD as a basis for setting rates;
6. The Panel directs that the thermal services to Delta SD be provided by a separate corporate entity;
7. Delta SD is given some additional protection against the risk of significant charges from the Thermal Energy Services Deferral Account (TESDA) as follows:
    - Any overhead charged to Delta SD should be incurred due to service provided and invoiced by the affiliate;
    - The entire TESDA account must remain within FEI, until such time as the AES Inquiry, the FEU 2012-2013 RRA Panel or other future Panel directs otherwise;
8. The proposed 60/40 debt equity capital structure is approved;

9. The Panel believes that an appropriate level of equity risk premiums could range from none to a somewhat higher level of equity premium above the benchmark utility ROE. The Panel also recognizes that the ROE premium may reflect other factors in addition to risk and is prepared to accept the proposed premium of 50 basis points or a re-negotiated lower premium after the 30 day review; and
10. FEI is directed to provide a negotiated cost of debt rate based on an entity with BBB rating with a premium to reflect the additional cost to arrange an incremental small debt issue.

Higher level principles referred to the AES Inquiry, the Generic Cost of Capital Proceeding or a future Revenue Requirements Proceeding include:

- Framework for FEI's activities in a competitive thermal energy market;
- Degree of regulation required for discrete energy systems, which have competitive characteristics;
- Competitive issues related to gas suppliers and gas marketers;
- Provision of Energy Efficiency & Conservation funds for projects FEI owns and operates;
- Respective definitions of AES and thermal energy services (TES);
- Applicability of the General Terms & Conditions Section 12A – Alternative Energy of FEI's Tariff; for instance, would stand-alone natural gas boilers be eligible?;
- Thermal energy services as a new line of business or an extension of the natural gas system;
- Distinction between discrete and district energy services;
- A separate class of service for thermal energy services;
- Definition of a self-contained unit and its implications;
- Adequate corporate separation for a class of service;
- Adequate equity risk premium for a TES class of service;
- Principles for determining cost of debt for the TES class of service;
- Protection mechanism for natural gas customers; and
- Disposition of the TESDA account.

2.0 INTRODUCTION

This Decision deals with an application by FortisBC Energy Inc. (FEI) for a Certificate of Public Convenience and Necessity (CPCN) to construct and operate an energy system to provide thermal energy to Delta School District Number 37 (Delta SD, DSD, SD). Specifically, the application seeks approval of 19 energy system service agreements to provide thermal energy to 19 individual schools and a rate development agreement for the thermal energy services to be provided under a single pooled rate (Application, Project).

The Project involves a gradual replacement of conventional natural gas boilers with a combination of High Efficiency Natural Gas Boilers (HEGB) and Ground Source Heat Pumps (GSHP) in response to Delta SD's desire to implement energy systems that reduce Greenhouse Gases (GHG) emissions and use cost-effective renewable energy sources. FEI will own, operate and maintain the new thermal plants.

2.1 The Applicant

FEI is a wholly-owned subsidiary of FortisBC Holdings Inc.; a wholly-owned subsidiary of Fortis Inc. FEI is the largest natural gas distribution utility in British Columbia, providing sales and transportation services to residential, commercial, and industrial customers in more than 100 communities. FEI states their customer base is approximately 930,000 representing over 80 percent of the natural gas customers in the province. With its stable financial position as a regulated utility FEI is capable of financing the project either directly or through its parent. FEI has credit ratings for senior unsecured debentures from Dominion Bond Rating Service (DBRS) and Moody's Investors Service of A and A3 respectively.

FEI is undergoing a transformation to reposition itself from a traditional natural gas distribution utility to a more comprehensive energy company focusing on a sustainable energy future. This entails broadening its service offerings to provide energy solutions that optimize both conventional and alternative energy sources, including geo-exchange, district energy systems, biogas, waste heat recovery and solar thermal energy. FEI sees this as essential to protect and benefit its natural gas

customers in light of declining loads due demand side management actions and the switch to electricity or other energy sources.

2.2 The Project

The Delta SD Thermal Energy Project plans to provide 19 of Delta SD's buildings with thermal energy upgrades over the next two years, involving the replacement of eight conventional boilers with high efficiency boilers, the conversion of existing thermal plants to state-of-the art geo-exchange systems with peaking gas boilers at 11 sites, and retrofit/replacement of existing mechanical infrastructure at all 19 sites to accept the new technologies. The total estimated cost of the Project is $6.5 million. FEI investment will be reduced by $1.357 million as Delta SD will make a $1.357 million Contribution in Aid of Construction (CIAC). (Exhibit B-1, pp. 1-2)

FEI has entered into a design build contract with Johnson Controls L.P. (JCLP) and established a price which is contingent upon the British Columbia Utilities Commission (BCUC) approving the Project by March 1, 2012, when construction is scheduled to begin. The contract was developed subsequent to a feasibility analysis that FEI purchased from JCLP. (Exhibit B-1, pp. 2, 5)

2.3 Key Stakeholders and Contracts

The primary stakeholder is Delta School District 37 which serves the communities of North Delta, Ladner, Tsawwassen and Westham Island. Delta SD provides a comprehensive education program to over 16,000 students at 31 elementary and secondary schools. In addition, Delta SD sites include Learning Centres, a District Administration Building and a District Maintenance Centre. (Exhibit B-1, p. 9) Delta SD will be the sole customer and ratepayer.

Another stakeholder group includes parents, students and staff at the individual schools, because FEI and Delta SD have entered into a separate Energy System Service Agreement (Service Agreements) for each of the 19 sites involved in the Project. The development of the individual Service Agreements involved analysis of the demand characteristics, available technologies, emissions and costs for each of the buildings. The Service Agreements provide that FEI will design

and build the suitable energy system at each site, operate and maintain them, and charge Delta SD a rate for thermal energy. The Energy System Rate Development Agreement (RDA) establishes a single pooled monthly rate that Delta SD pays FEI for the thermal energy consumed at all 19 sites. (Exhibit B-1, p. 2)

Gas marketers, who currently have 18 contracts for supply of natural gas with Delta SD under the Customer Choice and Transportation Service programs, will be impacted because these gas supply contracts will be terminated when FEI takes ownership of the thermal energy system. (Exhibit B-3, BCUC 1.57.5; Exhibit C1-2, BCUC 1.14.2) Other stakeholders may include local residents or the general public who may stand to gain because of anticipated reductions in GHG emissions. Finally, the natural gas ratepayers of FEI may be affected positively or negatively depending on the execution of the Project.

The Application also attracts the attention of other thermal energy service providers in the alternative energy solutions market who may or may not be public utilities. Section 2.7 identifies those participating in this proceeding. JCLP, a member of Energy Services Association of Canada (ESAC), is a construction partner in the Delta SD Project and registered as an interested party. JCLP is a global leader in delivering sustainable energy and water solutions and technology integration services, and the largest energy services company in North America.

2.4 The Rate

FEI has developed a single pooled rate for the thermal energy service under the General Terms and Conditions (GT&C), Section 12A – "Alternative Energy Extension". The rate is based on a cost-of-service (COS) model, maintained by FEI, which covers capital costs, an allocation of FEI's overheads associated with the Project, depreciation expense, incremental operating and maintenance expenses, debt financing, taxes and a return on investment. The RDA proposes use of a deferral account (SD37 Deferral Account) to capture variances between the forecast cost of service and revenues, with the balance being recovered in rates in subsequent years as part of the cost of service.

FEI states the rate must meet "the transitional challenge of moving from the current costs of energy to the cost-of-service rate without causing an increase beyond what Delta SD might experience using their current natural gas equipment." As a solution, the parties have negotiated an initial "market rate" of $0.089/kWh of thermal energy, to be adjusted by the monthly Statistics Canada index for natural gas. Delta SD will pay this market rate until it elects to switch to the cost-of-service rate, with any variances between those two rates captured in the SD37 Deferral Account.

Additionally, the parties have negotiated a special rate rider to reduce thermal energy rates throughout the 20-year term of the Contracts and a buy-out provision for Delta SD in the event of contract termination or expiry. (Exhibit B-1, pp. 2-3)

2.5 The Benefits

FEI states the Project provides the following benefits:

- Assists Delta SD in achieving its goal of reducing its carbon footprint and complying with associated obligations;
- Advances several of British Columbia's energy objectives;
- Cost of facilities recovered over the long term; and
- Protection of natural gas business and therefore of existing and future natural gas customers. (Exhibit B-1, p. 4)

2.6 Orders Sought

Specifically, FEI seeks the following approvals:

- A Certificate of Public Convenience and Necessity for the construction and operation of the project as described in the Application under sections 45 and 46 of the Utilities Commission Act (Act);
- Approval of the rates and rate design established by the 19 Energy System Service Agreements and the Energy System Rate Development Agreement as just and

reasonable rates under sections 59-61 of the Act. Implicitly granting this approval would include, among other things, the following:

i. A capital structure of 60 percent debt and 40 percent equity;

ii. Debt financing at FEI's embedded cost of debt;

iii. A rate of Return on Equity (ROE) based on the benchmark ROE, plus a premium of 50 basis points;

iv. Establishment of the SD37 Deferral Account;

v. Initial "market rate" of $0.089/kWh; and

vi. Pooled rate concept.

2.7 Regulatory Process

The review of the Application was conducted by way of a written proceeding. The Panel requested FEI to submit additional evidence to support the request for an additional risk premium for the thermal energy class of service, in addition to supplementary evidence on the risks specific to the Delta SD Project. In response FEI filed supplemental evidence to support its request for an additional risk premium for the thermal energy class of service above the benchmark ROE.

The regulatory process was expedited in recognition of the timeline required for the JCLP design build contract deadline.

Registered Interveners were: Board of Education of School District No. 37 (Delta), B.C. Sustainable Energy Association and the Sierra Club of British Columbia (BCSEA), Abbotsford School District #34, Corix Utilities Inc. (Corix), BC Ministry of Energy and Mines (MEM) and the Canadian Office and Professional Employees Union Local 378 (COPE 378). Registered Interested Parties were: JCLP, ESAC and Chris Baber, Southeast False Creek Neighbourhood Energy Utility Manager for the City of Vancouver. The Regulatory Timetable (Appendix A) also incorporated Information Requests (IRs) to some Interveners, in addition to the two-round IR process tailored for the Applicant.

3.0 REGULATORY AND POLICY FRAMEWORK

This Section reviews the legal, policy and regulatory background that, to some extent, explains some of the roots and reasons for the Application and will therefore be used by the Panel as the framework to formulate its Decision.

3.1 Utilities Commission Act

3.1.1 Definition of a Public Utility

Section 1 of the *Act* defines a public utility as follows:

> **"public utility"** means a person, or the person's lessee, trustee, receiver or liquidator, who owns or operates in British Columbia, equipment or facilities for
>
> (a) the production, generation, storage, transmission, sale, delivery or provision of electricity, natural gas, steam or any other agent for the production of light, heat, cold or power to or for the public or a corporation for compensation, or
>
> (b) the conveyance or transmission of information, messages or communications by guided or unguided electromagnetic waves, including systems of cable, microwave, optical fibre or radio communications if that service is offered to the public for compensation,
>
> but does not include
>
> (c) a municipality or regional district in respect of services provided by the municipality or regional district within its own boundaries,
>
> (d) a person not otherwise a public utility who provides the service or commodity only to the person or the person's employees or tenants, if the service or commodity is not resold to or used by others,
>
> (e) a person not otherwise a public utility who is engaged in the petroleum industry or in the wellhead production of oil, natural gas or other natural petroleum substances,
>
> (f) a person not otherwise a public utility who is engaged in the production of a geothermal resource, as defined in the *Geothermal Resources Act*, or
>
> (g) a person, other than the authority, who enters into or is created by, under or in furtherance of an agreement designated under section 12 (9) of the *Hydro and Power Authority Act*, in respect of anything done, owned or operated under or in relation to that agreement;

The broad, inclusive definition in subsection (a) means that unlike the past when the Commission primarily dealt with traditional utility monopolies it now receives applications from real estate developers and others planning to provide thermal energy services with a goal to enhance environmental performance for the new communities under development.

3.1.2 Subsection 88(3) Exemption from Part 3 Regulation

Under subsection 88(3) of the *Act*

> "The commission may, on conditions it considers advisable, with the advance approval of the Lieutenant Governor in Council, exempt a person, equipment or facilities from the application of all or any of the provisions of this Act or may limit or vary the application of this Act."

In practice, this provision for an exemption usually results in an order exempting regulated utilities from most provisions of Part 3 of the *Act* and allowing regulation to occur on a complaint basis. This provision has been used successfully for some years to exempt a number of public utilities from most regulation under the *Act.* A relevant recent example is Order G-81-08, which exempted Al Stober Construction Ltd. (ASC) from Part 3 of the *Act* with respect to the sale by ASC of heat from the Landmark Buildings, which have a geothermal heating and cooling system that from time to time generates excess heat, to the adjacent Strata Lands. This example of light-handed regulation is mostly used when both the utility and the customer are seeking the exemption. When regulation no longer serves the function of protecting customers a more light-handed regulation or deregulation becomes appropriate.

The characteristics of district energy systems and discrete energy systems, and the degree of distinction between the two types may also become relevant when the level of regulation is considered. These systems are described in further detail in Appendix D.

3.1.3 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*).

3.1.4 Setting of Rates

The Panel must address the setting of rates under sections 59 and 60 of the *Act* which are reproduced in Appendix B. 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.

3.1.5 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.

The "fair return standard" is based on court rulings on cost of capital matters and has three elements. A fair return gives a regulated utility the opportunity to:

- Earn a return on investment comparable with that of similar risk enterprises;
- Maintain its financial integrity; and
- Attract capital on reasonable terms and conditions.

(Exhibit B-2, Supplemental Evidence, pp. 1-2)

3.2 2007 Energy Plan

Further setting the context within which the Commission must address the Application is the 2007 document entitled "The BC Energy Plan: A Vision for Clean Energy Leadership". The 2007 Energy Plan prescribes policy actions on energy conservation, energy efficiency, clean energy and energy self sufficiency. In that regard, the Provincial Government stated:

> "It is important for British Columbians to understand the appropriate uses of different forms of energy and utilize the right fuel, for the right activity at the right time. There is potential to promote energy efficiency and alternative energy supplemented by natural gas. Combinations of alternative energy sources with natural gas include solar thermal and geothermal. Working with municipalities, utilities and other stakeholders the provincial government will promote energy efficiency and alternative energy systems, such as solar thermal and geothermal throughout the province."

3.3 Clean Energy Act

Section 2 of the *CEA* sets out British Columbia's energy objectives. These are listed in Appendix C for ease of reference. FEI states the most relevant objectives to this proceeding include:

(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;

(g) to reduce BC greenhouse gas emissions (for targets see Appendix C);

(h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;

(i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently; and

(k) to encourage economic development and the creation and retention of jobs.

3.4 Government Initiatives Relevant to Delta SD 37

3.4.1 Greenhouse Gas Reduction Targets Act

The 2007 *Greenhouse Gas Reduction Targets Act* (*GGRTA*), which sets specific GHG reduction targets for the province, provides for a 33 percent reduction over 2007 levels by 2020 and an 80 percent reduction over 2007 levels by 2050. The *GGRTA* also provides in subsection 5(1) that "[e]ach public sector organization must be carbon neutral for the 2010 calendar year and for each subsequent calendar year." Subsection 6(1) of the *GGRTA* lists the requirements for achieving carbon neutral status. First, a public sector organization must pursue actions to minimize greenhouse gas emissions for each calendar year and then apply emission offsets to net the remaining emissions to zero. Under the *GGRTA*, Delta SD was required to become carbon neutral by 2010.

3.4.2 The Climate Action Charter

Also in 2007 the Province issued the Climate Action Charter (CAC) between it, the Union of British Columbia Municipalities and Municipal governments. Delta SD is a signatory to the CAC which commits it to working together with the other Charter signatories to reduce GHG emissions, although the CAC is not binding on Delta SD.

3.4.3 2008 BC Climate Action Plan

In 2008 the BC Government further cemented its GHG reduction goals in its Climate Action Plan. The Climate Action Plan created a roadmap for BC to achieve the ambitious GHG reduction targets. The Climate Action Plan ties together the various pieces of legislation (such as the *Carbon Tax Act*) the Government had passed with policies and programs (such as incentives for energy efficiency through the LiveSmart BC program) into a comprehensive plan to achieve GHG emission reductions.

3.5 Confluence of the AES Inquiry, the FEU 2012-2013 Revenue Requirements Proceeding and the Delta SD CPCN Proceeding

FEI is bringing the Application before the Commission in the manner contemplated by Order G-141-09 which was the outcome of a settlement process resulting in a Negotiated Settlement Agreement (NSA) for the 2010-2011 RRA. At the same time, the Project falls within the broader thermal energy service class of service being considered in the Alternative Energy Solutions and New Initiatives (AES) Inquiry established by Order G-95-11. Furthermore, a Decision is still pending on the FortisBC Energy Utilities (FEU) 2012-2013 Revenue Requirements proceeding. Ideally, the Decision on the Delta SD CPCN should follow the other two Decisions; however, the Delta SD Decision will now precede them. Should the AES Inquiry result in determinations that differ significantly from the determinations to be made by this Commission Panel, the implication is the Delta SD CPCN could become a one-off solution for FEI in the thermal energy market.

3.5.1 Order G-141-09: FEI 2010-2011 RRA Proceeding NSA

FEI has based its approach on the following NSA provisions regarding the GT&C for alternative energy extensions:

> "In evaluating AES projects, TGI (FEI) will apply the economic test outlined in the Application. The parties agree that the proposed GT&C (Section 12A – Alternative Energy Extensions) are acceptable. Pursuant to the *Utilities Commission Act*, within the Alternative Energy class of service, project-specific contracts with AES customers will be filed with the Commission for acceptance

> as a rate, at which time the Commission may review and adjust the economic test and GT&C Section 12A – Alternative Energy Extensions.
>
> The CPCN threshold of $5 million applies to AES projects brought forward in 2010 and 2011.
>
> A New Energy Solutions Deferral Account, attracting [Allowance for Funds Used During Construction], was also agreed to in the NSA to ensure costs incurred by FEI (Terasen Gas) Inc. to provide AES should not be covered as part of natural gas service rates".

FEI states that because the Application is made pursuant to an approved rate schedule, it should have no impact on the on-going AES Inquiry. Nevertheless, The Panel may find it necessary to defer a number of issues to the AES Inquiry or future Revenue Requirements Proceedings.

3.5.2 Order G-118-11: Scope of the AES Inquiry

The AES Inquiry Panel in Order G-118-11 (AES Scoping Order) emphasized it does not intend to frustrate on-going business:

> "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 proceeding 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."

3.5.3 Order G-223-11: GT&C, Section 12A – Alternative Extensions Declared Interim Effective January 1, 2012

By way of background, the Delta SD Panel in its Reasons for Decision for Order G-223-11 indicated that Interveners and Interested Parties in this proceeding have identified a number of issues, including:

- Clarification of the incentive funding;
- FEI's requested risk premium above the benchmark return on equity;
- Whether the proposed back-end loading of the rate structure is reasonable;
- Whether topics such as the cost-of-service model for thermal energy services should be dealt with in this proceeding or in the AES Inquiry proceeding; and
- Whether there is a need for economic regulation of thermal energy services.

Furthermore, the Panel considered that when natural gas service is provided in combination with AES as described in the NSA the identification of the "customer" who will be charged for that service is vague. The Panel also noted that the definition of AES contained in the NSA and in the GT&C Section 12A – Alternative Energy Extensions does not include high efficiency boilers as proposed in the Application. Accordingly, the Panel declared the economic test contained in the NSA and in the GT&C Section 12A to be interim effective January 1, 2012. (Exhibit A-5)

3.5.4 FortisBC Energy Utilities 2012-2013 Revenue Requirements & Natural Gas Rates Application

The evidentiary record on the FEU 2012 – 2013 Revenue Requirements & Natural Gas Rates Application closed in late 2011. The Commission has received all Final Submission, including FEU Reply Submission on January 25, 2012. The Decision is not expected to be delivered until after the Delta SD CPCN Decision.

3.6 Delta Thermal Services as Regulated Competitive Services

The AES Inquiry will determine the framework for FEI's activities in a competitive thermal market. However, this does not limit the Panel from considering all matters it considers relevant in setting a rate for Delta SD. Therefore, this section examines the role of regulation with regard to competitive thermal market activities, and then determines if the proposed Delta SD Project meets the definition of a public utility under the *UCA.*

3.6.1 Competitive Markets and Regulation

FEI has characterised TES services as regulated services provided in the presence of a competitive market. Corix agrees that FEI's new thermal business operates in a competitive market, and highlights the differences from the traditional regulated gas operations. (Exhibit B-3, BCUC 1.10.4; Exhibit B-10, 2.2.2; Corix Final Submission, p. 8)

FEI states that the cost and complexity of operating and maintaining thermal systems, together with the additional costs required in switching to an alternative energy source or system, results in the creation of a measure of monopoly power. (Exhibit B-3, BCUC 1.10.4)

Monopoly power can be distinguished from the concept of a natural monopoly, which occurs in sectors of the economy in which extreme economies of scale mean that a sole firm can provide service at a lower cost than two or more competing firms. Corix describes the ownership and operation of standalone boilers as a competitive market with many potential suppliers and very low barriers to entry. Corix further submits that regulation is typically a surrogate for the customer benefits and protections provided by a competitive market, which is why governments and utility regulators attempt to foster effective competition where possible and constrain the activities of the monopolies they regulate where these might distort the competitive environment in related activities, such as the TES market. (Exhibit A2-14, BCUC 1.15.4; Exhibit A2-12, p. 7)

Despite the presence of certain monopoly characteristics after a given technology solution has been implemented, the Delta Project does not exhibit any natural monopoly tendencies. In this regard it is similar to many purchases or acquisitions with long term consequences, such as, for example, a mortgage. This is evidenced in this hearing by the contracts that have been freely entered into by both parties. No matter what the specific nature of the DSD's procurement process was, FEI is not the only entity that can provide this service to the DSD and they were free to contract with a different party for this service. Accordingly, the Panel finds that the service to be provided by FEI to the Delta SD is a natural competitive service by nature with multiple potential

providers operating in the competitive thermal sector, offering different pricing models and system configurations.

In the case of a competitive market such as this, it may be appropriate for the Commission to defer to the terms of a negotiated agreement where a customer freely agrees to a contract with a service provider. However, in matters where there is a natural monopoly service, or where a natural monopoly service is potentially impacted by the activity, the Commission is obliged to use its regulatory mandate to ensure fair and reasonable rates that are not cross subsidized by the customers of the natural monopoly.

3.6.2 Is the Delta SD Project a Regulated Public Utility Activity?

Section 3.1.1 of this Decision outlines the definition of a public utility provided in the *UCA*. The applicable portion of the definition is that the *production, generation, storage, transmission, sale, delivery or provision of any agent for the production of heat and cold* is defined as a public utility undertaking. There are also 5 specific circumstances listed in the *UCA*, in which a person would not be considered a public utility. Of these, three are applicable only to a person not otherwise a public utility. One applies only to services provided by municipalities and regional districts, while the remaining circumstance applies to the production of electricity.

In its Application, FEI did not discuss the issue of regulation. The issue was explored with FEI in the IR process, where FEI stated that due to the measure of monopoly power present, regulation of thermal energy services is both appropriate and necessary. FEI submits that in reviewing district energy projects such as Dockside Green Energy LLP (Dockside Green), the Neighbourhood Utility Service at UniverCity (UniverCity) and the River District Utility (River District), the Commission has implicitly acknowledged the need for regulatory oversight of these thermal projects. (Exhibit B-3, BCUC 1.10.4) However, the Panel notes these are all district energy systems fully capable of expanding their infrastructure to incorporate new customers. In contrast, the Delta SD Project is best characterised as a series of discrete thermal energy systems with no interconnecting infrastructure. (Appendix D)

In the Inquiry, FEU stated that "either an activity carried out by a person meets the definition of "public utility" or it does not. If an activity meets the definition, then the person carrying out that activity is a public utility and subject to Part 3 of the *UCA*; otherwise, that person is not subject to the UCA." (Exhibit A 2-6, p. 15) In this hearing, FEI submits that "the service being provided to the DSD involves the delivery of an agent for the production of heat to the DSD for compensation. Therefore, FEI's provision of thermal energy service to the DSD is a regulated service under the UCA." (FEI Final Submission, p. 3)

Corix submits that some boiler configuration produce heat, and not an "agent for the production of heat" and, as such, do not trigger the public utility definition. It further submits that in the case of the Delta SD, the boilers owned by FEI heat DSD's water for space heating, so FEI is selling heat and not hot water (Corix Final Submission, pp. 3-4). FEI considers this position to be without merit, arguing that the boilers heat water which is then circulated through a closed system of pipes and that this circulation of heated water heats the air in the rooms. Thus the boilers are "equipment or facilities" and the heated water is the "agent" for providing space heating. (FEI Reply Submission, pp. 2-3)

No other Intervener takes any position on whether the service should or should not be regulated. BCSEA maintains that this is one of a number of issues that the Commission should defer final resolution of to the Inquiry, thereby enabling the expeditious resolution of this proceeding. (BCSEA Final Submission, p. 7)

Commission Determination

While there have been comparisons to the approach taken by other jurisdictions to the issue of regulating – or not regulating – non-natural monopolies, there is no evidence before the Panel concerning the specific intent of the legislators who drafted the *UCA*. The Commission Panel finds that this matter should be considered further and notes that this issue is before the AES Inquiry. We believe that the AES Inquiry is an appropriate forum for a more thorough airing of views on this

issue. Accordingly, in the absence of any direct evidence concerning the intent of the legislation, this Panel intends to apply a liberal approach to interpretation of the *UCA* in this hearing.

While we see merit in Corix's position, we are not persuaded that, with respect to the gas boilers, FEI isn't generating an agent. Further, in addition to the stand alone gas boilers, there are also ground source heat pumps and back-up gas boilers for those systems. Corix is silent on whether these systems satisfy the definition of a "public utility" under the Act.

In the Panel's view, FEI will be generating hot water and/or steam, either by burning natural gas or extracting it from underground and concentrating it through a system of heat exchangers. The hot water and steam will then be used to heat the schools in Delta SD. FEI is proposing to own the equipment and will be levying the rate on Delta SD. This satisfies the description of a public utility in the *UCA*. Further, none of the exemptions to that definition apply. FEI, by virtue of its other business activities, is already a public utility, thereby ineligible for (d), (e) and (f). As FEI is not a municipality, the exemption provided in (c) is not available. Exemption (g) does not apply.

FEI is not proposing to use a separate corporate entity to deliver service to Delta SD, and this issue is explored elsewhere in this Decision. However, if it were to do so, the Panel finds that it would have no impact on the issue of regulation. Provision of the service would result in the separate entity being considered a "public utility." Even if the entity was not otherwise a public utility, it would not meet any of the criteria for exemption contained within the *UCA* definition of a public utility.

The Commission Panel finds that the provision of thermal energy service to Delta SD is a regulated service under the *UCA.*

3.7 Commission Panel's Framework and Approach in Delta SD Decision

The Commission Panel respects the AES Inquiry Scoping Order, which provides that the Commission does not intend to frustrate on-going business activity. Accordingly, the Panel proceeds with deliberations only on the Delta SD Project to make its public interest determination. The Panel will not pre-judge the AES Inquiry findings and will review Delta SD solely within the existing regulatory construct. The Panel will defer any determinations of the higher level principles to the AES Inquiry. Our Decision is not intended to be precedent-setting or become a template for future thermal projects.

The Panel will rely on the following regulatory principles:

- A willing customer in a freely competitive market has options and the choice to make the required tradeoffs between the desired package of service, price, and quality.
- A competitive service provider who is also a natural monopoly service provider requires active Commission oversight to reduce the potential for cross-subsidization between the competitive service and the natural monopoly service.
- Fair use of natural monopoly resources would be in the public interest for the natural monopoly service.
- Fair access to natural monopoly resources would be in the public interest for the natural monopoly service.

In addition to the regulatory criteria stipulated in the *UCA,* such as fair, just, reasonable and non-discriminatory rates, the Commission Panel will give weight to other regulatory criteria including:

- Appropriate trade-off of risks and rewards between the customer and shareholder;
- Appropriate trade-off of risks and rewards between natural gas and TES customers;
- Encourage efficiency, cost reduction and performance enhancement; and
- Promote the optimal use of resources;
- The stand-alone principle and self-contained unit to discourage cross-subsidization.

In the previous Section the Commission Panel found that the provision of thermal energy service to Delta SD by FEI is a regulated service under the *UCA***.** The Panel also finds that an exemption under subsection 88(3) of the *UCA* is neither applicable nor appropriate at this time because both parties are on the record as requesting traditional cost-of-service based regulation. While the Commission Panel will defer to the AES Inquiry for setting the framework for FEI's activities in a competitive thermal market, it has to consider some of the implications of potential abuse of monopoly power including cross-subsidization for rate setting purposes to protect the interests of natural gas customers, future thermal energy services (TES) customers as well as the Delta SD customer in this case.

4.0 PROJECT DESCRIPTION

4.1 Background and Need

The Application is similar to an earlier one for which interim approval was denied by Commission Order G-179-11 on October 25, 2011. FEI states that the key differences between the October filing and this Application are that the project costs have increased by $150,000 and the construction schedule has been adjusted to reflect FEI's anticipated approval of the Application by March 1, 2012. As capital costs now exceed $5 million, FEI is seeking a CPCN rather than approval of expenditures under section 44.2 of the *UCA*. (Exhibit B-1, Cover Letter)

FEI states the Project will assist Delta SD in meeting its obligations under the CAC and the *GGRTA* as well as address a number of other Delta SD objectives as discussed below. The Project will also support several of British Columbia's energy objectives set out in the *CEA*. FEI also notes that the Project is important from the perspective that it is a necessary first step in FEI's transformation to an integrated energy service provider.

FEI notes Delta SD has been working for a number of years to reduce its thermal energy consumption and carbon footprint. The most recent initiative was to implement air-source heat pumps at 15 of the 34 buildings the SD operates. Through this initiative, FEI reports Delta SD was able to reduce annual natural gas consumption by 13,000 GJ and annual GHG emissions by about 470 tonnes of CO2e (tCO_2e) while increasing annual electricity consumption by 689 MWh. FEI notes Delta SD was unable to undertake further energy system upgrades due to a lack of access to capital funds. (Exhibit B-1, p. 9)

The remaining 19 of the SD's 34 buildings consume approximately 58,650 GJ of natural gas, as corrected by Exhibit B-10, BCUC 2.25.3, and 1,300 MWh of electricity for thermal energy on an annual basis in a normal weather year. The annual GHG emissions related to this amount of energy consumption are close to 3,000 tCO2e. (Exhibit B-1, p. 9) It is these 19 remaining sites that are the target of this Project.

FEI states "To the best of FEI's knowledge, the general criteria for the schools was to lower GHG emissions, keep energy payments at or below current energy costs, and to retrofit the largest number of buildings." Delta SD confirms that this accurately describes Delta SD's general criteria for the Project. (Exhibit B-3, BCUC 1.11.1; Exhibit C1-2, BCUC 1.5.1)

4.2 Project Benefits

FEI submits that the primary benefit of this Project is that it helps Delta SD achieve its energy goals. In addition to this direct benefit, the Project also benefits FEI's existing and future natural gas customers and British Columbians generally by advancing British Columbia's energy objectives. (Exhibit B-1, p. 10)

This Project includes natural gas as the primary energy source at eight of the sites and retains natural gas for supplementing the energy from the ground source heat pumps at the remaining 11 sites. FEI indicates the Project benefits FEI's natural gas rate payers by ensuring that "as the SD moves towards reduction of GHG emissions the transition occurs in a manner that utilizes assets that are already in place to service natural gas loads at these sites." Currently, the British Columbia thermal energy market is dynamic, and natural gas is experiencing declining loads. Inclusion of natural gas in this Project helps mitigate the risk that the SD would move towards a solution (e.g. electricity) that caused an immediate loss of revenue to the natural gas class of service. (Exhibit B-1, p. 10)

The Project is expected to reduce GHG emissions by over 70 percent from the current level of emissions at the 19 sites. FEI states that while the Project helps the SD in meeting its specific obligation to be carbon neutral, the Project also helps to achieve the broader British Columbia energy objectives which, under section 46 of the *UCA*, the Commission must consider when determining whether to issue a CPCN. (Exhibit B-3, BCUC 1.6.1) FEI further states high efficiency gas boilers and heat pumps are innovative technologies supporting energy conservation and efficiency as well as the use of clean and renewable resources. Finally, FEI submits that as a package, the technologies, together with the rate design, provide an innovative solution. FEI notes

that over the 20-year term of the Service Agreements, the projected GHG emissions are expected to be reduced threefold when compared to the British Columbia's GHG targets. (Exhibit B-1, pp. 12-13; Exhibit B-3, BCUC 1.13.1)

4.3 Project Alternatives and Screening Analysis

Rather than tender the project, Delta SD and FEI worked collaboratively to develop the technology solutions for the thermal energy provision. (Exhibit B-3, BCUC 1.87.1)

4.3.1 Calculation of Thermal Energy Demand

The Project consists of 19 existing sites with known energy consumption histories that require only heating load with no requirement for cooling load. (Exhibit B-3, BCUC 1.63.1) Energy systems are designed to meet the maximum demand. FEI states that the coldest temperature experienced In Delta was -11.2 degrees Celsius. FEI further states that the design of the heating system of the sites meets the National Building Code of Canada, which references the 2.5 percent January design temperature which is about -7 degrees Celsius for Delta. (Exhibit B-3, BCUC 1.23.5)

FEI used historical billing information obtained from the SD for both natural gas and electricity and then performed a regression analysis against heating degree-days in Vancouver to establish the thermal energy demand for each site. An evaluation was performed at each site to estimate the boiler efficiencies and any non-heating gas utilization. (Exhibit B-1, pp. 17-18) Given the buildings that are to be served by the Project are already in operation, the thermal energy demand can be readily determined and the facilities can be designed to achieve an immediate match between the size of the required energy systems and the thermal energy demand. (Exhibit B-1, p. 28) FEI determined that the total annual thermal energy demand for the 19 buildings is 38,177 GJ. (Exhibit B-1, p. 11)

4.3.2 The Available Technologies

FEI notes there are a variety of technologies available to deliver thermal energy. In order to meet Delta SD GHG emissions and energy conservation objectives, FEI considered that the currently available technologies that were appropriate for consideration included heat pump solutions and high efficiency boilers. (Exhibit B-1, p. 14)

Heat pump energy systems use a pump to transfer energy from a renewable energy source such as ground, water or air in order to provide heating and/or cooling load in buildings. FEI considered air source heat pumps as well as open loop and closed loop GSHPs. The term GSHP and geo-exchange system will be used interchangeably in this Decision.

Air source heat pumps transfer heat to or from ambient air. These systems can significantly reduce GHG emissions, but require significant peak day backup support due to the reduced system performance as the ambient temperature drops. As a result, FEI notes that it prefers to limit the use of air-source heat pumps. FEI states the 15 buildings that the SD previously switched to air source heat pumps still have significant peak demand requirements from their redundant backup systems, although they have reduced emissions at comparatively lower capital cost. (Exhibit B-1, p. 16)

FEI notes that while it is possible to design GSHP systems to meet all of the peak day demand, the use of supplementary natural gas boilers can help to minimize the overall capital costs without significantly adding to the emissions footprint. (Exhibit B-1, p. 16)

FEI also considered HEGB that can increase efficiency by as much as 20 percent over older boiler designs that may recover less than 60 percent of the energy in the natural gas consumed. More efficient controls at the burner tip can further boost efficiency such that practical efficiencies in excess of 90 percent are achievable. (Exhibit B-1, p. 17)

FEI did not consider the 100 percent electricity solution. "The electricity alternative considered that all thermal energy is generated by baseboard heaters with 100% efficiency, thereby increasing the demand for electricity on a peak and annual basis comparing to the current natural gas boilers in place." (Exhibit B-3, BCUC 1.76.1)

4.3.3 Screening Analysis

FEI notes that while it did go through an alternatives analysis, FEI has not provided the kind of detailed alternatives analysis that is contemplated in section 2(ii) of the CPCN Guidelines because FEI has a willing customer who has entered into contracts with FEI and who desires the specific project applied for. (Exhibit B-1, Cover Letter, p. 3)

For each of the 19 sites FEI, together with JCLP, developed capital cost, operating cost and energy estimates for each of the following technology alternatives: open loop geo-exchange systems, closed loop geo-exchange systems, high efficiency boiler upgrades, and air source heat pumps. Rather than limiting to a single technological solution, FEI's approach was to incorporate multiple technologies across all sites to produce a pooled solution that met the needs of the SD overall.

Absent budgetary considerations, FEI initially sought to maximize GHG emissions reductions by considering geo-exchange systems for all sites. Based on a study commissioned by FEI that showed an abundance of ground water in some parts of Delta, FEI initially evaluated a solution with eight open loop geo-exchange systems and 11 closed loop geo-exchange systems. This solution maximized the energy savings and GHG emissions reductions but required significant mechanical systems changes for eight of the closed loop sites, presented high risk and maintenance costs for a significant number of the open loop systems, and resulted in a high overall capital cost. As a result, this configuration was rejected. (Exhibit B-10, BCUC 2.36.3)

The next alternative considered was eight high efficiency boiler installations, 3 closed loop geo-exchange and eight open loop geo-exchange systems. FEI acquired a preliminary geological and hydrological assessment of the eight sites identified as potential candidates for open loop geo-

exchange systems. Based on the assessment, JCLP provided cost estimates for both open and closed loop geo-exchange systems and determined that capital costs of the open loop geo-exchange systems would be 10 percent greater than closed loop for 6 of the eight sites. FEI, JCLP and the SD agreed the optimal solution would be 2 open loop geo-exchange, 9 closed loop geo-exchange and eight HEGB systems. The Project consists of this latter technology configuration and forms the basis for the financial analysis included in the Application. (Exhibit B-1, pp. 19-22)

FEI has not provided a financial analysis of any technology configurations other than the final proposed solution. (Exhibit B-10, BCUC 2.36.1) FEI notes that the proposed solution is the "best fit" and was arrived at through consultation with the SD. FEI notes that "the DSD has specific objectives, specifications and constraints that have to be met to make any project viable. The DSD and FEI considered the alternatives available within that framework and arrived at a mutually beneficial solution." (FEI Final Submission, p. 4)

FEI notes the Project is a packaged solution and cannot be disaggregated because the procurement price, the CIAC and rate rider are based on negotiations for the entire project. FEI contends that an all geo-exchange solution would likely be too expensive and an all boiler solution would not reduce emissions enough although no specific target reduction amounts were provided. (Exhibit B-3, BCUC 1.22.2)

By virtue of the thermal energy service producing rates that are less than the market rate, or status quo, FEI states it demonstrated to Delta SD that this service is more cost-effective than simply obtaining offsets to achieve carbon neutrality. (Exhibit B-8, BCUC Supplemental IR 1.1)

The initial analysis and investigation of alternatives focused on site specifics: heating system compatibility, site layout, local geological and hydro-geological conditions and system costs. The final analysis of technology alternatives will follow CPCN approval with site specific surveys, detailed design, installation, testing and commissioning. (Exhibit B-3, BCUC 1.35.4)

4.4 Project Scope

4.4.1 Description of Discrete Energy System

The 19 sites are discrete thermal energy systems not connected or shared between sites. FEI will install thermal meters downstream of the thermal energy systems to measure deliveries to the SD. Electricity and natural gas meters will be upstream of the thermal energy systems and FEI will take delivery of these commodities.

A typical high efficiency boiler system to be installed at one of the Delta SD sites will consist of:

- Modular condensing boiler(s);
- Pumps, piping, control valves and other equipment and accessories connected to the above equipment; and
- Control and metering systems for the above mentioned equipment.

A typical geo-exchange system to be installed at one of the Delta SD sites will consist of:

- Geo-exchange field loop to match the designed performance of the system;
- Piping between the field and the heat pump;
- Ground source heat pump and associated pumps;
- Natural gas fired boiler for peak thermal energy requirements;
- Piping, control valves and other equipment and accessories connected to the above equipment;
- Connection of the heat pumps to the boiler and installation of valves as required; and
- Control systems and metering for the above mentioned equipment.

(Exhibit B-3, BCUC 1.23.1)

The geo-exchange systems will incorporate the existing natural gas boilers for the purpose of providing supplemental thermal energy on peak days. In addition, one of the open loop geo-exchange sites (South Delta School) will include an existing air-source heat pump.

The specific equipment and components to be installed at each of the 19 sites is set out in Schedule A of the applicable Service Agreement.

4.4.2 Scope of Work

Upon Project approval, JCLP will commence construction as provided in the Design Build Agreement with FEI. Work will commence initially on the sites receiving high efficiency boilers.

Concurrent with the HEGB installation, geothermal engineering studies will determine the soil thermal conductivity and loop field sizing while groundwater analyses will determine the potential for operational issues with the open loop systems. Based on the results of the soil thermal conductivity tests, field sizing will be determined using commercially available computer simulation software to simulate long term effects of heat extraction and to establish borehole depth, spacing and total length of the geo-exchange field. (Exhibit B-3, BCUC 1.36.1)

Once the geothermal engineering studies are complete, JCLP will proceed to install the geo-exchange systems. The results of these studies may lead to design modifications for the geo-exchange sites. If the costs of the geo-exchange systems increase as a result, FEI would consider re-scoping options to contain the costs. These re-scoping options may potentially include: reducing the loop size at a specific site and increasing the thermal demand on the peaking boiler, reducing the loop size and including air source heat pumps, switching a site from geo-exchange to air source heat pump or high efficiency boiler. (Exhibit B-3, BCUC 1.50.3)

The Project also involves removal of asbestos and other contaminants commensurate with reports provided by Delta SD. If undisclosed contamination is discovered, remediation work will not proceed until the costs have been determined and reviewed by FEI and Delta SD. The SD may then

choose to undertake the remediation itself, task FEI to complete the remediation as part of the project, or, decide not to proceed with the retrofit for that particular building. (Exhibit B-10, BCUC 2.42.2, Exhibit B-3, BCUC 1.24.2)

FEI estimates annual energy savings of 39,000 GJ for natural gas and electricity combined and GHG emissions reductions of 2,250 tonnes of CO_2. (Exhibit B-1, p. 25) FEI notes that the emissions reductions are primarily a function of technology and energy source used. The energy systems need to pass commissioning tests before FEI purchases them from JCLP, including verification of system performance. (Exhibit B-3, BCUC 1.56.1) While JCLP is contractually required to meet the technical, performance and cost requirements as detailed in the Design Build Agreement, the Commission is not aware of specific clauses in the Service Agreements and RDA between the SD and FEI that set out the anticipated energy savings and GHG reductions. To the extent re-scoping of the geo-thermal systems occurs, the energy savings and GHG emissions reductions may be adversely impacted.

FEI is of the view that none of the potential re-scoping described above would require an amendment to the CPCN as long as the rate met the needs of the SD. (Exhibit B-3, BCUC 1.51.10)

4.5 Implementation Schedule

The Project timeline is forecast to cover a period of two years. Construction is scheduled to commence mid March of 2012 upon Commission approval. FEI notes that the goal of FEI, the SD and JCLP is to complete the Project as soon as possible and no later than May 2013.

JCLP will commence construction at the eight sites with HEGB installations scheduled for completion by the end of May 2012. Concurrently, JCLP will evaluate and confirm the appropriate geo-exchange system for each of the 11 sites scheduled for GSHP installations. Installation of the geo-exchange thermal energy systems at the remaining 11 sites will take place from June 2012 through to early May 2013. (Exhibit B-3, Attachment 47.1)

FEI notes the schedule is a key driver of the costs that JCLP have agreed to, and any delay in receiving Commission approval beyond March 1, 2012 could adversely affect the project costs. (Exhibit B-1, p. 5) The four-month delay from the schedule set out in the initial application filed by FEI on October 17, 2011 that was subsequently withdrawn and resubmitted as the subject Application lead to an increase of $150,000 in the overall project cost estimate. (Exhibit B-1, Cover Letter, pp. 1-2)

5.0 PROJECT COSTS

5.1 Design Build Agreement

The design build contract was developed subsequent to a feasibility analysis that JCLP conducted and to responses to a Request for Expressions of Interest for Large Scale Thermal Energy Delivery Projects. The request was issued in March 2011 to three parties: Honeywell, JCLP and Ameresco. FEI notes that, although Ameresco declined to bid, FEI decided to continue with the Project based on satisfactory responses from JCLP and Honeywell. JCLP was the successful bidder. (Exhibit B-1, p. 30)

FEI describes the key obligations of the JCLP Design Build Agreement as follows:

> " 1. design, build, install and commission metered thermal energy delivery systems for the 19 schools;
> 2. provide all detailed engineering and development scope for the entire project;
> 3. provide all project management for the entire project;
> 4. supply all Project documentation for each site by each Installation Date; and
> 5. provide a complete commissioning report and system performance verification."
>
> (Exhibit B-1, pp. 30-31)

The Design Build Agreement was filed confidentially by FEI to preserve the commercially sensitive information contained in it and FEI has requested that it be held confidential on a permanent basis.

Commission Determination

The Commission Panel notes that Delta SD has not objected to the confidentiality of the Design Build Agreement. Accordingly, the Panel takes no issue with this.

5.2 Capital Cost Components

5.2.1 Fixed and Variable

The total net Project capital cost is approximately $5,218,000 and is determined as follows:

Table 1

Design Build Contract Price		$6,350,000
Fixed Cost Component	*$2,050,000*	
Variable Cost Component	*$4,300,000*	
JCLP Feasibility Analysis		$100,000
FEI Project Development Costs (approx.)		$125,000
Total Project Costs (approx.)		$6,575,000
SD Contribution in Aid of Construction		($1,357,000)
Net Project Costs (approx.)		$5,218,000

Source: FEI Final Submission, p. 13

The design build contract price is as set out in the JCLP Design Build Agreement. The other capital costs are the JCLP feasibility analysis and an estimate of FEI project development costs. The fixed cost component of the design build contract price includes all boiler upgrades, all design costs, all project management costs and a fixed profit margin for the geo-exchange upgrades. The variable cost component relates to the direct geo-exchange system costs. (Exhibit B-1, p. 31) Should it become apparent that the geo-exchange costs will be higher, FEI has the ability to alter the scope of the services provided. To the extent the geo-exchange system costs come in lower, JCLP and FEI will share the savings equally. The FEI share of these savings will be passed to the SD through the cost of service rate. (Exhibit B-1, p. 32)

The JCLP feasibility analysis costs were for a fixed scope of work that was used for evaluation of technology alternatives. The FEI Project development costs were revised upward from the estimate of $50,000 that was originally stated in the Application. Since the time of the original estimate, FEI reviewed the costs incurred to date in light of the extended approval timeline and determined the estimate should be increased to $125,000. (Exhibit B-10, BCUC 2.51.1) These costs

include legal fees and estimates of employee time on the Project and are intended to cover the SD's allocated share of TES business development, sales and marketing costs. (Exhibit B-3, BCUC 1.37.3) The SD indicated it has no objection to these fees as it expects to pay its fair share of the indirect costs. (Exhibit C1-2, BCUC 1.27.1)

FEI has not included any specific project or related contingency costs as the boiler installation, project management, design, overhead and margin costs are fixed in the Design Build Agreement. The capital and sub-contractor costs for the geo-exchange systems are variable and FEI intends to re-scope these systems to the extent necessary to contain costs. (Exhibit B-3, BCUC 1.51.7) Furthermore, the cost estimates above do not include future capital costs to replace equipment. Sustaining capital is included in the financial model with replacement times scheduled for equipment such as controls, valves, compressors, heat exchangers and pumps. (Exhibit B-3, BCUC 1.81.0)

5.2.2 Contribution in Aid of Construction

FEI states the SD will provide a CIAC to FEI equal to a total of $1.357 million which will directly reduce the capital investment of FEI. The payment of the contribution will be matched to the successful commissioning of the related energy systems of each site. Considering the schedule, FEI expects that $850,000 will be paid by December 2012 and the remaining $507,000 will be paid to FEI over the course of 2013 (Exhibit B-1, p. 32). FEI states that the CIAC is amortized at the average depreciation rate of the rate base each year (Exhibit B-3, BCUC 1.39.2).

5.2.3 Energy Efficiency & Conservation Funding

FEI committed $116,790 of Energy Efficiency & Conservation (EEC) funding from its Public Sector Energy Conservation Agreement (PSECA) program to Delta SD for eligible high efficiency boiler upgrades at seven schools (Exhibit B-3, BCUC 1.40.1). This EEC funding is separate from the $1.357 million in the PSECA funding the SD received from the Climate Action Secretariat, which it is providing as a CIAC to the Project. FEI will not require the SD to put this $116,790 in EEC funding to any specific use. FEI will not require the EEC funding to form part of the CIAC and also states that

the SD's provision of the CIAC is not contingent on its receipt of EEC funding (Exhibit B-3, BCUC 1.41.1).

Commission Determination

While FEI's provision of EEC funds for a project it owns and the lack of conditions on its use raise some concerns for the Commission Panel, the matter is not dealt with in this Decision as the Project is not contingent on EEC funding. The Panel finds the matter is more appropriately left to other current proceedings such as the FEU 2012-2013 Revenue Requirement and the AES Inquiry.

5.3 Revenue Requirement Components

This Section summarizes key components and issues related to the revenue requirements except for the financing costs as they will be addressed in Section 8.5.

Cost of Energy

The Application states that FEI will pay prevailing rates for natural gas and electricity purchases as adjusted by the Commission from time to time, and pass those through to the customer in the cost of service by making annual adjustments to the COS rates. FEI used the latest GLJ Petroleum Consultants Ltd. forecast for natural gas as the base case for prices, the latest information on electricity price increases and a regression of the electricity price index in Canada to forecast annual increases in the financial model. (Exhibit B-1, p. 40)

Operation and Maintenance

FEI estimates the costs for preventative maintenance and equipment replacement by site and in aggregate for the Project. For each type of equipment, FEI estimated the frequency of preventative maintenance measures as well as the labour time and costs necessary to provide the service. In addition, it estimated the frequency of replacement of parts and the replacement costs for each type of equipment over the term of the Contracts. (Exhibit B-1, p. 40)

Project Development Costs and Allocation of Overheads

In addition to the standard cost of service items, FEI included $225,000 of project development costs (as shown in Section 5.2.1) plus an annual amount of $50,000 for shared services and overheads to the SD's cost of service. These amounts will recover a total of $1,336,000, assuming an inflation rate of 2 percent, of the Thermal Energy Services Deferral Account (TESDA) over the term of the Contracts. TESDA is the new name for the New Energy Solutions Deferral Account that was first established by Order G-141-09. FEI states this allocation directly contributes to the project development costs that be allocated into the TESDA (Exhibit B-1, p. 41).

FEI further explains the annual amount for shared services and overheads of $50,000 represents a reasonable allowance for annual costs of all management, administration and support services including 24 hour response, monitoring, billing, and customer service (Exhibit B-3, BCUC 1.46.1). However, since there is no directly applicable historical information, FEI was unable to provide any cost breakdown. FEI indicated adjustments, up or down, will be reflected in the COS rates charged to the SD over time (Exhibit B-10, BCUC 2.47.2). Finally, FEI indicated this amount is consistent with the $50,000 that Corix has included in the UniverCity CPCN for similar services (Exhibit B-3, BCUC 1.18.2). The overhead allocation of $50,000 annually to the SD offsets costs in the TESDA (Exhibit B-10, BCUC 2.46.1)

Corix submits FEI's ambiguous offer to adjust the $50,000 as part of a future annual cost of service calculation is no assurance of fair and transparent dealing at all. Corix further submits if FEI is less successful than it expects to be in the thermal energy service business, then its initial customers will bear an unexpected burden of repaying the TESDA balance. Finally, Corix submits "continued TES project development spending from the TESDA with no near-term repayment plan distorts the TES market place and creates intergenerational inequities ... Approving the TESDA recovery model presented in this Application defers the establishment of an appropriate methodology, and the Commission should therefore deny it." (Corix Final Submission, pp. 6-7)

Depreciation and Amortization

Depreciation rates are generally set according to general accounting standards to recover the cost of the assets by asset class over its useful life. FEI made assumptions that loop fields will have a useful life of 50 years, which it claims may be conservative (Exhibit B-1, p. 41). FEI states that information supplied by Plastic Pipe Institute suggests that the conservative life expectancy of the high density polyethylene pipe is between 50-100 years (Exhibit B-3, BCUC 1.73.1). High density polyethylene pipe is the standard adopted by the geo-exchange industry internationally. FEI is not aware of any systems that are used in geo-exchange systems that are better or more durable than high density polyethylene and for that reason no research and analyses were conducted (Exhibit B-3, BCUC 1.73.2). Pumps and boilers have a shorter useful life (and hence, a higher depreciation rate) according to FEI's financial model (Exhibit B-1, Appendix D).

In Exhibit B-10, BCUC 2.25.3, FEI provided updated information on the Project which included an upward adjustment to the depreciation rate for sustaining capital items indicating a shorter useful life than previously estimated.

Taxes

FEI included a provision for property taxes in anticipation that there will be property taxes imposed on FEI during the term of the Service Agreements as utilities are required to pay property taxes on other facilities and equipment included in its rate base. FEI explains that property taxes occur in two main categories: assessed property values and mill rates and "in Lieu tax" levied by municipalities based on utility revenues collected within municipal boundaries. This is generally calculated as one percent of revenues in most BC municipalities. FEI has estimated property taxes using this assumption. (Exhibit B-3, BCUC 1.74.2)

FEI also indicates that this Project produces a significant Capital Cost Allowance (CCA) for the geo-exchange systems by qualifying for the class 43.2; a rate of 50 percent. This high CCA rate produces a significant tax benefit in the early years of the Project and also each time a geo-exchange system is added to the pool. FEI also indicates that investment in ground-source equipment is more attractive than air-source equipment (which is Class 17, CCA rate of 8 percent) due to the higher tax

benefits realized in the early years. The lower cost of service in the early years after installation that results from the tax benefits significantly helps to reduce the burden of the higher up-front capital costs of the ground source heat pump technology (Exhibit B-3, BCUC 1.33.2). Income taxes for this Project are assumed at the income tax rate of 25 percent (Exhibit B-1, Appendix D).

Revenue Requirement

FEI provides the cost of service forecast over the initial term of 20 years in Table 3 of the Application, which is copied below for ease of reference. FEI states that the figures were determined using the standard cost of service calculations and forecasts of the variables as described in the above sections. (Exhibit B-1, p. 40) It should be noted that this forecast was subsequently updated in Exhibit B-10, BCUC 2.25.3, Attachment 25.3.

Table 2

Table 3: Illustrative Revenue Requirement Forecast

Thermal Energy Solutions: Illustrative Revenue Requirement
($000's), unless otherwise stated

Particulars	2012	2013	2014	2015	2016	2021	2031
Revenue Requirement							
Cost of Natural Gas	42	104	117	124	132	158	192
Cost of Electricity	25	165	227	234	240	276	363
Operation and Maintenance	168	233	238	243	248	277	340
Property Taxes	6	1	4	8	11	13	15
Depreciation Expense	74	156	214	216	218	227	263
Amortization Expense	(10)	(26)	(44)	(44)	(44)	(43)	(40)
Income Taxes	(112)	(375)	(361)	(140)	(28)	55	43
Earned Return	87	290	399	393	386	352	335
Annual Revenue Requirement	**280**	**549**	**793**	**1,034**	**1,162**	**1,315**	**1,511**

Source: Exhibit B-1, p.40

Commission Determination

The Commission Panel accepts the revenue requirement components subject to findings in Section 8.0.

6.0 RATE STRUCTURE

6.1 Contracts with Delta School District 37

The 19 individual Service Agreements specify how FEI is to provide thermal energy upgrades for each of the subject school district sites based on designs by JCLP, in return for FEI charging a single rate for all thermal energy delivered. The twentieth agreement, the RDA, establishes the basis for developing a single pooled monthly rate that the SD pays FEI for the thermal energy consumed at all 19 sites. FEI has filed the contracts confidentially to be made public as tariff supplements on approval of the Project (Exhibit B-1, Cover Letter, pp. 3-5)

6.1.1 Energy System Service Agreements

The Service Agreements provide that FEI will design and build the thermal energy systems at each of the sites, and own, operate and maintain the system. Schedule A of each Service Agreement details the thermal equipment to be provided and owned by FEI. To the extent re-scoping occurs, these schedules would be revised. (Exhibit B-3, BCUC 1.19.5.1) Some of the key terms as outlined by FEI include:

- The agreements have a term of 20 years and an automatic 10-year renewal provision unless the SD provides notice of termination;
- The SD will pay FEI a contribution in aid of construction for the Project;
- Addressing work schedule issues to ensure that each building's existing energy system remains operational during normal school hours;
- The agreements include reports disclosing the known asbestos contamination;
- FEI will own the energy systems installed at each school, and will provide thermal energy services to the SD during the term of the agreements, including maintenance services; and
- The SD will pay FEI monthly for thermal energy at the rates established under the Energy System Rate Development Agreement (Exhibit B-1, p. 33)

The Service Agreements are separate to enable FEI and the SD to add or remove sites over time, and to have the rate automatically adjust for those changes, without substantively altering the overall RDA (Exhibit B-1, p. 33).

While Delta SD claims to be aware of clauses in the individual service contracts which hold FEI accountable for operational obligations, such as service reliability, guaranteed GHG reduction, or energy savings (Exhibit C1-2, BCUC 17.1), the Commission was unable to locate these clauses after examining the Contracts.

6.1.2 Energy System Rate Development Agreement

Under the terms of the agreement FEI will charge a single, pooled monthly rate for the thermal systems provided and thermal energy consumed at all 19 sites. FEI considers Delta SD to be one thermal energy service customer with multiple sites. Some of the key terms of the RDA as outlined by FEI include the following:

- A term of 20 years, with an automatic 10 year renewal provision unless either party provides written notice of termination;
- FEI may apply to the BCUC for approval of a general TES rate;
- The SD has the right to elect to pay the approved general TES rate if the rate is approved. The SD is the only party that may elect to transfer to a broader postage stamp rate (Exhibit B-5, Corix 1.6.1);
- The initial rate charged will be a single pooled negotiated “market rate “for all of the thermal energy and systems provided by FEI at all of the 19 sites. The SD37 Deferral Account will be used to record any variances between both the forecast cost of service and revenues, and between the market rate and cost of service rate. These variances will be recovered in rates in subsequent years as part of the cost of service;
- The SD may elect to switch to a “cost of service rate” at any time during the contract. Once the SD has switched to the cost of service rate, it cannot switch back to the market rate in the future. If FEI and the SD cannot come to a mutual agreement on when the switch should occur, then FEI has the option to apply to the BCUC to request the switch.(Exhibit B-3, BCUC 1.38.9);

- The cost of service rate will adjust automatically based on changes to the FEI cost structure.
- Additional buildings may be brought into the contract and included in the single thermal energy rate charged to the SD under the RDA; and
- The number of Service Agreements to be included within the RDA pool for rate-purposes can be adjusted. (Exhibit B-1, p. 34) Other schools outside of the DSD can be added to the asset pool. (Exhibit B-3, BCUC 1.52.3.1)

Commission Determination

The Commission Panel acknowledges these Contracts are subject to the Commission's approval. The significance of this "subject to" clause, by way of the Commission Panel exercising its regulatory oversight, leads to determinations identified in Sections 7.0 and 8.0.

6.2 Requirements of General Terms and Conditions, Section 12A – Alternative Energy Extensions

Under Order G-141-09, FEI is to file project-specific contracts with AES customers with the Commission for acceptance as a rate, at which time the Commission may review and adjust the economic test and GT&C Section 12A – Alternative Energy Extensions. FEI has developed the Delta Project rate subject to (the now interim) Section 12A of the General Terms and Conditions. Section 12A.1 provides for FEI to make extensions to the natural gas system using technology that produces alternative energy. The alternative energy extensions described in GT&C Section 12A "include geo-exchange, solar-thermal and district energy systems."

The Project makes use of both geo-exchange systems and high efficiency natural gas boilers to deliver thermal energy. At eight of the sites the thermal energy systems are stand-alone gas boilers. There has been significant debate in the Delta proceeding as to the eligibility of stand-alone gas boilers under GT&C Section 12A. FEI argues in the Application that "the list of system extensions described in GT&C, Section 12A is inclusive, and not meant to be exhaustive." (Exhibit B-1, p. 38)

Under the terms of Section 12A.2, "alternative energy extensions will remain the property of FEI." In the Delta Application FEI proposes to "own the energy systems upstream of the thermal energy meters as required under GT&C, Section 12A.2" (Exhibit B-1, p. 37). GT&C 12A provides for a cost of service model to determine the rate to be paid by the customer, with service to be provided under the terms and conditions of the Service Agreement between FEI (Terasen Gas) and the Customer. FEI proposes to "pool" the individual school energy facilities for the purposes of determining the cost of service based rate (FEI Final Submission, p. 34).

GT&C 12A.4 requires that all customers expected to connect to the alternative energy extension be considered in the cost of service model. The Delta Project proposes to serve one customer, the Delta School District, rather than the 19 individual sites managed by the SD (FEI Final Submission, pp. 19-20). There are no physical interconnections between the 19 separate sites (Exhibit B-1, p. 29).

FEI submits that the Commission is free to accept the DSD Project and approve the agreements with the DSD without determining the scope of GT&C 12A at this time (FEI Final Argument, p. 34).

Corix submits "...in concept and reality, the stand-alone boilers are not a district energy system. There is no energy system and there is no distribution network. Even if this service did trigger the definition of public utility, it requires a new tariff since it does not fit within the existing GT&C 12A." (Corix Final Submission, p. 4)

Commission Determination

The Application was filed on November 28, 2011, whereas the GT&C Section 12A was not declared interim until January 1, 2012**.** In Section 8.1.1 the Panel refers to the AES Inquiry any further consideration of the GT&C Section 12A - AES Extensions, especially the inclusion of stand-alone gas boilers in the tariff. Had the Panel determined otherwise and considered the GT&C Section 12A to set rates for Delta SD, the pre-January 1, 2012 conditions would probably apply.

6.3 Key Elements of Rate Design

6.3.1 "Postage Stamp" Rate

FEI proposes to charge a single "innovative pooled" thermal energy rate at each of the 19 sites, that recovers the cost of service of FEI to provide thermal service to all sites. The primary motivation behind the setting of a single rate across all sites includes the presence of a single school board responsible for budgeting at all of the schools, cost-sharing benefits, and the possibility of including additional sites in the rate "pool" in the future (FEI Final Submission, p. 19).

The RDA essentially provides for the possibility of five different pooled rates:

- The initial, negotiated transitional market rate, based on the 19 initial DSD sites;
- A single cost of service rate for the 19 initial DSD sites covered in the Energy Service Agreements;
- A single cost of service rate, which includes additional DSD sites;
- A single cost of service rate, which includes agreements with other customers outside of the DSD. (The inclusion of the rate rider in the rate design for the DSD, which is discussed below, is a precondition to growing the pool beyond the DSD); and
- A broader thermal postage stamp rate based on FEI's general pool of thermal projects.

FEI submits that without the pooling approach, each separate site is constrained by that specific budget. "The economy of scope that occurs by pooling sites enables the use of combinations of multiple technologies to render thermal energy that result in a more efficient outcome overall than approaching each site as a separate business case. This is a crucial component of the project and the overall business model." (Exhibit B-3, BCUC 1.2.1) The pooling mechanism essentially balances the costs and benefits to find the most efficient solution for producing and delivering thermal energy across the DSD, maximizing greenhouse gas emission reductions, while taking its overall budget into account (FEI Final Submission, p. 19; Exhibit B-1, p. 38). As such, FEI states the "postage stamp rate for this project (which consists of 19 sites) is a product of negotiations

between SD and FEI and the terms of the agreement are mutually acceptable." (FEI Exhibit B-3, BCUC 1.20.1)

According to FEI, a second benefit includes both the sharing of common costs such as "contract management, general administration, monitoring, maintenance and planning, which results in administrative efficiency" and other benefits such as cost spreading for unplanned maintenance, or reducing the impact of a school closure, while ensuring that FEI still recovers its cost from the remaining buildings (FEI Final Submission, p. 20) In response to a question from Corix about the impact on the total amount paid by the DSD in the event of school closure, with and without pooling (Exhibit B-5, Corix 1.6.1), FEI responded the pooling model is more flexible, as it would not require contractual terms relating to the recovery of the sunk costs at that site. It is unclear from the response that there would be any difference in the total amount payable by the DSD.

FEI asserts that it is reasonable to establish one common pooled rate for the SD considering the acceptance of the rate setting mechanism by the customer and associated administrative efficiencies. FEI further submits the approach is not unique, since it is similar to natural gas customers in a particular rate class having a pooled rate even though the individual customers may be widely spread out with varied infrastructure costs associated with serving them. (FEI Final Submission, p. 35; Exhibit B-10, BCUC 2.10.4) Delta SD has expressed their preference for receiving one combined rate, rather than 19 different rates, due to the reduced administrative costs associated with negotiated 19 different rates. As the pool of buildings increases, the FEI administrative costs per Delta SD building (which are contained in the thermal energy rate) are expected to decrease. (Exhibit C1-2, BCUC 1.7.1)

As a third benefit, the expansion of the pool beyond the initial 19 sites is expected to confer further benefits on the DSD. This would be achieved through the submission of a separate application to the Commission, and will provide similar benefits to the initial pool of 19 sites, namely diffusing the effects of any unforeseen capital expenditures to support the service. The fourth benefit cited is the ability to expand the pool to include other customers, and will be the subject of a separate, future application. (FEI Final Submission, pp. 21-22)

Both the DSD and FEI have clearly indicated their intention to broaden the 19 site DSD pool in three possible future steps: first to include other DSD sites; then other school districts or similar projects in the rate pool; and ultimately, the creation of a broader thermal pool. FEI states extension of the thermal pool provides regulatory benefits by lowering the review and monitoring requirements through reduction in the number of rates and rate base pools necessary to support thermal energy services. (Exhibit B-3, BCUC 1.19.3)

Commission Determination

While any expansion beyond the initial 19 sites is to be addressed in future applications, the Panel would like to caution that it has significant concerns about the broadening of the pool beyond one customer, namely Delta SD. The Panel is not aware of any precedents of pooled rates in the context of a contractual pooling of discrete or stand-alone energy systems.

In the absence of a monopoly service with a franchise agreement, it is unclear why customers with lower thermal costs would ever want to join the combined thermal pool. Delta SD would effectively be providing a floor thermal rate, and only other systems with higher or equivalent costs would have an incentive to join. The presence of a competitive thermal market would make it impossible to oblige lower cost customers to join any future thermal network.

In addition, the lack of any shared physical thermal system means that the only potential cost savings from pooling are limited to administrative or overhead costs. It is not clear why this benefit could not be passed on to thermal customers through a lower overhead or administrative component charged on top of the unique system costs. Due to the large number of gas customers, the administrative gains from postage stamp rates, as opposed to personalised rates, are large. Until the number of thermal customers increases significantly, there are only limited administrative efficiencies to be gained from pooled rates.

Ultimately, the benefits to be gained from any regulatory efficiency will have to be weighed against the reduced efficiency, which results from a loss of price-signalling under a broader thermal postage stamp rate. As each thermal system will be an individualised solution matching the needs of the customers, project specific rates would appear to provide customers with a better incentive to make efficient consumption and investment decisions. Any administrative benefit gained by FEI would appear to be small relative to the loss of proper price signalling to the customer.

While there is an argument to be made for the "pooling" or package offering as an administrative or benefit within the confines of one customer's budget, the benefits of expanding the rate pool to other thermal customers are not clear at this stage.

The pooled rate is essentially an administrative or value-added project design service, which FEI has provided to Delta SD. The Delta SD, as it is responsible for budgeting across the district, could have made similar trade-offs between school sites within its standard budgeting processes. As such, the administrative benefits of a pooled bill can be viewed as a part of FEI's competitive product offering to the school. However, it is not clear that there are any other benefits of the pooled rate, which could not have been achieved within the confines of Delta SD's overall budgeting process.

The Commission Panel finds that the pooled or package rate for Delta SD's 19 current sites is acceptable under the terms of the current RDA. **However, the Panel does not approve the extension of the pool beyond Delta SD's current and future sites**. This rejection does not imply that the pooling concept could not become feasible as TES markets evolve.

6.3.2 Annual Rate Adjustments

As described above, the RDA indicates that FEI will charge the SD a COS rate that is designed for FEI to recover its cost of service to the SD and permit FEI to earn a proposed return.

FEI proposes to forecast the cost of service and demand for these Contracts each March for the upcoming annual contract year, from July 1 to June 30, designed to match the SD's budget cycle.

The forecast costs are then divided by the forecast demand to derive a thermal energy rate measured in $ per kWh. In addition to these annual derivations, FEI proposes to adjust the COS rate immediately for any changes to the natural gas or electricity rate approved from time to time by the Commission, that affect the SD's cost of service. Essentially, the energy costs incurred by FEI to service the SD will be flowed through to the SD's COS rate.

FEI further proposes that the Commission annually review and approve the rates. FEI intends to submit a report each March outlining the latest forecast of costs and thermal energy demand to establish the COS rate for the upcoming contract year and will include the most recent value for the deferral account balance or amortization. FEI states that this report will minimize the annual review requirements of the Commission for setting rates for the SD each year. FEI also envisions that the rate setting review process for the SD may evolve over time (Exhibit B-1, p. 39) but submits that "FEI does not need to provide justification for the [COS variables] unless there is a forecast rate change which exceeds the greater of 2% or CPI from the previous year" (Exhibit B-3, BCUC 1.10.4). FEI indicates that "by setting the cost of service rate each year, the effects of any "technical adjustments" that are made to the buildings and affect the total thermal demand will automatically flow through to changes in the rates, without the need for any contract amendments." (Exhibit B-3, BCUC 1.52.3)

FEI also indicates there are many variables which may change the SD's cost of service, including but not limited to: changes in costs of capital (ROE and any service premiums), in commodity costs, in depreciation rates or CCA rules, in overheads allocation rules or calculations in tax rates, closure or addition of a school, and weather, which translates into energy demand. (Exhibit B-3, BCUC 1.54.2)

Commission Determination

The Commission Panel accepts the proposed annual rate adjustment mechanism subject to findings in Section 8.0.

6.3.3 Energy Consumption and Customer Forecast

The SD is the sole thermal energy customer and each of the 19 sites has historical and ongoing energy consumption patterns. Because the Project is confined to the 19 sites it does not include energy requirements of other sites that may be added later. As an existing gas and electricity customer, the SD has provided historical billing data to FEI. JCLP performed an evaluation at each site to estimate the boiler efficiencies and any non-heating gas load at each site. A regression analysis against heating degree-days in Vancouver was performed to determine the thermal energy demand on an aggregate basis. (Exhibit B-1, p. 18)

The current annual natural gas load is 58,607 GJ per year and the current annual electricity load is equivalent to 4,684 GJ per year. FEI calculates the current energy waste due to efficiency losses at 25,114 GJ per year yielding a total annual thermal energy requirement of 38,177 GJ per year for the Project. Once the proposed thermal energy systems are installed, the projected annual natural gas load is projected to decrease by 77 percent to 13,641 GJ per year, including the correction to the Beach Grove natural gas consumption quantity. The projected annual electricity consumption increases by 138 percent to 11,142 GJ per year and thus the energy waste decreases. (Exhibit B-1, p. 9, as corrected by Exhibit B-10, BCUC 2.25.3) Although the projected electricity consumption increases significantly over current levels, it is just under 30 percent of an "all electric" solution that would provide the full thermal demand of 38,177 GJ annually. (Exhibit B-1, p. 11) The projected GHG emissions reductions are entirely attributable to the decrease in natural gas consumption and the increased electricity consumption is assumed to have no associated GHG emissions. (Exhibit B-4, BCSEA 1.1.1)

FEI shows the peak day gas demand is projected to drop from 553 GJ/day to 301 GJ/day. The peak day electricity demand is projected to increase from 44 GJ/Day to 64 GJ/day. The impact on the load factor (utilization rate) for natural gas is a drop from 29.0 percent to 12.1 percent because natural gas boilers at the GSHP sites are only required to provide supplemental energy on peak days. For sites with geothermal installations, the natural gas load factors average 4.4 percent. (Exhibit B-3, BCUC 1.77.1.1) Conversely, the electricity utilization factor is projected to increase

from 29.0 percent to 47.4 percent to reflect the increased proportion of energy delivered by ground source heat pumps. (Exhibit B-10, BCUC 2.27.1)

FEI states that it is not appropriate to incorporate the load factor variations of thermal projects into the Delta SD rate design at this stage, in the absence of TES customers with sufficient operating experience. As such, the prevailing natural gas rates (including implicit load assumptions) have been used as the basis for the Delta SD rate design. (Exhibit B-10, BCUC 2.30.4; Exhibit B-3, BCUC 1.30.1)

Delta SD has some non-thermal gas use requirements that FEI states are quite small and do not warrant the use of a sub-meter. FEI is proposing to estimate this quantity and pass it through as an energy reimbursement on the bill. (Exhibit B-3, 1.16.1)

Commission Determination

The Panel agrees that the Delta SD proceeding is not the appropriate forum for addressing poor load factor customer use and related issues such as the introduction of a super-peaking rate. However, the Panel encourages FEI to address these issues in a more suitable forum in the near future. Furthermore, Delta SD should be aware 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.

The Commission Panel accepts the thermal demand forecast subject to the findings in Sections 7.0 and 8.0.

6.3.4 Transitional "Market Rate"

FEI's proposed rate design incorporates a transitional "market rate" which approximates what Delta SD would be paying for energy in the absence of the Project. Given the financial limitations of Delta SD, who must operate within strict annual operating budget constraints, the initial market rate of $0.089 per kWh proposed is the result of analysis and negotiations between FEI and Delta

SD. It is designed to represent a reasonable approximation of current costs indexed against natural gas (Exhibit B-1, pp. 44-45; Exhibit B-3, BCUC 1.38.1). FEI uses the Statistics Canada CANSIM Vector Number v41692506 natural gas consumer price index, which is a non-seasonally adjusted sub index of the consumer price index, which is supposed to represent the behaviour of natural gas prices that a consumer, such as Delta, will experience (Exhibit B-3, BCUC 1.57.1).

Delta SD's understanding of the "market rate" is that is it synonymous with the "avoided costs" that it expects to pay under current operating conditions of its existing system. Delta SD indicates that the $0.089 per kWh rate is reflective of a) the cost of energy (natural gas, electricity), b) associated carbon offsets, and c) operation and maintenance of the existing heating plants at the affected facilities, at the time of the agreement (Exhibit C1-2, BCUC 1.22.1).

FEI states that since there is as yet no standard tariff rate for thermal energy services, each thermal contract must necessarily be negotiated, whether the resulting rates are COS based (as required by GT&C 12A) or derived from some other rate methodology. (Exhibit B-10, BCUC 2.9.2) FEI further submits negotiated rates have been offered in the gas service to certain customers or customer groups, where rates have been set according to customers' competitive alternative fuel choices rather than full cost of service rates. The intention in these cases was to attract or retain customers and load to the gas system with lower negotiated rates, in order to make the system viable. The service area of FortisBC Energy (Vancouver Island) Inc. (FEVI) is an example of where gas customers received rates based on their competitive alternative fuel options rather than full cost of service rates. FEVI also uses a deferral account mechanism to capture the shortfall between revenues collected under this rate structure and the actual cost of service. In the case of FEVI, it is expected that the system will eventually be on cost-of-service based rates when the numbers of customers and load have grown to an adequate level. FEI states that these "circumstances are analogous to the situations in TES projects, such as the SD37 project, in which customers will be offered negotiated rates." (Exhibit B-10, BCUC 2.9.3)

FEI proposes to supply the COS rate as reference each month while Delta SD is paying the market rate. The SD has the ability to elect to move from the "market rate" to the COS rate at any time.

Ultimately, FEI will have the ability to apply to the BCUC to move the SD to the COS rate. Once the SD has switched to the COS rate, FEI will discontinue calculating the "market rate." Both FEI and Delta SD acknowledged that the Contracts prohibit Delta SD from switching back to the "market rate", once it has transitioned to the COS rate (Exhibit B-3, BCUC 1.38.7 and Exhibit C1-2, BCUC 1.21.2). The COS rate includes the following components:

- The calculated COS which may change from time to time; and
- The amortization of the SD37 Deferral Account.

FEI expects a reasonable transition period is within 2 to 5 years (Exhibit B-3, BCUC 1.38.3).

Commission Determination

The Panel notes that unlike the case of FEVI gas customers, in the case of Delta SD there is no common system which will suffer or benefit from the loss or gain of additional customers. Because the Panel has rejected extension of the pool beyond Delta SD and it is the only customer, Delta SD ultimately should be responsible for all the costs related to the project. The Panel has serious concerns about the possible deferred cost implications for future Delta School Boards. The Panel also notes FEI's intention to make similar negotiated rates available to other thermal customers with regard to other projects.

In the absence of common system costs and benefits as described for FEVI, or the need faced by district energy systems to build thermal demand over time, the Panel believes that discrete thermal systems should be designed to be viable and affordable from the outset. Unless the actual need for the transitional rate is to overcome budgetary difficulties within a specific number of budget cycles, the Panel believes that transitional rates should not be necessary. The Panel will make further determinations on this matter in Section 8.0.

6.3.5 Deferral Mechanism (SD37 Deferral Account)

FEI proposes to record the annual difference between actual revenues and cost of service in the SD37 Deferral Account to ensure forecast variances are recovered from, or credited to, this specific customer. FEI confirms that the COS rate will include an amount for the amortization of the deferral account starting in the second year of the contract and then over the remaining contract or ten years, whichever is longer. Once the switch from the market rates to the COS rate occurs, the amortization amount will be equal to the full amount of the prior year rate rider discount, plus the remaining balance of the SD37 Deferral Account amortized over the remaining years in the term of the contracts. However, if the switch occurs in the last ten years of the initial term, then the amortization will be no shorter than ten years.

FEI further proposes that the SD37 Deferral Account will include an Allowance for Funds Used During Construction (AFUDC) on the balance, whether positive or negative. However, if Delta SD does not switch to the cost of service rate at a reasonable time as expected by FEI, the deferral account will continue to be carried forward accruing AFUDC, or interest at the rate of the weighted average cost of capital annually.(Exhibit B-1, p. 43; Exhibit B-3, BCUC 1.37.7, 1.37.10)

6.3.6 Special Rate Rider

FEI proposes a rate rider discount of $0.018 cents per kWh to Delta SD, which is to be applied to its thermal energy rate, at all times over the term of the agreement. The proposed annual COS calculation will incorporate the value of the prior year discount arising from the rate rider. If the market rate is still in effect, then the discount will flow through to the deferral account for amortization as part of the total deferral account balance (Exhibit B-1, p. 45). FEI indicates the $0.018 cents per kWh is a negotiated amount between the SD and FEI and is reflective of the "negotiated reduction divided by the billing determinants" or 20 percent reduction versus the market rate. (Exhibit B-10, BCUC 2.44.2)

FEI explains that the rate rider is designed to continue to provide the SD with the incentive of growing the pool, is specific to the SD and will serve to reduce the rate charged to the SD, whether

they are on the market rate or the COS rate. If no other school districts are added to the pool, then the SD only benefits by a one year deferral of the rate rider; if other school districts are added to the pool, then the SD is still able to receive a benefit which recognizes their original CIAC contribution. In the event that other customers are added to the asset pool, FEI plans to explore other alternatives such as a positive rider for those customers. (Exhibit B-3, BCUC 1.39.1-1.39.6) Without the rate rider, FEI indicates that the "market rate" would be too expensive for Delta SD. (Exhibit B-10, BCUC 2.44.3, 2.44.6)

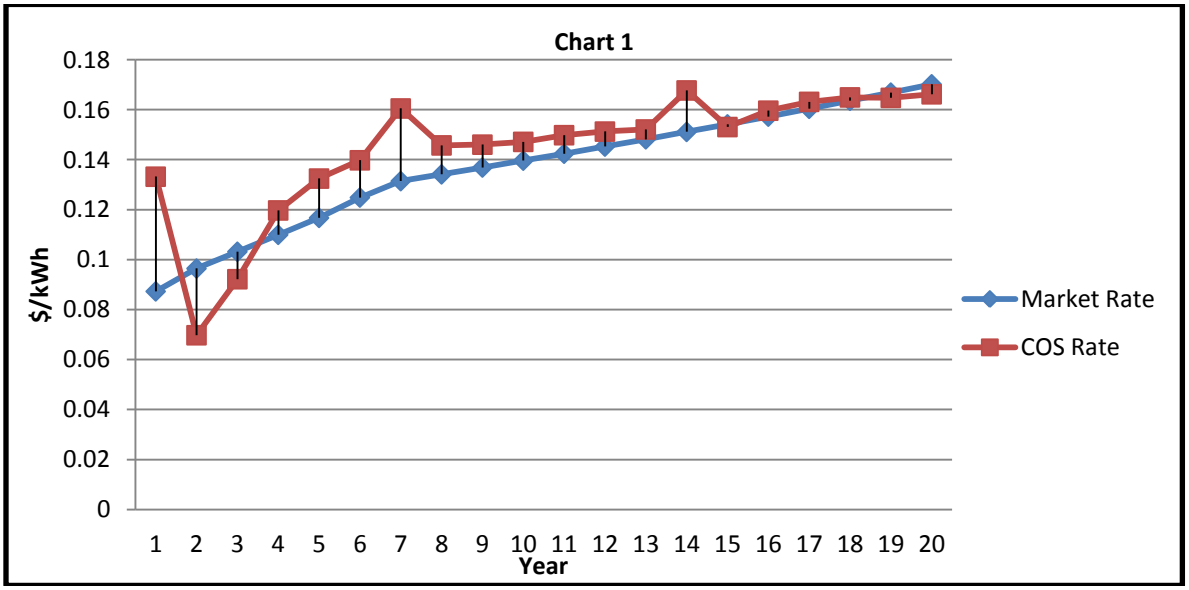
6.3.7 Illustration of the Rate Proposal

The following tables and charts illustrate the twenty-year projections for the workings of the "market rate", rate rider and the SD37 Deferral Account:

Table 3

Scenario 1: SD switch to COS Rate in Second Year (FEI's assumption in this Application)

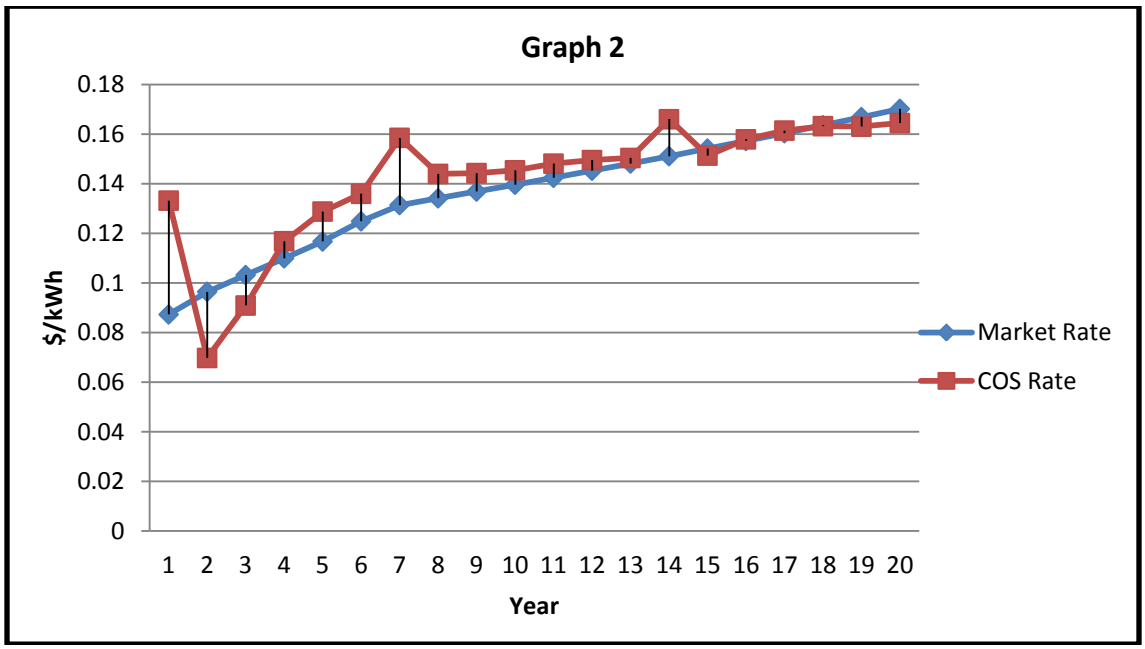
Table 1: Rate Comparison								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20
Market Rate $/kWh	$ 0.087	$ 0.096	$0.103	$0.110	$0.117	$0.140	$0.154	$0.170
COS Rate (incl. Amortization of Deferral Account $/kWhr)	$ 0.133	$ 0.070	$0.092	$0.120	$0.132	$0.147	$0.153	$0.166



Source: Adapted from evidence provided by FEI.

Scenario 2: SD switch to COS Rate in Year 5

Table 2: Rate Comparison								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 10	Year 15	Year 20
Market Rate $/kWh	0.087	0.096	0.103	0.110	0.117	0.140	0.154	0.170
COS Rate (incl. Amortization of Deferral Account $/kWhr)	0.133	0.070	0.091	0.117	0.129	0.145	0.151	0.164



Source: Adapted from evidence provided by FEI.

Commission Determination

With regards to the "market rate", rate rider and the SD37 Deferral Account, the Commission Panel approves the proposed rate design subject to determinations in Section 8.0.

6.3.8 Terminal Value and Buy-Out

In order to reduce the risk of stranded assets and ensure Delta SD has access to continuous service, at expiry or upon termination of the Contracts, the SD may purchase the energy systems from FEI. The Contracts explicitly leave approval of the eventual purchase price to the Commission and will be the subject of a future application. (Exhibit B-1, p. 46)

FEI indicates the value of the SD's rate base in 20 years is approximately $4.1 million (Exhibit B-1, p. 51), although it is both the SD and FEI's intention that thermal energy continue to be supplied to the SD beyond that term (Exhibit B-8, BCUC Supplemental IR 7.1). The SD believes that the residual value of $4.1 million of rate base after the initial term of 20 years is appropriate and reasonable (Exhibit C1-2, BCUC 1.24.1).

Commission Determination

The Panel notes that the rate base in Year 20 represents almost two thirds of the initial capital cost of the Project. The Panel acknowledges that the DSD considers the $4.1 million in rate base after the initial term of 20 years to be reasonable. However, FEI has provided no detailed information about what physical assets this will represent. Given that the estimated useful lives of the original assets vary from 20 to 35 years, some of the original equipment will be fully depreciated in 20 years. Based on the models that FEI has provided, it appears there is some capital replenishment during this 20 year period. However, given the lack of information in the Application, the Panel is not clear about what capital is to be replenished and when, and what cost assumptions were used for the replenishment. It is unclear, for example, what inflation assumptions have been used for capital purchases.

The Panel is also concerned about the issue of stranded assets. Delta SD has the option to purchase the assets at the end of 20 years, but has no obligation to do so. If Delta SD chooses not to purchase, or if the market value of the equipment is less than $4.1 million and as a consequence, the DSD purchases it for less than $4.1 million, other FEI ratepayers will be left to subsidize the stranded portion of this asset.

The Panel will deal further with these issues in Section 8.0.

7.0 CPCN CONSIDERATIONS

7.1 Who Is the Public and What Are the Public Interest Issues?

FEI submits that the Panel should consider the interests of "DSD, FEI's natural gas service customers, and future TES customers." (FEI Final Submission, p. 3) With regard to any broader public interest, FEI states: "As the CPCN is primarily for service for one customer, there is a significantly smaller component of the Application and approval that relates to the broader public interest." (Exhibit B-3, BCUC 1.11.1)

FEI describes this one customer, the DSD, as "… an institutional customer that has the skills and ability to negotiate a reasonable agreement on its own behalf …. On this front, the Board of Trustees of the Delta School Board also serves as a body that represents the larger public interest. This is a board that is elected by the public. The SD and Board of Trustees, largely re-elected this past November, have made public the thermal energy project they are undertaking with FEI and have signed off on the contracts. As such, this represents a measure for the Commission to consider regarding whether or not this project is in the public good." (Exhibit B-3, BCUC 1.11.1) When the DSD was asked if the Commission should accept Delta SD signing the terms of the agreement as sufficient evidence that the application is in the public interest, it responded: "Yes. Delta SD believes that the agreement with FEI, as approved by the Board of Education, is in the best interest of Delta SD and its stakeholders." (Exhibit C1-2, BCUC 1.1.4)

Although the public interest consideration in this Application could be considered to be largely restricted due to the "one customer" nature of the service, this is the first of what is planned to be many customers in a new class of TES. If the pooling concept were to be approved by the Commission Panel, the public interest considerations should at the very least also include future school districts that are potential candidates for the expanded pool of schools.

As evidence of broader public interest in this Project, the DSD received $1.357 million from the Province via the Public Sector Energy Conservation Agreement mentioned in Section 5.0. The PSECA was created by the Provincial Government in partnership with British Columbia Hydro and

Power Authority in order to reduce GHGs, energy use and operating costs for public sector organizations. The Government of BC committed $75 million over three years in addition to BC Hydro incentive funding, thereby contributing to the Province's energy conservation and GHG reduction goals of 33 percent by 2020 and 80 percent by 2050 over 2007 levels. On June 3, 2010, the Provincial Government signed an agreement with Terasen Gas to support additional natural gas conservation efforts. (Exhibit B-3, BCUC 1.40.1)

Gas marketers may have some interest in the Project as well. Natural gas service to the schools is, for the most part, currently provided by gas marketers with the exception of one site. These contracts are between the marketer and the DSD and will be terminated as the DSD will no longer own the boilers and will no longer be purchasing natural gas from them. FEI states that it has the option to purchase natural gas from a marketer if it so chooses, and may be incented to do so if it would result in lower costs or other benefits, but that it has no plans to do so at this time. (Exhibit B-3, BCUC 1.57.5, 1.57.11)

Commission Determination

While the Commission Panel agrees with FEI that the interests of natural gas ratepayers, Delta SD and future TES customers should be considered, the Panel finds that this is not an inclusive enough list of potentially affected parties. Other parties that should be considered include the citizens of the Province, on whose behalf a contribution of $1.357 million was made to assist the DSD to reduce GHGs, energy use and operating costs as well as the students and their parents at the 19 schools.

In addition, the Panel further notes that there is a distinction between the current Delta SD parents and taxpayers and those of future. The technology chosen by Delta SD for this Project is expensive – more expensive than some available alternatives. In order to accommodate Delta SD's limited budget, the proposed rate structure transfers costs to future years through a deferral account, thereby raising issues of intergenerational equity. Furthermore, most of the operational risk is borne by Delta SD. This means that if there are unforeseen increases in cost, rates will be

increased for Delta SD. By agreeing to this service, Delta SD is also responsible for an undetermined portion of the TESDA. FEI has provided no information on how this account will be recovered or over what period. The Panel notes that the current balance of this deferral account is over $5 million, still attracts additional costs, and if this Application is approved, Delta SD will be FEI's only TES customer. Given this potential for future cost escalation, the Panel questions whether the interests of future parents and taxpayers of Delta SD have been adequately considered. The Panel is concerned that the nature of the Project, combined with the proposed rate structure, potentially results in a substantial transfer of risk to future generations.

The Panel also has concerns about the potential impact that this and other thermal energy projects may have on the Customer Choice and Transportation Service programs. The Panel notes that as a result of the proposed Service Agreements, 18 contracts with marketers will likely be terminated. The Panel accepts that FEI does have the option to enter into contracts with gas marketers to provide natural gas for any of the sites, and agrees that if a marketer can provide a cheaper commodity price or other benefit then FEI may be incented to do so. However, these contracts place FEI in a position where it is its own customer for natural gas, and, as such, may be incented to not enter into a contract with a gas marketer. While this issue may be of little significance in this particular case, the potential remains for FEI to acquire a more significant proportion of the market as it expands the new business. In spite of this potential, the Panel notes that no gas marketers have intervened in this proceeding. Therefore, the Panel makes no determination on this particular issue and refers any further consideration of competitive issues related to gas suppliers and gas marketers to the AES Inquiry.

Similarly, there are other thermal energy service providers that may compete with FEI to supply thermal energy service to Delta SD and other future potential customers, who may or may not be public utilities. The interest of these companies is also being deferred to the AES Inquiry.

7.2 What is the Project Need?

FEI describes the primary driver for the Project as Delta SD's desire to "…implement energy systems that reduce GHG emissions and make efficient use of renewable energy sources that are cost effective over the long term." (Exhibit B-1, p. 9) It later qualifies the primary driver as ''...the DSD's need to implement energy solutions that reduce GHG emissions, make *efficient use of energy and make use* of renewable energy sources, *within the DSD's budget constrains*" [emphasis added]. However, FEI also states that it understands the main goal to include, but not be limited to, reducing GHG emissions, being economic, and reducing operating & maintenance costs and work. (Exhibit B-3, BCUC 1.22.5) In FEI's view the project as currently configured advances the DSD's objectives the furthest within its budgetary constraints. (Exhibit B-3, BCUC 1.22.5) FEI also submits that the Project also benefits FEI's existing and future natural gas customers and British Columbians generally by advancing British Columbia's energy objectives. (Exhibit B-1, p. 10)

Under the *GGRTA*, Delta SD was required to become carbon neutral, by reducing emissions and applying offsets on the remaining emissions, by 2010. As a result the DSD has been proactive in reducing its carbon footprint by implementing air-source heat pumps at 15 of 34 buildings and by proposing this Project for 19 of the remaining buildings. FEI submits that the project will enable Delta SD to meet its obligations under the CAC and the *GGRTA* and will further support a number of BC's Energy Objectives.

For this Project, FEI has selected a technology – ground source heat pumps – that, if deployed exclusively without peaking boilers, would emit no GHGs, so long as there are no GHGs associated with the electricity consumed by the pumps. However, in order to meet budgetary constraints, FEI has chosen a combination of HEGBs and GSHPs supplemented by peaking boilers, in particular, eight HEGB locations and 11 GSHP locations. When asked whether the Project would still be viable if the eight locations proposed for high-efficiency boiler upgrades were not included, FEI responded "… as a broad statement… an all geo-exchange solution (i.e. using this solution at all 19 sites) would likely be too expensive and an all boiler solution (at all 19 sites) would not reduce enough emissions, and therefore, the scenario described above would not be a viable alternative." FEI

further submitted that "The only way to fully establish if such a solution is viable is to negotiate this approach with the customer." (Exhibit B-3, BCUC 1.22.2) However, in the event that, after detailed engineering studies, Project costs are estimated to exceed the current budget, the Project would be re-scoped.

Although not cited as a project need, of the 19 sites involved, FEI describes that 10 sites have aging heating systems that require immediate replacement; eight have central boilers of more than 20 years old; two have rooftop air-handling units of more than 20 years old; and five have heating systems that will reach the end of their life cycle within the next 5 to 10 years. However, the DSD no longer has access to capital to perform further energy system upgrades. (Exhibit B-1, p. 9)

This Project also addresses the needs of FEI. It states that this Project is one of the necessary initial steps FEI is undertaking to transform "into a complete, integrated energy provider of alternative energy solutions incorporating the reliability of conventional energy services." (Exhibit B-1, p. 22)

FEI also cites benefits to its existing natural gas customers: the Project includes the use of natural gas as the primary energy source at eight of the sites and retains natural gas for complementing the energy from heat pumps at the remaining 11 sites. This ensures that, as the DSD moves towards reduction of GHG emissions, the transition occurs in a manner that utilizes assets that are already in place to service natural gas loads at these sites. Currently, the market for thermal energy in British Columbia is dynamic, and natural gas is experiencing declining loads. Inclusion of natural gas in this project helps to mitigate the risk that the DSD would move towards a solution (e.g., electricity) that caused an immediate loss of revenue to the natural gas class of service. (Exhibit B-1, p. 10)

Commission Determination

Both FEI and Delta SD have identified reduction of GHG emissions as a primary project need. However, neither party has identified a specific target for the emission reduction. The Panel notes that the *GGTRA* requires the SD to *pursue actions to minimize* GHG emissions and then to purchase

offsets to net the remaining emissions to zero. The *GGRTA* provides targets for the Province as a whole of a 33 percent reduction over 2007 levels by 2020 and an 80 percent reduction over 2007 levels by 2050, but does not provide any specific targets for Delta SD. Delta SD is also a signatory to the CAC, which commits it to working together with the other Charter signatories to reduce GHG emissions, although the CAC is not legally binding on Delta SD.

While the Panel acknowledges that the Project, as described in the Application, helps the SD reduce emissions, does it help the SD meet its obligation under the GGRTA of *minimizing* GHG emissions? The Panel is of the opinion that GHG emissions are minimized when all economically efficient steps have been taken to reduce GHG emissions to the point that any further reductions would cost more than purchasing offsets. For example, turning down thermostats a degree or two would be reasonable steps to take, but replacing a thermal energy system with one that produces less emissions, would only make sense if the cost of the replacement is cheaper than the net present value of the cost to purchase the offsets that would otherwise be required over the life of that system. In this way, the pricing of offsets drives the adoption of newer technologies. The Panel does not consider the requirement in the *GGTRA* to minimize GHG reductions compels an entity to replace a thermal energy system, unless there is some other justification for the replacement.

Given this approach, it doesn't appear to the Panel that the reduction of GHG emissions is the primary motivator for this Project. The primary motivation is to replace aging infrastructure and it is within this context that the SD will minimize GHG emissions. Accordingly, this Project can be framed as a classic optimization problem with a key objective - minimize GHG emissions – subject to a number of constraints, i.e. budgetary limits, capital constraints, increase in energy efficiency, reduction in energy use and energy costs.

In this regard, the approach taken by the Applicant does not appear to be completely consistent to the Panel. Given the age of the existing infrastructure at the 19 sites, almost any replacement of the thermal plants – including stand-alone HEGBs - would produce less GHGs and consume less energy than the current systems. However, according to the Applicant this would not reduce emissions enough. Conversely, the Applicant has acknowledged that in the event that the Project,

as currently configured, prove too costly, the Project would be down-scoped, which could result in less GHG emission reductions. Given the information provided, the Panel concludes that the SD has a target emission reduction that is somewhere between the reductions provided by the proposed Project configuration and those that would be provided by an all boiler solution. This lack of a clear reduction target and a transparent process to determine this target, in the Panel's opinion, makes it difficult to evaluate whether the Project meets the needs of the DSD to fulfil its obligations under the *GGTRA* to minimize GHG emissions.

Elsewhere in this Decision, the Panel reviews the risks to the DSD in the event of a down-scoping of the Project. The potential for down-scoping of the Project is of particular concern to the Panel. A down scoping of the Project is most likely to arise if the cost of the geo-thermal components is more than initially estimated and would result in a Project with a different GHG emission signature, energy consumption profile and possibly cost. Delta SD could thus end up with a Project configuration that wasn't analyzed or screened against other potential approaches. If the resultant change of scope is to replace GSHPs with stand-alone HEGBs or otherwise increase the thermal production of the boiler components of the Project, the effect on the amount of GHG emission reductions is to potentially decrease them. In this scenario, the Panel is left wondering if GHG emissions would actually be minimized and therefore whether Delta SD will meet its obligations under the *GGRTA*.

A related concern, that affects both the Project as scoped and a down-scoped version of it, is that there appear to be no penalties in the event the reductions aren't achieved. Given that GHG reductions are cited as a primary need, the Panel finds it unusual that there is no requirement for FEI to actually achieve the reductions.

Other approaches, which could potentially utilize grid-provided electricity, natural gas, bio-gas, solar thermal, or any other thermal energy production or storage technology, have not been examined in any detail in the Application, primarily because it wasn't requested by the SD. However, other approaches could potentially achieve greater GHG savings at a lower cost but there has been no detailed analysis of these approaches presented in the Application. Where alternative

configurations of HEGBs and GSHPs have been evaluated, the analyses have not been provided. As the detailed analysis has not been completed or provided, it is not possible to conclude that the proposed approach does in fact minimize GHG emissions within the budget constraint. Further, it is not clear whether a down scoping exercise would consider these other alternatives, or whether it would be restricted to the options suggested by FEI. As such, the approach taken appears to the Panel to be technology driven – technology based on natural gas. While the natural gas approach is quite understandable, given FEI's key role in the provision of natural gas service in the Province, the Panel still questions whether Delta SD should have considered other approaches in more detail.

Returning now to the issue of economic efficiency, the Panel questions why economic efficiency was not more fully considered when addressing Project alternatives. Given the screening analysis as described by the Applicant, the parties have agreed upon a Project with a capital budget of approximately $6.5 million. However, is it economically efficient for the SD to pay $6.5 million for the GHG reductions that will be achieved? Could a more economically efficient result be achieved by adopting a less expensive alternative, such as an all stand-alone HEGB solution? To determine this would require a detailed analysis, such as a comparison of the net present value of the cost of offsets, differences in fuel consumption, amortization, etc. as compared to the project cost of $6.5 million. If another approach is indeed more economically efficient, then any cost savings could potentially be applied to the reduction of GHGs in other areas (i.e. transportation) which could result in greater overall GHG reductions. Green at any cost is not necessarily desired, especially if there are more cost-effective alternatives. The Panel is not satisfied that the need as identified by the parties, and the approach to satisfying that need, has been sufficiently analyzed.

However, the Panel is of the view that the parties to this agreement are sophisticated, Delta SD needs to replace aging infrastructure, and the Project presents Delta SD with the opportunity to reduce its GHG emissions while helping to mitigate its exposure to potentially increasing carbon offset costs in the future. The Panel also acknowledges that the Project may provide a benefit to FEI as it undergoes a transformation and that this could potentially benefit its existing natural gas customers. Accordingly, the Panel considers this a justification for the Project to proceed.

7.3 Alignment with Clean Energy Act and Provincial Government Policy

British Columbia's Energy Objectives, as laid out in Section 3.3 above, include goals for Province-wide GHG reduction. The *GGRTA* requires public sector organisations specifically, including Delta SD, to become carbon neutral through actions to minimize GHG emissions first and the purchase of offsets to net to remaining emissions to zero.

Given the non-prescriptive nature of these goals, Delta SD and all public sector organizations have multiple technological and carbon offset options to meet these requirements. As mentioned previously, Delta SD also aimed at being economic, reducing operating budgets and managing capital constraints.

FEI states that an all-electric alternative, despite having lower GHG emissions than the current Project, was not requested by the SD, would have implications for BC Hydro's planning, and was not considered a serious alternative by either FEI or the SD so a financial analysis was not completed (Exhibit B-3, BCUC 1.22.5-1.22.6). FEI further asserts that an all-electric solution creates challenges to meet several of BC's Energy Objectives, most notably the objective of electricity self-sufficiency because load would be increased, and the objective of keeping BC Hydro rates competitive because an all-electric solution would put upward pressure on electricity rates (Exhibit B-10, BCUC 2.7.1, 2.15.2).

FEI states the Project will result in the SD reducing their GHG output by about 2,000 tons of CO2e per year which is about 64 percent of the total GHGs produced by the buildings in the Project and that the proposed Project configuration "meets the BC Energy Objectives most efficiently by reducing emissions while maintaining affordability of rates" (Exhibit B-10, BCUC 2.6.1, 2.15.3). By way of a summary, FEI submits its investment in the Delta Project advances British Columbia's energy objectives by "promoting the adoption of energy efficient technology, facilitating a reduction in GHG emissions and reducing pressure on electric rates." (FEI Final Submission, p. 11)

Submissions by Parties

The British Columbia Ministry of Energy and Mines and the Climate Action Secretariat (CAS) support the Delta SD CPCN Project in their joint Final Submission. The MEM and CAS cite the following key reasons for their support:

- The Project received $1.4 million of PSECA funding;
- The Delta project demonstrates transformative thinking by "tapping into renewable energy sources and using a mix of technologies"; and
- The Project meets a number of *CEA* objectives as it includes state-of-the art geo-exchange systems to provide zero-emission thermal energy to eleven school sites.

  (Final Submission of the MEM and CAS)

BCSEA submits that a CPCN should be granted as the Project strongly supports BC's energy objectives, particularly:

- To conserve energy (*CEA s.*2(b)) – the Project will produce substantial energy savings, estimated at 39,000 GJ of natural gas per annum;
- To reduce BC greenhouse gas emissions (CEA s.2(g)) – the Project will reduce GHG emissions by approximately 2,000 tonnes per annum, which is approximately 64% of the GHG produced by the buildings within the Project; and
- To encourage switching from one kind of energy source to another to reduce GHG emissions (*CEA* s.2(h)) – the Project will replace gas-fired heating systems with geo-thermal and gas backup/peaking systems at eleven sites. (BCSEA Final Submission, p. 5)

Commission Determination

The Commission Panel finds that the Project is generally consistent with British Columbia's energy objectives as outlined in the *CEA*. The Panel notes the strong alignment in particular with objectives (d), (g), (h) and (i) as well as the unequivocal support of the MEM, the CAS and BCSEA. However, the Panel questions the relevance of objective (k) related to encouragement of economic

development and the creation and retention of jobs. While the Project will create investment opportunities for shareholders of both FEI and JCLP, the Panel believes that any new technology installed by any business in the competitive environment would result in a similar outcome.

Notwithstanding this finding the Panel has some concerns regarding the particular solution proposed as highlighted in previous Sections. Green at any cost cannot necessarily be in the public interest. The Panel is of the view that economic efficiency should be a primary consideration even in the case of 'green' projects and the Panel has previously noted its concerns that the SD and FEI have not adequately analyzed Project alternatives. As such, it is not possible to say whether this Project is the most efficient approach and whether it provides the SD the best value for its money. However, the Commission Panel concludes that Delta SD and FEI have landed on a solution that puts emphasis on innovative technologies which they have determined will meet the Delta SD's budgetary constraints and accepts this plan as being aligned with the *CEA* and the Provincial Government Policy.

7.4 Economic, Technical and Financial Feasibility

FEI asserts that since this Application is to meet the needs of an individual customer who has willingly entered into a contractual arrangement with FEI for the service, it is not the usual CPCN situation and therefore there is little to be gained from considering whether the SD has selected the appropriate project as it is the SD's choice. (Exhibit B-1, Cover Letter, p. 3) FEI states the proposed solution is the *optimal trade-off solution* for the SD. FEI further states the SD has indicated it would not presently be able to achieve such results on its own or using other programs on the market. (Exhibit B-8, BCUC Supplemental IR 1.3)

FEI has listed *multiple goals and objectives the SD wished to achieve for the Project* but has not provided a clear ranking or weighting of the SD objectives. FEI also has its own Project goals and objectives and the relative weight given to the FEI objectives similarly is not clear. In addition, FEI has not set out measurable targets for GHG emission reduction, energy savings, or gas or electricity consumption targets. If it becomes apparent the geo-exchange solutions costs may be higher than

estimated, thermal energy deliveries are less than estimated or geo-exchange solutions are not appropriate for a particular site, FEI has the option to re-scope the thermal energy solutions to ensure the costs stay within the SD's budgetary constraints. Because of this the SD may receive fewer GHG emissions reductions and energy savings for the same cost while FEI bears little or no risk.

Commission Determination

The Commission Panel finds that the absence of financial analyses for the possible alternative solutions, together with the lack of measurable targets and the pooled approach, make it difficult to determine whether the proposed set of thermal energy systems is the most cost-effective solution. Accordingly, the Panel is unable to make any decision in this regard.

7.5 Risks and Benefits to the Parties

7.5.1 Benefits for Delta SD 37

FEI submits the primary benefit of this Project is that it helps the SD achieve its energy goals. (Exhibit B-1, p. 10) It further submits that this Project "helps the SD achieve its goal of reducing its carbon footprint and complying with its associated obligations" and that it will reduce the energy consumption of the SD at the 19 school district sites (in total) by 40 percent, and the GHG emissions by over 70 percent each year and in total over the term of the Contracts. (Exhibit B-1, p. 4)

FEI is providing thermal services at a rate based upon the costs of providing the service to the DSD in aggregate. It submits that this approach enables FEI to pool the costs and benefits of all buildings in a manner that optimizes the overall environmental benefits of employing innovative technologies that utilize clean, renewable resources, while managing the rates for thermal energy within the budgetary constraints of Delta SD. (Exhibit B-1, p. 4)

When asked by the Commission what Delta SD see as the benefits of the thermal services being regulated, Delta SD replied that it desires the protection measures contained in the *UCA*, specifically pertaining to continuity of service by the public utility (in case of ownership change, bankruptcy, change in business focus, etc.) and Commission review and approval of rates. (Exhibit C 1-2, p. 1)

Commission Determination

The Panel agrees that this Project will reduce Delta SD's GHG emissions while meeting its budgetary constraints. However, as the Panel has previously discussed, neither FEI nor Delta SD have identified a specific target for the emission reduction, a comparison of alternative approaches or an analysis of the economic costs of the proposed solution. Accordingly, it is not possible at this time to fully agree that it helps the DSD achieve its goals and comply with associated obligations.

The Panel agrees with Delta SD that regulatory oversight can provide protective benefits. However, the Panel cautions Delta SD that in providing regulatory oversight of this Project and the ensuing rates, the Commission must make a determination of what it considers to be just and reasonable. The Panel will consider the fact that the rates proposed have been agreed to by two sophisticated commercial parties, fully capable of representing themselves, that the agreements signed are a result of arms-length negotiations, represented by competent legal counsel; and that the DSD has its own accountability mechanisms in place such as elected trustees to ensure that its interests are protected. However, the Panel must also consider the broader public interest in this CPCN Application. Accordingly, the outcome may not be the result contemplated in the Contracts.

Further, regulation of the Project, especially the COS regulation requested by FEI pursuant to GT&C Section 12A, will deprive the DSD of many of the benefits that could potentially be provided by a competitive market. Relevant material is provided in Appendix D, p. 7.

7.5.2 Risks for Delta SD 37

In the AES Inquiry, the Energy Services Association of Canada (ESAC) submitted that: "In the case of thermal energy projects, a regulated COS model transfers all of the risks associated with the capital and operating costs of the asset to the thermal customer. It appears that the only risk that the FEU would undertake in owning and operating a thermal asset is the risk of prudency and all other risks would be absorbed by the thermal customer…" ESAC further submits that irrespective of the initial tariff agreed to by Delta SD, all the cost would be absorbed by Delta SD.

When asked by the Commission if it agreed with ESAC's position, Delta SD replied: "No. Delta SD and FEI have agreed that any cost overruns resulting from unforeseen circumstances at the time of the agreements will be remedied by adjustment in scope or material at one or more of the 19 project sites in order to maintain the thermal energy rate." (Exhibit C1-2, BCUC 1.2.1) FEI submits that the options considered would depend on the cost reduction required to maintain the budget. These options would potentially include: reducing the loop field size at a specific site and increasing the thermal demand on the peaking boiler, reducing the loop field size and including air source heat pumps, switching a site from geo-exchange to air source heat pump or high efficiency boiler." (Exhibit B-3, BCUC 1.50.3)

The effect of a re-scoping, however, is limited to the variable contract costs only. Of the total value of the $6.35 million contract, the fixed costs components of the contract total $2.05 million and the variable components total $4.3 million. The boiler installation, project management, design, overhead and margin costs are fixed for this contract so any cost increase risk will be borne by JCLP; therefore no contingencies have been defined by FEI in the project cost description. (Exhibit B-3, BCUC 1.51.7) FEI submits that "… it is common practice for margin costs to be a percentage of total capital costs. By fixing the margin, JCLP will not earn any additional profit in the event that the geo-exchange systems do cost more than the Class III estimate that JCLP has provided." (Exhibit B-1, p. 31)

FEI submits that if the costs for the geo-exchange systems come in lower, JCLP and the DSD will share equally in the benefits thus ensuring JCLP has an incentive to reduce costs. It further submits that because the business model is the cost of service utility model, the DSD receives the other half via lower cost of service rates. (Exhibit B-3, BCUC 1.51.7)

Commission Determination

The Panel finds that the proposed approach provides Delta SD with some measure of protection from risk associated with capital cost overruns. However, there are significant limits to that protection. The Project costs of $6.5 million include a fairly high proportion of fixed costs. FEI has indicated that if project costs are in excess of $6.5 million, the Project can be down-scoped to a less expensive configuration. However, it appears to the Panel that this down-scoping will not reduce any of the fixed costs enumerated above. The Panel questions why the down-scoping would not also apply to project management, engineering services and overhead and profit. For example, if instead of a GSHP a decision is made to install a HEGB will this require less engineering and project management effort, and if so, should this be reflected in reduced capital costs? FEI has not provided for this eventuality and this could be seen as having the appearance of a 'blank check' being issued to both FEI and JCLP. The Panel is also concerned that any down-scoping would result in less GHG emission reductions at the same or similar cost. As the GHG reduction is cited as a key project benefit, a down-scoping thus represents a significant decrease in the value of the Project to Delta SD.

The potential down-scoping of this Project may also alter the GHG target reductions contemplated and anticipated by Delta SD. As such the ability to meet its GHG reduction targets may be hindered and, consequently, additional costs may have to be borne by Delta SD to maintain its carbon neutrality.

With respect to operating costs, a regulated COS model by its nature transfers most of the risk to the customer. This model, which FEI proposes to apply based on GT&C 12A, removes much of the economic benefits of a competitive, marketplace. The concern arises because of the possibility

that there is little incentive for a regulated utility to operate more efficiently to reduce costs, since in a COS model these costs are guaranteed to be recovered and there is no threat of a competitor providing the service for less. This situation may be mitigated somewhat because FEI has expressed a strong desire to grow the TES business and to do so requires that they can demonstrate to prospective customers that their solutions are cost-effective.

7.5.3 Benefits and Risks for FEI and its Natural Gas Customers

FEI states the Project does provide benefits to existing and future natural gas customers. FEI states: "This Project includes the use of natural gas as the primary energy source at eight of the sites and retains natural gas for complementing the energy from heat pumps at the remaining 11 sites. This ensures that as the SD moves towards reduction of GHG emissions the transition occurs in a manner that utilizes assets that are already in place to service natural gas loads at these sites. Currently, the market for thermal energy in British Columbia is dynamic, and natural gas is experiencing declining loads. Inclusion of natural gas in this project helps to mitigate the risk that the SD would move towards a solution (e.g. electricity) that caused an immediate loss of revenue to the natural gas class of service." (Exhibit B 1, p. 10)

Corix submits that FEI has begun to operate the TES business and that this change is more than the simple addition of a new customer class. According to Corix, TES is a successor line of business that has been established to inherit the customer base of the "sunset" natural gas business. (Exhibit A2-13, p. 9)

Commission Determination

The Panel acknowledges the potential benefits of this Project to FEI, particularly if FEI can use it to help leverage the development of a larger thermal energy services business. As discussed previously in this Decision, the Panel finds that the greatest financial and operational risks are borne by Delta SD. Further, given the fixed price nature of the contracts between FEI and JCLP, there is little risk that FEI will face in the event that there are capital cost overruns. As with any

long term Project, there is a risk that the customer will become bankrupt or otherwise unable to pay. However, given the fact that Delta SD is a public body, the Panel feels that the risk is significantly mitigated. Thus the Panel finds that the risk of failure of this Project to FEI is minimal. Finally, the Project provides a new investment opportunity for FEI investors.

The Panel agrees that because the proposed solution utilizes natural gas as a primary and complementary energy source, it does provide some benefits to both FEI's shareholder and natural gas customers by way of protection of the natural gas business in the longer term. For instance, by proceeding with the Delta SD Project, FEI has eliminated a possibility that a competitor would have installed an all electric solution which would be detrimental to the natural gas business. However, the Panel also notes that the natural gas ratepayer bears a certain amount of business development risk related to FEI's entry into thermal market. This is in addition to more concrete cross-subsidy risk due to the limitations of and reliance on the transfer pricing protocols. The Panel will deal further with how these risks can be mitigated in Section 8.4 of this Decision.

7.6 Adequacy of Public Consultation

Commission Order G-205-11 directed FEI to publish a notice of the Application and Written Public Hearing Process in the Delta Optimist and the Surrey Leader.

FEI states that since the Project takes place entirely on the SD lands there is no need for public consultation, and that the usual CPCN requirements for public consultation do not apply. (Exhibit B-1, Cover Letter, p. 2) Further, FEI asserts that there are also no First Nations impacts arising from the installation of the TES facilities and that no other stakeholders will be affected. (Exhibit B-1, p. 29)

FEI states that the Board of Trustees of the Delta School Board serve as a body that represents the larger public interest and is elected by the public. FEI further states an election occurred in November 2011, that the thermal energy project was made public prior to that election and the Board of Trustees were largely re-elected at the election. (Exhibit B-3, BCUC 1.11.1)

FEI provides evidence that the Project was made public through a February 7, 2011 joint press release from FEI and the Ministry of the Environment, through material posted on the SD website and stories in local newspapers and on television. The Project was also mentioned in the minutes of SD meetings. (Exhibit B-10, BCUC 2.37.1) In addition, the SD sent an email containing a link to the Ministry of Environment's press release to all Principals, Vice-Principals and the SD District Parent Advisory Committee. (Exhibit B-10, BCUC 2.37.2) As directed by Order G-205-11 FEI also provided a copy of the Application to the natural gas marketers licensed under the FortisBC Energy Customer Choice Program.

Commission Determination

The Commission Panel finds that, considering the nature of the Project, the public consultation has been adequate. FEI has met the basic requirements of the requirements of Order G-50-10 regarding public consultation for a CPCN application. The Panel notes, however, that the communications material used describe the Project at a high level and do not provide details or discussion regarding project risks or potential financial impacts.

Notwithstanding FEI's position that there is no impact on other stakeholders, the Panel earlier has questioned the impact of the Project on future parents and taxpayers. Participation by Corix and ESAC in this proceeding is an indication of others' interest in the Project. Finally, the Panel notes that no Natural Gas Marketer has registered as an Intervener and questions whether they have understood the consequences of the Project on their business.

7.7 CPCN Considerations – Summary Commission Determination

The Panel, acknowledging that the Project meets the needs of Delta SD and that the benefits of the Project will accrue to both FEI and Delta SD, finds the Project in the public interest and grants the CPCN, with a number of conditions attached to its approval. There are a significant number of

issues raised in this hearing that require the Panel to impose a number of conditions on this approval. In Section 8.0 we will examine these issues and describe the conditions in more detail.

Generally speaking, we are concerned with the risk that Delta SD is assuming, the risk to the monopoly business of providing a competitive service, and the potential of cross-subsidization by FEI's natural gas ratepayers. However, we also acknowledge that the contracts were negotiated in good faith by two sophisticated parties and, therefore, the Panel makes its determinations on that premise. Nevertheless, even with the level of sophistication of the parties, the service offering is new, the regulatory environment complex and there are issues that could not have been easily anticipated by the parties. Accordingly, we offer comments and guidelines below and provide the parties with 30 days to reconsider the RDA and the Service Agreements.

Finally, the Commission's usual practice of monitoring CPCN projects is by way of periodic construction progress reports in light of a potential need for prudency reviews. In this case, however, because of the two sophisticated parties involved, the Commission will not take on the monitoring role, including monitoring any re-scoping exercises. Delta SD will still have recourse by way of a complaint process pursuant to the provisions of the *UCA.*

8.0 SIGNIFICANT ISSUES

8.1 Application of GT&C Section 12A – Alternative Energy Extensions

FEI filed this CPCN Application in accordance with the definition of public utility service in the *UCA*, GT&C Section 12A of FEI's Tariff and the FEI 2010/2011 RRA NSA. (Exhibit B-3, BCUC 1.9.1) GT&C 12A states that alternative energy extensions include geo-exchange, solar thermal and district energy systems, and then goes on to describe each of those elements in further detail. However, the DSD Project includes eight stand-alone HEGB sites. Thus, the question arises whether thermal energy produced at these sites is covered by the definition in GT&C 12A, and, further, if it isn't, whether thermal energy produced by HEGBs would also be considered a separate class of service and whether it would be included in the same class as the thermal energy produced under GT&C 12A.

FEI submits that "…GT&C 12A is concerned with the delivery of thermal energy to customers, and it is preferable not to define the service by the types of technology used to develop thermal energy. This is not done in the case of other energy forms regulated by the Commission." (FEI Final Submission, p. 35) FEI further submits that HEGBs are contemplated under GT&C 12A as part of thermal energy system extensions and that the HEGBs at the eight sites are part-and-parcel of the service provided by FEI to the DSD to meet its thermal energy needs. (Exhibit B-3, BCUC 1.14.1) It further submits "to that end, GT&C 12A should be considered a facilitating rate structure that contemplates the delivery of thermal energy, irrespective of the technology used to produce it, under cost of service based contractual arrangements." (FEI Final Submission, p. 36)

As stated in Order G-141-09, project-specific contracts with AES customers will be filed with the Commission for acceptance as a rate, at which time the Commission may review and adjust the economic test and GT&C 12A. (Appendix A, p. 8) FEI offers that the "GT&C 12A was developed and approved as a rate structure to permit FEI to undertake TES projects and provide thermal energy to customers. FEI submits that the Project fits within the "four corners" of GT&C 12A as drafted. However, in Order G-179-11 the Commission indicated that the eligibility of stand-alone gas boilers under GT&C 12A still had to be clarified and determined.

Corix submits that stand-alone boilers as contemplated in the DSD project do not fit any categories contained within GT&C 12A.1, and are therefore not contemplated under GT&C 12A (Corix Final Submission, p. 1). Corix refutes FEI's characterization of the DSD project as a "virtual district energy system whereby the [boiler and geoexchange systems] are linked through the service contract ([and] rates (Exhibit B-10, BCUC 2.5.2 quoted in Corix's Final Submission, p. 4)). In Corix's view there is no energy system and no distribution network. Corix further submits that the boilers therefore require a new tariff since they do not fit within the existing GT&C 12A.

GT&C 12A and Order G-141-09 described Alternative Energy Extensions and Alternative Energy Solutions respectively, but neither named stand-alone boilers specifically. The term Thermal Energy Services was first used in the AES Inquiry (Exhibit B-2, AES Inquiry, p. 1).

According to Order G-141-09, "Alternative Energy Solutions ("AES") means Geo-exchange, Solar-thermal and District Energy Systems as those terms are described in the (2010/2011 RRA) Application." The 2010/2011 RRA describes AES systems as "complementary to, or extensions of, the Terasen Gas energy system as <u>these</u> systems more often than not require natural gas as part of the energy solution" ... "<u>These</u> systems are often used in combination with high efficiency natural gas or electric boilers to provide base load or back-up heating." (Exhibit B-3, BCUC 1.46.1) (emphasis added) FEI confirmed that the 2010/11 RRA does not describe stand-alone boilers as an alternative energy extension. However, FEI believes that boilers belong in the same category because they also produce thermal energy. (Exhibit B-10, BCUC 2.5.2)

In Reply, FEI submits that if the Commission does find that GT&C 12A does not include HEGBs "…the appropriate outcome is to either: (1) approve the agreements with the DSD as rates, without reference to GT&C 12A; or (2) adjust the terms of GT&C 12A to permit the Project and other beneficial TES projects to proceed." (FEI Reply Submission, p. 5)

Commission Determination

The Panel finds the change of terms from Alternative Energy to Thermal Energy as suggested by FEI is not a simple renaming, but may represent a different orientation than was originally conveyed in either the 2010-2011 RRA, Order G-141-09 or GT&C 12A. The original AES concept contemplates providing access to alternative energy sources and solutions in conjunction with the gas system, rather than just the provision of thermal energy. As such, the Panel is not persuaded by FEI's assertion that boilers belong in the same category because they also produce thermal energy and that stand-alone gas boilers should be approved as an Alternative Energy extension of the gas system. In describing these systems, it appears that stand-alone gas boilers, in the absence of a physical connection to either a district energy system, geo-thermal or solar-thermal system, were never contemplated as an AES technology in the original FEI 2010-2011 RRA. There is no indication that a contractual or virtual pooling of stand-alone boilers with geo-exchange systems was contemplated in either that RRA or GT&C 12A.

However, the Panel notes that notwithstanding the Application was made pursuant to the approved rate schedule, nothing in this case turns on the definition of an Alternative Energy Solution or even on the GT&C 12A, as FEI has pointed out. The agreements can be approved as rates, without reference to the GT&C 12A. **Accordingly, the Panel defers to the AES Inquiry any further consideration of the GT&C 12A, along with the definitions of AES, TES and the inclusion of stand-alone gas boilers in the tariff. This Decision will only consider the agreements between FEI and Delta SD as a basis for setting rates.** Consequently, the Cost-of-Service model is no longer mandatory in the Delta SD Project.

8.2 Alternative Pricing Models and Assumption of Risk

FEI proposes a traditional COS model for Delta SD designed to capture a rate that would aid in the full recovery of all the costs that are prudently incurred. The proposed pricing model and other alternative pricing models, which have very different cost structures and risk implications are discussed in the Sections below.

8.2.1 Cost of Service Model and Rate Structure Risks

Delta SD desires the protection measures contained in the *UCA*, specifically pertaining to continuity of service and the Commission's review and approval of rates (Exhibit C1-2, BCUC 1.1.1). Furthermore the SD indicates that they have no concerns about regulation under the Commission. As such, the Commission is charged with the responsibility to ensure that the COS rate proposed to be charged to the SD is fair, reasonable and prudent for the type of service contemplated.

A traditional COS model was designed to apply to utilities providing an essential service in a natural monopoly environment. It does so by ensuring that utilities can fully recover all prudently incurred costs from its customers and earn a fair return on its assets.

In this Application, the essential rationale for a COS model – a monopoly environment – is not present. In addition, the proposed COS model is further encumbered with the complexity of the special rate rider in addition to the deferral mechanism, which ultimately provides a lower rate for Delta SD upfront. These deferred costs, resulting from the upfront discount, are shifted to the future years with carrying costs that reflects a weighted cost of debt and equity.

When Delta SD was asked whether it was aware of any provisions in the service contracts which hold the utility accountable for operational obligations, such as service reliability, GHG reduction or energy savings, Delta SD simply answered "yes"; however there was no references or any discussions into which aspects of service are guaranteed (Exhibit C1-2, BCUC 1.17.1). Delta SD did acknowledge that "if the thermal energy service were not to proceed or not totally meet expectations, Delta SD would be required to adequately fund the higher cost of carbon offset purchase at the expense of other District operations to maintain carbon neutrality" (Exhibit C1-2, BCUC 1.6.1, 1.6.2). This statement appears to contradict the SD's expectations that the Project "will free up valuable dollars for the delivery of education by reducing the number of carbon offsets it has to purchase annually" (Exhibit C1-2, BCUC 1.6.1).

Furthermore, the SD indicates there is a recent history of funding shortfalls so Delta SD "has to take whatever steps necessary to balance its operating budget and not incur additional costs" (Exhibit C1-2, BCUC 1.12.1). Given that there is no reasonable estimate for the rate or likelihood of system failure or rate of carbon offsets per unit within the next 20 years, this is a potential risk borne by Delta SD that is not adequately addressed in the evidence provided in this proceeding.

FEI states that there are no specific contingency costs included in this Project (Exhibit B-3, BCUC 1.51.7) even though the variable cost portion is nearly 70 percent (Exhibit B-3, BCUC 1.51.3). Instead FEI relies on the "pooling" of risk among sites which is expected to result in a net balancing of costs (Exhibit B-3, BCUC 1.51.7). Delta SD indicates that any cost overruns resulting from unforeseen circumstances will be remedied by adjustments in scope in order to maintain the thermal energy rate (Exhibit C1-2, BCUC 1.2.1). FEI states, and Delta SD acknowledges, that a 10 percent cost increase in the variable portion of the contract price represents a 2.7 percent increase in the thermal energy rate (Exhibit B-3, BCUC 1.51.4; Exhibit C1-2, BCUC 1.23.2).

8.2.2 Performance Based Rate Making and Contracts

In addition to the COS model, there are a number of performance based approaches to rate making. For example, there are two primary forms of contract offered by Energy Service Companies (ESCO) with regard to discrete energy projects: The first is the energy performance design-build contract model which has been implemented for decades and, the second is an own/operate model for financing purposes. The latter is relatively new in Canada, and not all ESCO's offer this type of contract (Exhibit A2-11, p. 23). The own-operate model is particularly applicable to the proposed FEI model and the stated preferences of the DSD not to own the assets themselves (Exhibit C1-2, p. 10).

ESAC states that by virtue of transferring the risks associated with capital and operating costs and system performance to the asset owner, the ESCO own/operate model encourages efficiency and cost reduction. It does so through the following mechanisms:

- Costs are agreed and known upfront, with few openers or opportunities to charge different costs in future years.
- The successful contractor takes the capital cost risk based on the agreed detailed engineered tender documents. In the event of a capital cost overrun, the ESCO is responsible for the excess costs required to achieve the agreed capacity and reliability specifications of the system and cannot amend the repayment terms accordingly.
- The asset owner charges the client a pre-determined annual fee for maintenance and operations. The ESCO would therefore be responsible for any unexpected and sustained increase in operating costs.
- If operating costs (other than pass–through fuel or utility inputs) are lower than anticipated, those savings would accrue to the ESCO, thereby providing an incentive to the operator to operate efficiently and reduce costs.
- System capacity and reliability is assured through contractual terms, with contractual remedies and penalties associated with not achieving those contractual obligations. The asset owner assumes the long term risks associated with this requirement based on a pre-determined fee.
- For an unexpected increase in the annual thermal load, the client would be responsible for the increase in input utility and fuel costs on a "pass-through" basis provided the specified efficiency levels were still being maintained. This provides an incentive to the customer to manage their energy demand.
- If the promised energy efficiency gains are not achieved, penalty clauses are sometimes used to reduce the asset owner's revenue.
- Clients are ensured that they receive a safe system by virtue of the design and operational responsibilities conferred on the asset owner and this would include code compliance. (Exhibit A2-7, pp. 23-24, 28-30; Exhibit A2-11, p. 25)

ESAC further states that the risk of diminished annual profits which would result from inappropriate initial design or maintenance of the system, acts as an incentive to the asset owner to both design properly in the first place, and then maintain properly. Under a fixed or levelized contract, any operational efficiencies, which are achieved result in higher profit to the asset owner, providing an ongoing incentive to reduce costs. The short-term profit incentive is balanced by the assumption of capital risk, which ensures that the operator will not reduce costs in a way which compromises system reliability over the longer term.

FEI submits that the ESCO model leaves customers at significant risk, "since under the ESCO model they make their capital investment up front and then rely on the accuracy of their energy price forecasts to achieve a return on this investment." (Exhibit B-8, BCUC Supplemental IR 2.1)

Commission Determination

Approval of the proposed rate and rate design as applied for and set out in the RDA and the Service Agreements is denied for the reasons set out below.

The Panel has considered the appropriateness of the traditional COS rate mechanism for rate setting in light of the section 60 requirement in the *UCA* to set a rate which encourages public utilities to increase efficiency, reduce costs and enhance performance. In a competitive environment, the Panel is not convinced that a COS model, where any cost overruns are paid by the ratepayer, is the most appropriate pricing model as competition itself will incent the service provider to determine a fair price. It is clear that the own/operate model contains much stronger built-in incentives to increase efficiency, reduce costs and enhance performance, which a regulator would struggle to emulate within the COS model. In the presence of an actively competitive market, there appears to be no reason to apply a model which was developed to be a surrogate for competition. The Panel sees the traditional COS rate-base model as the 'model of last resort' that was initially developed for traditional utilities with natural monopoly attributes.

However, the Panel must also consider that the Service Agreements were negotiated in good faith by two sophisticated parties. Accordingly, it is not appropriate for the Panel to impose a different rate. Nevertheless, even given the level of sophistication of the parties, the fact that the service offering is new, the regulatory environment complex, and there are issues that could not have been easily anticipated by the parties, compels the Panel to comment on the rates that have been negotiated. In this regard, the Panel also notes that the DSD has explicitly requested oversight of the rates by the Commission.

The Panel is concerned with the cost risks that Delta SD will be assuming with a COS model, which will hold the current and future Boards of Trustees of the SD accountable in the initial contractual term of 20 years. By using a COS model, the assumption of risk lies largely at the hands of the customer, in this case the DSD. In other alternative pricing models the forecast or costs risks are more balanced between the service provider and the customer.

With regard to the risks being assumed by Delta SD, the Panel notes there are risks that the renewable portions of the Project may need to be scaled back to meet budgetary constraints. However, this could increase operating costs because of greater fuel requirements and the need to purchase additional carbon offsets to meet the requirements of carbon neutrality. The Service Agreements also appear to provide no significant performance guarantees, and as such, little control over operating costs. The Commission Panel cannot assess how well these provisions are understood by the SD and the extent to which any aspects of the service may be guaranteed. The Panel, however, makes note of Delta SD's acknowledgement that if the thermal energy service were not to proceed or not totally meet its expectations, then Delta SD would be required to adequately fund the higher cost of carbon offset purchase at the expense of other District operations to maintain carbon neutrality.

The Panel realizes that the terms of GT&C 12A, under which these contracts were negotiated, compelled FEI to apply a COS model. However, the Panel has now determined that GT&C 12A does not apply to this Application. **Accordingly, we encourage Delta SD and FEI to revisit the COS model and consider a pricing model that may better allocate risks between the two parties. We will provide the parties with 30 days to reconsider their positions at which time the parties are requested to provide the Commission with an updated rate filing.** With respect to the issue of the rate, the Panel urges Delta SD to negotiate a rate with FEI that both fits its current budget yet does not result in unreasonably deferring costs to the future.

The Panel points out the lack of clarity in the intent of the amortization of the deferral account. Both FEI and Delta SD are asked to confirm their understandings of this. **FEI is directed to further calculate the COS rate comparison based on the agreed commencement on the amortization of**

SD37 Deferral Account. In addition, within 30 days from the date of this Decision, FEI is directed to provide Delta SD and the Commission a schedule showing the Net Present Value (NPV) comparison of the "market rate" and COS rate including in both instances the amortization of the SD37 Deferral Account.

The Panel is also concerned about the possibility of cross-subsidization by FEI natural gas ratepayers for any costs that are not included in the COS model. In this regard, the Panel notes that certain cost items appear to be missing, including capitalized overhead, cash working capital, inflation and escalation on capital replacements and sustaining capital items. The Panel is further concerned with the accuracy of the calculation of the future maintenance and capital replacement schedules provided confidentially in this proceeding. **The Panel directs the parties to address this issue within the 30 day period. FEI is directed to confirm and comment on these items and, if required, to recalculate the COS rate comparison with explanations on the above mentioned items, should a COS rate mechanism continue to be agreed to by Delta SD and FEI.**

An issue of particular concern to the Panel is the possibility of stranded assets at the end of the 20 year term. The Panel has previously discussed the fact that there is some $4.1 million in rate base at that time and the DSD will be under no obligation to continue service with FEI. The Panel is of the opinion that capital costs that are incurred by FEI to provide thermal services to the DSD should be properly amortized and included in rates. If new capital equipment is purchased by FEI during the course of these Service Agreements, and that equipment has a life that extends beyond the current term of the agreements, new agreements should be negotiated at the time of purchase that will ensure that FEI fully recovers those purchase costs over the life of that equipment. **Within 30 days from the date of this Decision FEI is directed to provide to Delta SD and the Commission a report setting forth the items that are included in the $4.1 million rate base at the end of the 20-year term with an explanation as to how that amount is to be recovered in the event that the Service Agreements are not renewed.**

8.3 Thermal Service to Delta SD as a Separate Class of Service

The Panel will now consider whether the provision of the thermal services by FEI to Delta SD should be segregated from other utility services. Subsection 60(1)(c) of the *UCA* requires that if a public utility provides more than one class of service, the Commission must:

(i) segregate the various kinds of service into distinct classes of service,

(ii) in setting a rate to be charged for the particular service provided, consider each distinct class of service as a self contained unit, and

(iii) set a rate for each unit that it considers to be just and reasonable for that unit, without regard to the rates fixed for any other unit.

At issue in this proceeding is whether the service to Delta SD constitutes a distinct class of service. If it is not a distinct and separate class of service, the costs of providing the service could be co-mingled with those of the natural gas service with resulting potential for cross-subsidization and risk to the natural gas ratepayer as previously mentioned. Appendix A to Order G-141-09 in the 2010-2011 RRA NSA states, in part, on page 8 that the Parties agree the costs incurred by TGI (FEI) to provide AES should not be recovered as part of natural gas service rates, and vice versa.

FEI appears to support the notion that TES is a separate class of service from the natural gas class, when stating that it "… is mindful that this Project falls within the broader thermal energy service class of service that is the subject matter of the ongoing AES Inquiry established by Order No. G-118-11". (Exhibit B-1, p. 5) However, when questioned further, FEI states that: "*The question of whether TES service should be provided as a class of service is a principles issue that is being considered in the AES Inquiry and is not relevant to the merits of this CPCN application itself.*" (emphasis added) (Exhibit B-3, BCUC 1.9.1)

FEI states that the current TES unit is self-contained, by including "all the necessary engineering and management expertise to design an efficient TES project that meets a customer's requirements, provide customer support, develop an application for a CPCN and build the project once it is approved. It does rely on support facilities such as human resources and other peripheral

business functions that are not directly related to its product that it is providing." (Exhibit B-3, BCUC 1.89.4.1) FEI described the complete list of services to be provided by the existing gas distribution resources and infrastructure to the Delta Project as including "24 hour response, monitoring, billing, measurement, customer service, maintenance and repair activities not contracted to others, and supervision of these services will be provided by existing resources and infrastructure." (Exhibit B-3, BCUC 1.46.4)

Ms. McShane referred to the Stand-Alone Principle, under which utilities are regulated as if the provision of the regulated service were the only activity in which the company was engaged. The principle is "intended to promote efficient allocation of capital resources and avoid cross-subsidies." (Exhibit B-2-1, p. 2)

FEI also does not believe that the TES class of service should be further segmented into district and discrete customer classes at this time. It submits that this was not contemplated by the NSA, which is the basis upon which FEI has been developing projects since it was approved by the Commission in 2009. However, FEI acknowledges that from a traditional rate design perspective, rates for different customer groups within a class of service are determined by functionalizing, classifying and allocating costs to customers and these result in customers being grouped into segments with similar characteristics. FEI submits that it is too early to do this for thermal service because there are not enough customers or operating data to properly perform the cost allocation exercise. It proposes to undertake a rate design analysis once there are enough customers and operating data and that this analysis may or may not result in a segmentation of customers into like groups within the TES class of service. (Exhibit B-10, BCUC 2.13.1)

Commission Determination

The Commission Panel finds there is sufficient difference between the proposed services for the DSD and the current natural gas business to warrant the establishment of a separate service class. There have been significant concerns raised in both this hearing and the AES Inquiry about the potential for cross-subsidization and other risks to the monopoly business. The Panel believes that

it is not in the public interest for the natural gas ratepayers to cross-subsidize the DSD service. Cross-subsidization can act to drive down costs of the thermal services that FEI offers, thereby impacting competitiveness. Further, the risk to the natural gas ratepayers of residual costs incurred by TES customers, even in the presence of an approved cost allocation methodology, is an issue of fairness that concerns the Panel.

Classes of service currently offered by FEI consist of a regulated natural monopoly gas class of service – the natural gas customers – and a new thermal class of service which, as currently defined, would include regulated competitive discrete energy activities such as the DSD service. However, the only activities currently allocated to the thermal class of service include over $5 million of deferred expenditures for marketing and other business development activities. The DSD Project is the first concrete instance of a thermal service customer.

The presence of both natural monopoly and competitive activities within the same regulated entity makes that cost allocation important, to prevent any potential cross subsidization which may be of benefit to the regulated competitive activity, and to limit any potential harm to the monopoly gas ratepayers. The Retail Markets Downstream of the Utility Meter (RMDM) Guidelines, which address the required separation between regulated versus unregulated utility activities, provide some useful principles for achieving separation between monopoly and competitive activities within the same regulated entity.

There appear to be significant differences in the nature, cost and risk of service provided by each TES system. While FEI submits that any differences are not attributable to whether the system is discrete or district, the Panel finds that there is insufficient evidence to make that determination. Further process is required to determine whether the TES should be subdivided into separate classes and what class the DSD should be in. The AES Inquiry is currently reviewing the thermal class with regard to AES offerings, General Terms and Conditions and other considerations. The Panel feels that the Inquiry is the most appropriate venue for that investigation. Accordingly, the Panel limits its consideration of a separate class of service to Delta SD service offering

contemplated in this CPCN Application only. **Until such time as a further order is made by the Commission, the Panel directs FEI to maintain Delta SD service in its own class should this service stay within FEI.**

Having determined that the DSD service constitutes its own separate class, the Panel now turns its attention to how to best achieve the segregation of the distinct classes of service, including but not limited to the allocation of costs between the natural gas and other classes, and the extent of segregation required in terms of a corporate structure.

8.4 Adequate Separation for a Class of Service

8.4.1 Cost Allocation Concerns

Key cost allocation issues are summarized as follows:

Distinct Classes of Service: In a COS model it is important to ensure that customers pay their fair share of costs incurred to serve them. For example, FEI proposes to use the same billing system for natural gas customers (Resort Billing System), the same 24-hour emergency response center, and the same Gas Control SCADA system (Exhibit B-3, BCUC 1.49.1; Exhibit B-10, BCUC 2.47.2, 2.32.1). FEI appears to make no substantial attempt to adhere to subsection 60(1)(c) of the *Act* in considering each distinct class of service as a self contained unit.

Tracking of Labour Costs, Transfer Pricing and Transparency: FEI states that the cost allocation methodology for thermal energy activities is similar to the transfer pricing methodology that already exists and applies to services provided by a regulated utility to a non-regulated affiliated company. It is stated that FEU's employee timesheet completion practices are in place to ensure the appropriate allocation of costs between classes of service within the regulated public utility (Exhibit B-3, BCUC 1.2.1). However, concerns were noted during the proceeding with some of the current timesheet practices, such as the implicit subsidies created by the provision of "unpaid time" by FEI employees to Delta DS Project. (Exhibit B-3, BCUC 1.2.6; Exhibit B-10, BCUC 2.23.1)

Prudency of the $500,000 Overhead Allocation from FEI to the TESDA: FEU agrees that, on the TES side, the prudence of expenditures incurred on the TES side has yet to be assessed (Exhibit B-3, BCUC 1.46.3). With regard to under-allocation of overhead expenses, FEI commented that "For both the shared services and the allocation of costs to TES, FEI's natural gas service is responsible for any residual costs or recoveries after the allocation." (Exhibit B-10, BCUC 2.17.2)

Annual Overhead Allocation to the DSD: FEI explains the annual amount for shared services and overheads of $50,000 represents a reasonable allowance for costs that FEI will incur in each year which incorporates all management, administration and support services including 24 hour response, monitoring, billing, and customer service (Exhibit B-3, BCUC 1.46.1) for the SD. While FEI was unable to provide a detailed breakdown of the $50,000 estimate, it was also unable to reasonably articulate how the $50,000 was derived to support its claim that it is "reasonable." There is no other evidence to suggest a breakdown is possible at this time, but the Panel feels that this estimate is a probably too low considering all the operating and administrative tasks contemplated. FEI's appears to base its reasonableness on the argument that this was the same amount that Corix has included in its UniverCity CPCN for similar services in that Project (Exhibit B 3, BCUC 1.18.2).

Allocation of Other Development Costs: FEI also indicates that development costs for abandoned TES projects are recorded to the TESDA for recovery in general from the TES class of service via the allocation of overheads (Exhibit B-8, BCUC Supplemental IR 4.1). Although the SD indicates that it is prepared to "pay its fair share of the indirect costs…of the FEI thermal energy service" (Exhibit C1-2, BCUC 1.27.1), the full impact will not be known until the AES Inquiry Panel will issue its Decision. (AES Inquiry, Exhibit B-25, BCUC 2.32.4)

No standby fees are contemplated: FEI deems that the O&M allocation is sufficient without a standby charge to recognize the value of having access to FEI's internal and support departments, namely the monitoring, billing, customer service and call centre, emergency services etc. (Exhibit B-10, BCUC 2.47.2-2.47.3).

Commission Determination

The Commission Panel acknowledges FEI has claimed that its cost allocation proposal would be sufficient to consider Delta SD thermal energy service as self-contained. Similarly, the Panel does not take issue with the annual $50,000 overhead allocation to Delta SD in the short term pending the determination and application of a more exact methodology. Nonetheless, the Panel considers the allocation of the $500,000 annually to the TESDA to pose a real risk to the natural gas class, and to be in contravention of the self-contained requirement. The Panel also notes the risk exposure to Delta SD with the TESDA account increasing. For instance, it is not clear yet, what portion of the costs of the AES Inquiry proceeding may be allocated to TES.

While the Panel acknowledges it is possible to prevent inappropriate risk and cost transfers from the TES class of service to natural gas ratepayers using cost allocation mechanisms and rate design, the examples above demonstrate some of the difficulties of doing so within an integrated utility. The Panel finds the presence of an approved cost-allocation methodology is not sufficient in itself to eliminate any cross-subsidization, as it requires a substantial effort to establish the accounting controls when a company is undergoing a major transformation. Finally, the Panel notes the principle quoted by Corix: "Rules that rely more on separation, and less on cost accounting solely, can minimize the likelihood of abuses. At the same time, rules that rely on separation are easier to monitor than rules that primarily rely on a multitude of reporting requirements." (Exhibit A2-14, BCUC 1.4.5)

However, the Commission Panel finds that accurate cost allocation and transfer pricing policies remain issues to be addressed in any corporate structure. **Accordingly, the Panel directs FEI to develop a consistent cost allocation methodology and follow its transfer pricing policy, if applicable, to allocate all appropriate costs to Delta SD thermal service, regardless of the exact nature of the entity that is delivering the service.** The Commission will set up a further process at a future date to review the new cost allocation methodology to be proposed.

8.4.2 Alternative Business Models

This Section addresses the public interest impacts of the corporate business structures that FEI could use to deliver the DSD service because in addition to the cross-subsidization issue, the Panel is concerned about the potential of the abuse of monopoly power. Therefore, beyond a sound cost allocation methodology, greater operational separation may be required. The options of a separate corporate division or affiliate are compared.

8.4.2.1 A Separate Corporate Division

The former BC Gas Division of BC Hydro provides one possible model of self-containment. The gas and electric divisions were organized with a greater degree of separation between the two classes of services than is contemplated for the thermal class of service at this time, with separate office buildings and other work facilities for some personnel while some corporate and management functions were located in a central head office. FEI points out that each of these classes of service was well established with a sizable customer base, unlike the TES class of service which is in the early development stages, and no existing customer base. (Exhibit B-3, BCUC 1.89.4, Exhibit B-10, BCUC 2.3.1)

FEI states the current TES structure "has been adopted to capture efficiencies for the benefit of both classes of service. The segregation of the TES from the natural gas business is equally acceptable under the Act as, and more beneficial for all of our customers than, the model used by BC Hydro in the past with the electric and gas divisions." (Exhibit B-10, BCUC 2.3.1) FEI further states that "it is not as efficient to set up entire duplicate structures within the classes of service as it is to share in those resources and allocate a fair share of those costs to each class of service." (Exhibit B-3, BCUC 1.89.1)

FEI further states that: "TES as a separate corporate division is effectively the same as having TES as a separate class of service. The terminology is interchangeable." When asked about the risks of cross subsidization, FEI replied that "while there is no written policy specifically governing the allocation of costs between classes of service within the regulated utility, the FEU do have and

follow related existing policies that ensure transparent allocation of costs." (Exhibit B-3, BCUC 1.3.1) FEI compared the effects of providing TES through a separate corporate division rather than as the proposed separate class of service, considering the following areas: rate base, allocation of overhead, tracking and allocation of expenses, capital structure, return on equity, interest, tax costs, risk of cross-subsidization, attribution of regulatory costs, use of customer information, duty to service, cost of service recoverable from the customer, and reliability of service received by the customer.

8.4.2.2 A Separate Affiliate

When providing TES using a separate affiliate, compared to the proposed separate class of service within the natural gas utility, FEI submits the rate base would be separate, yet "approximately" the same as under the proposed business structure. To the extent overhead costs are different or the cost of capital is higher, the cost of service recoverable from Delta SD would change accordingly. (Exhibit B-1, BCUC 1.4.1)

With regard to the allocation of overhead and the tracking and allocation of expenses, FEI anticipates the shared services agreement between FEI, FortisBC Energy (Whistler) Inc. and FEVI would need to be expanded to include the new utility. FEI states the cost tracking and allocation approaches would be essentially the same as under its proposed business structure. For both shared services and the proposed allocation of costs to TES, FEI's natural gas service is responsible for any residual costs. FEI states that since TES currently does not currently have any customers and has a very small number of employees, the shared services model would under-allocate the incremental costs to the TES utility. (Exhibit B-3, BCUC 1.4.1)

As regards to access to natural gas customer data by an affiliate that provides thermal services, FEI submits that while it has data on customer consumption and usage characterizations, it is the customer who knows the pattern of use beyond the meter. FEI goes on to restate evidence from the AES Inquiry that denying FEI access to its own customer information would reverse potential efficiencies that would accrue to customers. Nevertheless, it seems apparent that a separate

affiliate providing TES services will enjoy restricted access to FEI's customer information. (Exhibit B-3, BCUC 1.4.1; Exhibit B-10, BCUC 2.17.5)

FEI states that the "duty to serve" would not be affected by the business structure, as this duty would apply separately to each class of service or affiliated company (Exhibit B-10, BCUC 2.17.6). FEI submits that the reliability of service received by Delta SD would not change if the service were provided by a separate affiliate. (Exhibit B-3, BCUC 1.4.1)

FEI provided evidence on what would be required to assign the Delta SD Project to an affiliate in its confidential response to BCUC 2.18.1 in Exhibit B-10-1. FEI submits it "adopted the model of offering TES as a separate class of service within FEI in the belief that this is the most beneficial model for customers because it captures economies of scope. Should the Commission find otherwise in the Inquiry, the contracts with DSD permit assignment to an affiliate. A change to an affiliate model would also require the Commission to address the recovery of TESDA as the balance in the TESDA was incurred based on past approvals with the understanding that FEI would have an opportunity to earn revenues to recover it as a cost of service." (FEI Reply Submission, pp. 6-7)

Commission Determination

While it is clear from the evidence that there is a range of corporate structures that can be considered to be sufficiently self-contained, the Panel must determine if we are able to consider the DSD class of service as a self-contained unit for rate-setting purposes. To this end, the Panel finds that greater separation is preferred as a starting point, with the onus being on the utility to argue the merits of greater integration.

The cost savings which can be gained through greater integration must be weighed against the benefits of full segmentation or separation, on a case by case basis. For certain functions, such as billing systems, an integrated approach may be the most cost-effective and desirable solution bearing the principle of fair access to monopoly resources in mind. In others, such as operations, a greater degree of separation may be appropriate and required. A more integrated structure and

the resulting potential cost ambiguity require a greater degree of judgement to set appropriate rates. Conversely, increased self-containment allows for: easier evaluation and measurement of segments, future divestiture, clearer reporting, improved transparency and cost accuracy, clearer cost allocation, reduced possibility of cross-subsidization, improved objectivity and regulatory efficiency through simpler rate-setting.

The Panel concludes that concerns about the provision of service to Delta SD by FEI as a distinct class of service within the gas distribution utility would not be materially reduced if the service were provided by a separate regulated corporate division of FEI. Therefore, the Panel considers a separate affiliate next as the viable corporate model.

FEI's evidence is that Delta SD will experience the same reliability of service whether TES is provided as a separate class of service within FEI, or by an affiliate of FEI. However, the cost of service for Delta SD may be different and potentially higher with an affiliate. The Commission Panel has no desire to inflate the cost that Delta SD pays, but supports the principle that customers in a given class pay the full cost of serving them. Proper allocation of overhead and other expenses, whether within FEI or to an affiliate through a transfer pricing policy, should in theory be the same. Nevertheless, as noted above, cost allocation and its oversight are challenging. Therefore, the transparency and clarity provided by a separate corporate entity would assist in this regard.

The Commission Panel notes that companies sometimes establish a separate corporate entity when they embark on a new and potentially risky business activity. A separate corporate entity would facilitate proper recognition of the financial impacts of risks associated with TES. These risks include those associated with a utility's "duty to serve." The affiliate would have debt interest costs, capital structure and return on equity appropriate for its risk profile. A separate affiliate should largely deal with the issue of preferential access to FEI customer information. This will contribute to a level playing field in which competition for TES can flourish. The creation of a separate FEI thermal affiliate would also appear to:

- eliminate any concerns of bundled or tied selling from the gas monopoly. The affiliate would enjoy the same ability as any other thermal provider to provide a bundled gas and thermal service;
- eliminate any impact on the Customer Choice program, as the customer would be able to choose if the gas commodity were to be supplied directly by FEI or a gas marketer;
- clarify the demarcation of the gas utility at the gas meter, and the number of gas customers involved. Using the DSD project as an example, FEI could bill the Affiliate for the gas consumed at the 19 sites, providing the same "pooled" bill to the DSD; and
- support the application of the stand-alone principle with regard to determining the cost of debt.

The Commission Panel concludes that a separate corporate affiliate will provide maximum flexibility to align the Delta SD arrangement with the models that result from the AES Inquiry. Should the AES Inquiry accept that TES may be provided as a separate class of service or corporate division within FEI, it will be easier to bring the Delta SD arrangement into this model than to segregate it later.

Since FEU previously provided energy services through a separate entity, neither the establishment of a separate affiliate for the DSD thermal service nor the allocation of costs within that business structure should present novel difficulties.

Finally, FEI has indicated that all contracts can be unilaterally assigned by FEI to an affiliated entity, with no other material change in the terms and conditions of those contracts. **Accordingly, the Panel directs that the thermal services to Delta SD be provided by a separate corporate entity. The CPCN is granted on the condition that the CPCN, the RDA and Service Agreement are assigned to an affiliate of FEI as soon as practicable, but no later than 30 days after the date of this Decision.** Should the AES Inquiry find otherwise, this Panel would accept the reintegration of the DSD thermal service business into FEI.

8.4.3 Short and Long Term Implications

As determined above, the Delta SD thermal service is to be provided by a separate affiliate. However for reasons explored above, the Panel finds that the Delta SD class as currently structured cannot be considered to be sufficiently self-contained to reduce the possibility of cross-subsidization from or risk to the natural gas ratepayer, and does not allow for an objective allocation of costs. The Panel therefore acknowledges the need for both an immediate, short term solution for Delta SD, and a longer term solution which will ultimately be provided by the AES Inquiry process.

With regards to achieving adequate separation between separate classes of service, the Panel supports the principle of greater separation as a starting point. Ideally the cost savings, which can be gained through greater integration, should be weighed against the benefits of full segmentation or separation, with the onus being on the utility to argue the merits of greater integration of corporate overhead services.

However, the Panel recognises that with Delta SD being the first TES project, it may not be practical for the affiliate to establish a stand-alone service organization in the short term. Therefore, for a maximum period of one year, until the findings of the AES Inquiry and the associated Guidelines are available, and due to the relatively small nature of the project, FEI may continue to offer the services as contemplated within the DSD application at this time. These services are to be provided in accordance with a transfer pricing policy where appropriate. As the DSD project has not yet begun, the affiliate should begin implementation on a stand-alone basis where possible, while transitioning to a more self-contained unit within the next year. The Panel notes that the current Transfer Pricing Policy for Provision of Utility Resources and Services dated August 1997 addresses the pricing of FEI services to Non-regulated Businesses and Divisions of the utility providing unregulated products or services. **Because FEI will now be providing services to Delta SD as a regulated affiliate, within 30 days of this Decision FEI is directed to advise the Commission in writing whether its current Transfer Pricing Policy requires any amendments in the short term to**

deal with the regulated affiliate and services which may be provided to it and follow its current Transfer Pricing Policy until the Commission otherwise orders.

In the longer term, with the benefit of the AES Inquiry outcome, FEI will have a better understanding of its AES and TES services, the degree of their regulation and the preferred form of corporate structure. This knowledge will determine under what corporate structure the Delta SD service will ultimately reside.

The Panel hopes that this long term path will ultimately lead to an appropriate degree of self-containment. Finally, the Panel notes that in 2012 the FortisBC Energy Utilities also plan to file an amended Amalgamation and Rate Design Application. The outcome of that review process may lead to further changes in the rate design and corporate structure. As indicated above, a further Commission process will be required to establish a new cost allocation methodology and transfer pricing policy once all these proceedings are concluded.

8.4.4 Thermal Energy Services Deferral Account

TESDA was established by FEI to capture marketing and business development costs related to the introduction of TES. However, this account currently has a balance of almost $5.5 million, with Delta SD as the only concrete customer of thermal services, and there is no specific plan on how it will be allocated to Delta SD or any other potential customers.

FEI has confirmed the "SD37 deferral account is a subset of the TESDA and will be separately tracked from other thermal energy projects in the future. In addition SD37 will have its own plant and depreciation accounts tracked separately from other TES projects for rate base accounting purposes." (Exhibit B-3, BCUC 1.62.2.1) FEI proposes the TESDA, with the assignment of "appropriate overhead allocations based on activities generated by this (thermal) class of service coupled with the proper allocation of employees' time" is sufficient to meet the definition of a self-contained unit (Exhibit B-3, BCUC 1.2.1) FEI state that "allocating a fair proportion of overhead and

shared services costs on to the direct costs of each class of service accomplishes the requirements of considering each distinct class of service as self contained units". (Exhibit B-3, BCUC 1.89.1)

FEI explains that the three components of costs charged to the TESDA are consistent with the terms of the 2009 NSA, Order G-141-09 (Exhibit B-3, BCUC 1.17.2). The current TESDA balance breakdown is provided below:

Table 4

TES Deferral Account			
	2010 Actuals ***TOTAL***	*2011 Nov YTD* ***TOTAL***	*2010 + 2011 Nov YTD* ***TOTAL***
Direct costs	$ 1,195,760	$ 1,645,413	$ 2,841,173
Sales & Marketing	$ 1,434,976	$ 1,565,783	$ 3,000,759
Overhead Allocation	$ 500,000	$ 458,333	$ 958,333
AFUDC	$ 90,203	$ 269,346	$ 359,549
Tax	$ (681,820)	$ (1,001,473)	$ (1,683,293)
Total	**$ 2,539,119**	**$ 2,937,402**	**$ 5,476,521**

Source: Exhibit B-3, BCUC 1.17.4

As discussed previously, the annual allocation of overhead to the SD is estimated at $50,000, which will be credited to the TESDA and form part of the costs or debits to the SD37 Deferral Account, and recovered in rates from the SD (Exhibit B-3, BCUC 1.18.3; Exhibit B-10, BCUC 2.46.1).

Commission Determination

With respect to the annual allocation of $500,000 of FEI overhead to the TESDA, the Panel is very concerned with the lack of detail provided by FEI. We note that since FEI has indicated it will seek to recover this amount from its thermal customers, of which the Delta DSD is currently the only one, this potentially exposes the DSD to an unknown liability and possibly an unacceptable level of risk. However, given the fact that the issue of TESDA has implications beyond this Application, the Panel acknowledges that the TESDA disposition must ultimately be resolved in the context of the AES Inquiry.

The Panel is similarly concerned with lack of clarity of the annual allocation of $50,000 for overhead expenses from the TESDA to the Delta SD service's operating costs. Accordingly, the Panel wishes to separate the two issues for the short term and does not approve this recovery of the $50,000 annual overhead charge from the TESDA to Delta SD. We have previously directed FEI to assign Delta SD Contracts to a separate affiliate. **FEI is directed to track and charge to its affiliate all overhead costs incurred for the provision of services to Delta SD.** The affiliate in turn is expected to invoice Delta SD for those services. If the services are actually provided by FEI, or some other related entity, a proper transfer pricing policy between the two affiliates should be in place to ensure that these costs are the actual incurred costs. The affiliate can, however, use the $50,000 amount per annum as a proxy for an actual value, until such time as sufficient operational experience is gained and cost allocation methods are in place.

FEI is further directed to maintain the entire TESDA account within FEI, until such time as the Panels in the AES Inquiry, the FEU 2012-2013 RRA, or other proceedings direct otherwise. Although the Panel also notes its concern that FEI's natural gas customers are responsible for any residual costs or recoveries in the TESDA after the allocation of costs to the thermal customers it refers this issue to the AES Inquiry.

8.5 Financing Costs

The cost of financing FEI's provision of thermal energy service to Delta SD as part of FEI's TES class of service is dependent on (a) a Commission-approved capital structure for the stand-alone TES class of service, (b) the allowed rate of Return on Equity, and (c) the deemed cost of financing the debt component of its capital structure.

FEI states that the business risks of launching a new service, and providing TES, are greater than the business risks of an established natural gas utility service with a broad customer base. It further submits that the ROE for the TES class of service must be determined with reference to the business risks of providing TES on a stand-alone basis according to the fair return standard.

(Exhibit B-1, p. 2) FEI further states that the TES class of service shares many of the characteristics of three other small thermal energy utilities in the Province: Dockside Green, Parklane's River District project and Corix's UniverCity project, and at the same time distinguishes the Delta SD Project from the above three district energy systems.

8.5.1 Project Risks

FEI describes the Delta SD Project as distinguishable from UniverCity and River District Energy in that it has a willing customer with well-known thermal energy demands who desires the specific project, which does not involve a new development. (Exhibit B-1, Cover Letter, pp. 2-3) As a result, demand risk appears to be minimal and stranded asset risk can be managed by FEI. The buildings to be served already exist and require thermal energy, so there is an immediate match between the size of these energy systems and the demand for thermal energy. Provided that Delta SD remains in existence throughout the term of the Contract and continues to require thermal energy at its sites, the assets will remain in use producing sufficient revenues to recover the cost of service in aggregate. There will be no impacts on First Nations or other stakeholders resulting from the physical implementation of the discrete energy system as the Delta SD Project takes place entirely on Delta SD land. (Exhibit B-1, pp. 28-29) Finally, in terms of capital cost risk, FEI cautions that further negotiations and associated delays in the Project's schedule could adversely affect the economics of the entire Project.

FEI's Supplemental Evidence addresses in greater detail the business risks facing the TES class of service on a stand-alone basis and distinct from the natural gas class of service. (Exhibit B-2, Supplemental Evidence, pp. 3-6) Ms. McShane's Expert Evidence provides a summary of those risks and submits that "the higher business risk of the TES class of service relative to the benchmark utility reflects the combination of:

(1) Its greenfield characteristics, including its lack of established customer base;

(2) Relatively high upfront capital costs that must be recovered from TES customers only;

(3) Competition from conventional sources of energy;

(4) Competition from other providers of TES services;

(5) Reliance on less established technologies to provide the service;

(6) Small size of individual TES projects, e.g., fewer customers to recover the costs of the assets constructed and operated to serve them; and

(7) Reliance on non-traditional rate structures to make the TES projects competitive and provide an opportunity to recover the related investment."

(Exhibit B-2-1, Expert Evidence of Ms. McShane, p. 5)

8.5.2 Capital Structure

FEI proposes a 60/40 debt equity split to apply to the capital structures of the Delta School District Project and other projects. FEI submits that it is reasonable for the common equity ratio for the TES class of service to fall within the 40 to 45 percentage range for its capital structure, consistent with the established principle that utilities maintain financial integrity. At the same time, it describes the Delta SD Project as distinguishable from Dockside Green and the CMUS UniverCity in that it has a willing customer who desires the specific project, which is not a new development. Later in a response to IR, FEI describes that these Delta SD features reduce the risk of cost recovery for the Delta SD Project (Exhibit B-3, BCUC 1.100.2.3).

FEI accepts that it is possible to arrive at alternate combinations of debt and equity and their attendant rates relative to the benchmark utility. (Exhibit B-2, Supplemental Evidence, pp. 7-8) No Interveners made submissions regarding FEI's proposed capital structure of 60 percent debt and 40 percent equity for the Delta SD Project, which FEI also seeks to apply for the entire TES class of service.

Commission Determination

The Commission Panel agrees with FEI that it is possible to arrive at alternative combinations of debt and equity and their attendant return on equity relative to the benchmark utility. In practice, the Commission has varied both the capital structure and the ROE in the calculation of rates for the

utilities it regulates. In determining the capital structure of 60/40 debt equity split proposed by FEI for the Delta SD Project and other projects, the Commission Panel is cognizant that FEI is proposing a 50 basis point premium benchmark ROE for the Delta SD Project.

The proposed 60/40 debt equity structure is similar to the capital structure of FEI and the other district energy projects awarded a CPCN by the Commission, namely: Dockside Green, UniverCity and River District (collectively the Three DEUs). **The Commission Panel does not find a compelling reason to vary the debt equity structure for the Delta SD Project and accepts the proposed 60/40 debt equity structure.**

8.5.3 Return on Equity

The Delta SD Project cost of service includes a 50 basis points (bps) risk premium over the benchmark ROE (i.e., FEI's natural gas class of service), based on a 60/40 debt to equity ratio. (FEI Final Submission, p. 31) FEI submits that 50 basis points is a reasonable adjustment given the segregation of costs and risks from the natural gas class of service and the Commission's decision in the UniverCity CPCN proceeding. The additional risk premium in the cost of service above the benchmark ROE is to reflect the fact that the thermal energy service is in the early stages of development, which makes it inherently riskier than FEI's mature natural gas class of service. (Exhibit B-1, p. 41)

FEI also contemplates one single rate of ROE for the TES class of service as a whole, which will be comprised of a number of individual TES projects with similar risk characteristics. (Exhibit B-2, pp. 2-3) FEI submits that the ROE for the TES class of service must be determined with reference to the business risks of providing TES on a stand-alone basis according to the fair return standard. In light of the generally comparable business risk associated with TES projects, FEI submit the Commission can achieve administrative efficiency by extending the application of the Commission's determinations in this Application to the TES class of service as a whole, to be applied to the individual projects added to the class of service. (FEI Final Submission, p. 31) However, should the Commission decide that there is insufficient evidence regarding the TES class of service as a whole

to determine a single rate of ROE of 50 basis points above the benchmark ROE to apply to each TES project, FEI requests that the determination be solely for the DSD Project. (Exhibit B-10, BCUC 2.58.4.8)

In terms of compatibility of return with business risks, Ms. McShane argues that if the business risks of the TES class of service are higher than those of the benchmark utility while the financial risks are the same (because of similar capital structures), it follows that the cost of equity for the TES class of service will be higher than the benchmark utility cost of equity. In that case, a fair allowed ROE for the TES requires an incremental equity risk premium above the benchmark utility allowed ROE. (Exhibit B-2-1, Expert Evidence of Ms. McShane, pp. 3-4)

Furthermore, Ms. McShane submits that the fair return standard requires that the regulated utility be afforded the opportunity to earn a return on its investment that is comparable to the returns available from investments of similar risk. The fair return standard applies to the overall return, which encompasses both capital structure and ROE. In Ms. McShane's expert opinion, "two relevant points of comparison are (1) the equity risk premiums that the Commission has already adopted for similar projects in the same class of service; and (2) the equity risk premiums that the Commission has adopted for natural gas service utilities in the Province, which are smaller and riskier than the benchmark utility." (Exhibit B-2-1, Expert Evidence of Ms. McShane, pp. 5-6)

In the future, FEI does not preclude revisiting the ROE risk premium should a change occur in the risk profile of TES relative to conventional energy forms such as natural gas and electricity. (Exhibit B-3, BCUC 1.95.1) FEI further notes that the School District is aware of the risk premium, has agreed to it forming part of the rate, (Exhibit B-1, pp. 41-42) and understands that the ROE component in the cost of service rate can change from time to time. (Exhibit C1-2, BCUC 19.1)

FEI provides the following summary table of the ROE and capital structure of other BC utilities. Since the submission of the Supplemental Evidence, by Order C-14-11 dated December 19, 2011, the Commission approved an equity risk premium of 50 basis points for River District Energy, based on a 60/40 debt/equity capital structure.

Table 5 - ROE and Capital Structure of other BC Utilities

Utility	Risk Premium	Capital Structure (Debt to Equity)	BCUC Decision Order No.
FortisBC Energy (Vancouver Island) Inc.	+ 50 basis points	60/40	G-158-09
FortisBC Energy (Whistler) Inc.	+ 50 basis points	60/40	G-158-09
FortisBC Inc.	+ 40 basis points	60/40	G-58-06
Pacific Northern Gas Ltd.			G-84-10
PNG-West Division	+ 65 basis points	55/45	
Fort St. John/Dawson Creek Division	+ 40 basis points	60/40	
Tumbler Ridge Division	+ 65 basis points	60/40	
FortisBC Alternative Energy Inc.			
Gateway Lakeview Estates Propane System	+ 60 basis points	65/35	C-22-06
Dockside Green Energy LLP	+ 100 basis points	60/40	C-1-08
Corix Multi-Utility Services Inc.			
Neighbourhood Utility Service at UniverCity	+ 50 basis points	60/40	C-7-11
River District Energy Utility	Approval Sought + 50 basis points	Approval Sought 60/40	Regulatory review in progress

Source: Exhibit B-2, Supplemental Evidence, p. 8

FEI believes the risk premiums awarded by the Commission for Dockside Green, UniverCity and River District are appropriate comparators for establishing the risk premium for FEI's TES class of service. (Exhibit B-3, BCUC 1.97.2) Consequently, FEI believes that it is appropriate to also set the TES class of service ROE at a 50 bps premium. (Exhibit B-2, p. 8) This view is supported by Ms. McShane who states that, while the specific business risks faced by the TES class of service are not identical to those of the referenced thermal energy utility projects nor to those of the smaller natural gas service utilities in BC, they are sufficiently comparable to support the proposed 50 bps equity risk premium above that of the benchmark utility, which is conservative when judged within the broader range of utility equity risk premiums. (Exhibit B-2-1, p. 8)

BCSEA states in its Final Submission that it takes no position on the quantum of FEI's proposed return on equity for this service to Delta SD. (BCSEA Final Submission, p. 1)

Commission Determination

The Commission Panel acknowledges FEI and Ms. McShane's arguments that the stand-alone principle, the compatibility of return with business risks and the comparability of returns need to be considered to arrive at a fair equity risk premium. As a result, the Panel believes the business risks must be evaluated from different angles. The risks facing the Delta SD Project must be assessed, first on their own and then compared to those of the benchmark utility to determine whether an incremental equity risk premium is warranted over the benchmark ROE and its value, if required. Then, according to the comparability of returns principle, they must also be compared to investments of similar risks to determine a fair return. In a second instance, an evaluation of the business risks facing the TES class of service as a whole must be undertaken to determine if they would be comparable to those of the Delta SD Project, thus justifying the broader applicability of the Delta SD equity risk premium to the TES class of service. In this Section, however, the Panel will only discuss the equity risk premium with respect to the Delta SD Project and defer the analysis of the broader applicability of the equity risk premium to the TES class of service to future Commission proceedings.

Through a series of IRs[1] the Commission sought to obtain from FEI a detailed assessment of the many risk factors that may affect the Delta SD Project, the TES class of service and FEI's natural gas class of service. As well, the same risk factors were also assessed for Dockside Green, UniverCity and River District. While the Panel believes that there are key differences between the discrete energy systems, such as the Delta SD Project, and district energy systems, such as Dockside Green UniverCity and River District, as outlined in Appendix D, it still finds useful a comparison of the risk factors between them to inform the appropriate value of the equity risk premium.

The two tables below are derived from information found in the evidentiary record. Table 6 provides a comparative analysis of the business risks facing the Delta SD Project with those facing FEI's natural gas class of service. For each risk factor, the table further classifies Delta SD business

[1] Exhibit B-3, BCUC 1.110.0; Exhibit B-10, BCUC 2.58.0; BCUC 2.59.0; BCUC 2.60.0.

risks as being lower, similar or higher than those of FEI's natural gas class of service. Table 7 provides a similar comparative analysis, although it compares Delta SD business risk factors to those of the Three DEUs.

Table 6- Comparative Assessment of the DSD Project Business Risks versus FEI's Natural Gas Class of Service

Risk Level	Delta School District Project	FEI's Natural Gas Class of Service
Delta SD Project has Lower Risk	• Fuel risk (heat from ground): ***no risk*** • Customer base (one known customer): ***no risk*** • Property development risk (not new development): ***no risk*** • Developer/customer connection risk (one known customer with existing sites): ***no risk*** • Public acceptance risk (seen as green alternative): ***low risk*** • Competitive challenges (DSD obliged through the contract to take thermal energy from FEI): ***low risk*** • Provincial climate change & energy policies (favourable government policies): ***low risk*** • First Nations rights issues (energy systems on DSD lands): ***no risk***	• Fuel risk (natural gas): ***low risk*** • Customer base (established and diverse but very slow growth): ***low risk*** • Property development risk: ***medium to high risk*** • Developer/customer connection risk (due to building stock changes and competitive energy sources): ***medium to high risk*** • Public acceptance risk (established and widely used technology but public perceives it as less than clean): ***medium risk*** • Competitive challenges (competition with various energy options): ***medium risk*** • Provincial climate change & energy policies (reduction of GHG emissions and energy use): ***medium risk*** • First Nations rights issues (more complex than smaller utilities because large service area): ***high risk***
Delta SD Project has Similar Risk	• Technology risk (high-efficiency boilers): ***low risk*** • Fuel risk (natural gas): ***low-medium risk*** • Default risk of customer: ***minimal risk*** • Load forecast uncertainty (one customer with established load history): ***low risk*** • Capital structure: 60/40 debt/equity ratio • Financial risk: ***low-medium risk***	• Technology risk (natural gas boilers): ***low risk*** • Fuel risk (natural gas): ***low-medium risk*** • Default risk of customer: ***minimal risk*** • Load forecast uncertainty (mature utility with deferrals accounts): ***low risk*** • Capital structure: 60/40 debt/equity ratio • Financial risk: ***low-medium risk***
Delta SD Project has Higher Risk	• Technology risk (ground source heat pumps): ***high risk*** • Operating cost risk – due to smaller scope and scale of operations: ***higher risk*** • Rate design – 100% variable: ***higher risk*** • Utility size (project is stand alone with a separate rate base and class of service): ***higher risk*** • Regulatory uncertainty (new, uncertainty, scrutiny and not streamlined): ***medium risk*** • Business development risk – as still waiting Commission approval: ***medium risk***	• Technology risk (natural gas boilers): ***low risk*** • Operating cost risk: ***low risk*** • Rate design – 85% variable: ***high risk*** • Utility size (large and mature): ***low risk*** • Regulatory uncertainty: ***low-medium risk*** • Business development risk – as still waiting Commission approval: ***minimal risk***

Source: Derived from Exhibit B-10, BCUC 2.58.1; BCUC 2.59.1

Table 7 - Comparative Assessment of the DSD Project Business Risks versus the Three DEUs

Risk Level	Delta School District Project	District Energy Utilities (Dockside Green, UniverCity, River District)
Delta SD Project is Lower Risk	• Fuel risk (heat from ground): ***no risk*** • Customer base (one known customer): ***no risk*** • Property development risk (not new development): ***no risk*** • Developer/customer connection risk (one known customer with existing sites): ***no risk*** • Load forecast uncertainty (one customer with established load history): ***low risk***	• Fuel risk (natural gas): ***low- medium risk*** • Customer base (Greenfield utility): ***higher risk*** • Property development risk (phased approach to capital deployment): ***low risk*** • Developer/customer connection risk (mandatory connection): ***low risk*** • Load forecast uncertainty (inherent uncertainty in load forecast): ***higher risk***
Delta SD Project is Similar Risk	• Technology risk (high-efficiency boilers): ***low risk*** • Technology risk (ground source heat pumps): ***high risk*** • Fuel risk (natural gas): ***low-medium risk*** • Default risk of customer: ***minimal risk*** • Operating cost risk: ***higher risk*** • Public acceptance risk (seen as green alternative): ***low risk*** • Capital structure: 60/40 debt/equity ratio • Financial risk: ***low-medium risk*** • Competitive challenges (DSD obliged through the contract to take thermal energy from FEI): ***low risk*** • Utility size (project is stand alone with a separate rate base and class of service): ***higher risk*** • Provincial climate change & energy policies (favourable government policies): ***low risk*** • First Nation rights issues (energy systems on DSD lands): ***no risk***	• Technology risk (natural gas boilers): ***low risk*** • Technology risk (biomass gasification): ***high risk*** • Fuel risk (natural gas): ***low-medium risk*** • Default risk of customer: ***minimal risk*** • Operating cost risk: ***higher risk*** • Public acceptance risk (seen as green alternative): ***low risk*** • Capital structure: 60/40 debt/equity ratio • Financial risk: ***low-medium risk*** • Competitive challenges (customers in new development obliged to take thermal energy from district energy system): ***low risk*** • Utility size (small utility): ***higher risk*** • Provincial climate change & energy policies (favourable government policies): ***low risk*** • First Nation rights issues: ***no risk***
Delta SD Higher Risk	• Rate design – 100% variable: ***higher risk*** • Regulatory uncertainty: ***medium risk*** • Business development risk – as still awaiting Commission approval: ***medium risk***	• Rate design – 34% to 50% variable: ***lower risk*** • Regulatory uncertainty: ***low risk*** • Business development risk: ***low risk***

Source: Derived from Exhibit B-10, BCUC 2.58.1; BCUC 2.59.1

The previous comparative analysis shows that on many fronts, the Delta SD Project would be less risky than FEI's natural gas class of service (e.g., one known customer with existing sites and established load history, favourable governmental policies and public acceptance) or would have similar risks. Other risk factors were ranked as more risky by FEI; however, the Panel disagrees with some of the assessments. For instance, the Panel does not find a 100 percent variable rate more risky than one with a fixed charge component given that FEI will capture any variance between revenues and costs in the SD37 Deferral Account and recover the costs over time.

Therefore, depending on the relative importance attributed to each risk factor, the Panel believes that an appropriate level of equity risk premium could result from the previous analysis ranging from none to a somewhat higher level of equity premium. As a result, this range of possible premiums reflects the risk-related component of the equity premium. The Panel recognizes the ROE premium may reflect other factors in addition to risk. The thermal energy service contemplated by FEI in this Application is a competitive service offering and, as such, the Panel believes that FEI may be providing additional value to the customer, not already captured in the previous risk analysis, and for which the customer may find it appropriate to pay a higher equity premium.

The Panel also recognizes that FEI and Delta SD are two sophisticated parties that negotiated and signed the service Agreements and the RDA, as well as negotiated their own equity premium, which is included in the rate charged to Delta SD. In addition, the Panel notes that Delta SD will be paying all the costs related to the Project. **For these reasons, the Panel is prepared to accept the proposed equity premium of 50 bps above the benchmark utility ROE, on a conditional basis. To this end, the parties are directed to come back to the Commission as soon as practicable but no later than 30 days after the date of this Decision for acceptance of the proposed equity premium of 50 basis points above the benchmark ROE or of a lower renegotiated equity premium.** The Commission Panel cautions that the outcome of this ruling should not be seen as establishing a 'base level' for equity premiums for other new applicants with similar projects.

Finally, the Commission Panel notes that, should FEI and Delta SD decide to renegotiate on the basis of an alternative pricing model, the risk and equity premium considerations would naturally change.

The Commission Panel defers the discussion on the broader applicability of an equity risk premium to TES Class of Service to the AES Inquiry. Finally, the Panel notes by Order G-20-12 the Commission has announced it will conduct a Generic Cost of Capital hearing in 2012 which may bring further clarity to this issue.

8.5.4 Debt Cost

FEI is seeking approval to use FEI's embedded cost of debt to finance the Delta SD Project, based on a capital structure with 60 percent debt. FEI's cost of debt is summarized below from information obtained during the IR process.

Table 8: FEI's Cost of Debt

	Approved 2011	Forecast 2012	Forecast 2013
Short-term debt rate	4.50%	2.50%	3.50%
% of Short-term debt rate	1.63%	2.72%	3.92%
Long-term debt rate	6.95%	6.85%	6.87%
% of Long-term debt rate	58.37%	57.28%	56.08%

Source: Exhibit B-3, BCUC 1.102.3; Exhibit B-10, BCUC 2.63.1

Ms. McShane acknowledges that the assignment of FEI's cost of debt to the TES is a departure from the pure application of the stand-alone principle. Nonetheless, she notes that it is consistent with regulatory practice, where the actual cost of debt of the entity raising the debt is mirrored down to its various regulated operations. This practice implicitly recognizes that all customers benefit by way of a lower cost of debt from the size and diversity of the company's operations. In her expert opinion, FEI's cost of debt would not be impacted in any measurable way by the financing

requirements of the TES given the small size of the TES relative to FEI in total. (Exhibit B-2-1, Expert Evidence of Ms. McShane, pp. 4-5)

This proposal prompted the Commission to probe further the issue of the applicability of the stand-alone principle to the cost of debt and whether FEI should finance the Delta SD Project as part of the overall FEI debt program or arrange a separate Project-specific debt facility or debt issue. (Exhibit B-3, BCUC 1.98.0) FEI explains that "a pure application of the stand-alone principle would mean that the cost of debt for TES projects would equal the cost they would incur if they had to raise the debt in their own name and on the basis of their own business and financial risks. ... The true stand-alone cost would likely be more a function of the small size and illiquidity of a debt issue rather than of the underlying fundamental risks of the business." (Exhibit B-3, BCUC 1.98.2) Furthermore, FEI suggests it is reasonable to use the blended public utility's cost of debt for the new class of service as the latter is not materially riskier (in terms of the combined business and financial risk) than the existing class of service and is not of sufficient size to impact the cost of debt of the entity raising the capital. For this specific reason, FEI submits there is no subsidy from the existing class of service to the new class of service. (Exhibit B-3, BCUC 1.98.1; BCUC 1.98.1.1)

When asked to identify alternate options to account for the actual cost of debt for the TES class of service, FEI proposed three alternatives:

- To assign FEI's prevailing market cost of debt to the project at the time it is constructed. However, FEI cautions that at current levels of interest rates, the indicated cost of debt for FEI would likely be lower than is reflective of the stand-alone financing cost of TES projects;
- To make an assessment of the likely indicative stand-alone debt rating for the TES (*i.e.,* a rating in the BBB category), estimate the cost of debt that would be applicable at that rating and deem the resulting debt cost to the TES; or
- To establish a separate debt facility or specific debt issue. However, given the small size of the projects, it would be less efficient or economic as the cost to arrange incremental debt issues would add to the interest cost of that specific debt.

(Exhibit B-3, BCUC 1.98.2.1; Exhibit B-10, BCUC 2.62.3)

In light of the Project's very small size relative to FEI's overall asset base, FEI argues it is cost-effective to finance the Project using FEI's overall debt financing and doing so avoids additional costs for Delta SD associated with a separate debt facility (e.g., additional expenses to establish and administer). FEI submits that Delta SD should not be required to pay a higher cost of debt than FEI's embedded cost. (FEI Submission, p. 30)

Furthermore, FEI reassures that natural gas customers will remain unaffected by FEI's use of existing credit facilities and the embedded cost of debt because 1) FEI debt used for the Delta SD Project and its associated cost will be fully placed into the Delta SD cost of service so that no direct recovery of these costs from FEI's natural gas customers can occur; and 2) financing the Project in the manner proposed will not adversely impact FEI's overall debt cost. In FEI's view, the debt markets would only price a risk premium if the new operations would cause a material change to FEI's business and financial risk. Given that TES projects are regulated energy delivery assets, and they are structured under cost of service recovery principles similar to FEI's primary natural gas operations, FEI would find it difficult to see how financing the Project in this manner would negatively impact FEI debt costs. (FEI Submission, pp. 30-31)

For these reasons, FEI believes that the approach to determining the debt cost is reasonable. However, FEI admits that it could also determine a current market rate applicable to the Project if the Commission directed it to do so. In fact, in the current low interest rates environment, FEI's current market rate for debt financing is lower than FEI's embedded cost of debt. Therefore, using the embedded cost of debt would rather reflect what FEI's broader customer base would pay. (FEI Final Submission, pp. 30-31)

Corix, in its Final Submission, expresses its concerns that FEI is taking unfair advantage of the embedded cost of debt for its natural gas utility operations. Corix submits that the fundamental issue is the appropriate relationship between FEI's "classes of services", which will remain uncertain pending the outcome of the AES Inquiry. Also, Corix questions whether FEI's "various regulated operations" should in fact mirror each other since FEI's TES class of service is very different than the regulated natural gas operation, i.e., a new business operating in a competitive

market. Corix argues that this business should not mirror the financing abilities of a large natural monopoly utility business and doing so results in unfair cross-subsidy of the TES business at the expense of the natural gas business. Therefore, Corix believes the Commission should ensure that the TES rates reflect the true cost of the business and supports the alternative approach where the debt cost would be calculated based on an entity with a deemed BBB rating entering the market.

Commission Determination

The Panel concurs with Corix and does not agree with FEI's position that a departure from the pure application of the stand-alone principle is warranted for this Project. To the contrary, the Panel believes that the Delta SD Project should be as segregated as possible from FEI's natural gas class of service to minimise the potential for any cross-subsidy flowing from the natural gas class of service to Delta SD. This is evident in the Panel's directive that FEI is to set up a separate corporate entity to conduct the Project.

The Commission Panel does not agree with FEI's proposal. **The Panel determines that FEI should calculate a deemed cost of debt based on an entity with a BBB rating, consistent with the second alternate option and add to it a premium to reflect the additional cost to arrange an incremental small debt issue.** This will ensure that the true cost of the Delta SD Project is reflected in the rate. The Panel defers until a later date, and at least not before a Decision is issued in the AES Inquiry, a decision on the cost of debt for the entire TES class of service.

As a final note, the Commission Panel notes that the option of establishing a separate debt facility has some merits, in particular in the future, if FEI undertakes more projects of this type; however, at $6 million, the Delta SD Project is too small for FEI to establish a separate debt facility efficiently.

FEI is directed to come back to the Commission as soon as practicable but no later than 30 days after the date of this Decision for acceptance of a negotiated cost of debt rate based on an entity with BBB rating with a premium to reflect the additional cost to arrange an incremental small debt issue.

9.0 SUMMARY OF COMMISSION DETERMINATIONS AND ISSUES DEFERRED TO THE AES INQUIRY

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.

	Directive	**Page**
1.	The Commission Panel finds that the provision of thermal energy service to Delta SD is a regulated service under the *UCA*	21
2.	The Commission Panel accepts the revenue requirement components subject to findings in Section 8.0.	40
3.	The Commission Panel finds that the pooled or package rate for Delta SD's 19 current sites is acceptable under the terms of the current RDA. However, the Panel does not approve the extension of the pool beyond Delta SD's current and future sites.	48
4.	The Commission Panel accepts the proposed annual rate adjustment mechanism subject to findings in Section 8.0.	49
5.	The Commission Panel accepts the thermal demand forecast subject to the findings in Sections 7.0 and 8.0.	51
6.	With regards to the "market rate", rate rider and the SD37 Deferral Account, the Commission Panel approves the proposed rate design subject to determinations in Section 8.0.	56
7.	The Panel is of the view that the parties to this agreement are sophisticated, Delta SD needs to replace aging infrastructure, and the Project presents Delta SD with the opportunity to reduce its GHG emissions while helping to mitigate its exposure to potentially increasing carbon offset costs in the future. The Panel also acknowledges that the Project may provide a benefit to FEI as it undergoes a transformation and that this could potentially benefit its existing natural gas customers. Accordingly, the Panel considers this a justification for the Project to proceed.	65
8.	The Commission Panel finds that the Project is generally consistent with British Columbia's energy objectives as outlined in the *CEA*.	67
9.	The Commission Panel finds that, considering the nature of the Project, the public consultation has been adequate.	75

	Directive	Page
10.	The Panel, acknowledging that the Project meets the needs of Delta SD and that the benefits of the Project will accrue to both FEI and Delta SD, finds the Project in the public interest and grants the CPCN, with a number of conditions attached to this approval.	75
11.	The Panel defers to the AES Inquiry any further consideration of the GT&C 12A, along with the definitions of AES, TES and the inclusion of stand-alone gas boilers in the tariff. This Decision will only consider the agreements between FEI and Delta SD as a basis for setting rates.	79
12.	Approval of the proposed rate and rate design as applied for and set out in the RDA and the Service Agreements is denied.	83
13.	The Panel encourages the Delta SD and FEI to revisit the COS model and consider a pricing model that may better allocate risks between the two parties. We will provide the parties with 30 days to reconsider their positions at which time the parties are requested to provide the Commission with an updated rate filing.	84
14.	FEI is directed to further calculate the COS rate comparison based on the agreed commencement on the amortization of SD37 Deferral Account. In addition, within 30 days from the date of this Decision, FEI is directed to provide Delta SD and the Commission a schedule showing the Net present Value (NPV) comparison of the "market rate" and COS rate including in both instances the amortization of the SD37 Deferral Account.	84
15.	The Panel directs the parties to address this issue of apparent under-costing within the 30 day period. FEI is directed to confirm and comment on these items and, if required, to recalculate the COS rate comparison with explanations on the above mentioned items, should a COS rate mechanism continue to be agreed to by Delta SD and FEI.	85
16.	Within 30 days from the date of this Decision FEI is directed to provide to Delta SD and the Commission a report setting forth the items that are included in the $4.1 million rate base at the end of the 20-year term with an explanation as to how that amount is to be recovered in the event that the Service Agreements are not renewed.	85
17.	Until such time as a further order is made by the Commission, the Panel directs FEI to maintain Delta SD service in its own class should this service stay within FEI.	89

	Directive	**Page**
18.	The Panel directs FEI to develop a consistent cost allocation methodology and follow its transfer pricing policy, if applicable, to allocate all appropriate costs to Delta SD thermal service, regardless of the exact nature of the entity that is delivering the service. The Commission will set up a further process at a future date to review the new cost allocation methodology.	91
19.	The Panel concludes that concerns about the provision of service to Delta SD by FEI as a distinct class of service within the gas distribution utility would not be materially reduced if the service were provided by a separate regulated corporate division of FEI.	95
20.	The Panel directs that the thermal services to Delta SD be provided by a separate corporate entity. The CPCN is granted on the condition that the CPCN, the RDA and Service Agreement are assigned to an affiliate of FEI as soon as practicable, but no later than 30 days after the date of this Decision.	96
21.	Because FEI will now be providing services to Delta SD as a regulated affiliate, within 30 days of this Decision FEI is directed to advise the Commission in writing whether its current Transfer Pricing Policy requires any amendments in the short term to deal with the regulated affiliate and services which may be provided to it and follow its current Transfer Pricing Policy until the Commission otherwise orders.	97
22.	FEI is directed to track and charge to its affiliate all overhead costs incurred for the provision of services to Delta SD.	100
23.	FEI is further directed to maintain the entire TESDA account within FEI, until such time as the Panels in the AES Inquiry, the FEU 2012-2013 RRA, or other proceedings direct otherwise.	100
24.	The Commission Panel does not find a compelling reason to vary the debt equity structure for the Delta SD Project and accepts the proposed 60/40 debt equity structure.	103
25.	Depending on the relative importance attributed to each risk factor, the Panel believes that an appropriate level of equity risk premium could result from the previous analysis ranging from none to a somewhat higher level of equity premium.	110

	Directive	Page
26.	The Panel is prepared to accept the proposed equity premium of 50 bps above the benchmark utility ROE, on a conditional basis. To this end, the parties are directed to come back to the Commission as soon as practicable but no later than 30 days after the date of this Decision for acceptance of the proposed equity premium of 50 basis points above the benchmark ROE or of a lower renegotiated equity premium.	110
27.	The Panel determines that FEI should calculate a deemed cost of debt based on an entity with a BBB rating, and add to it a premium to reflect the additional cost to arrange an incremental small debt issue.	114
28.	FEI is directed to come back to the Commission as soon as practicable but no later than 30 days after the date of this Decision for acceptance of a negotiated cost of debt rate based on an entity with BBB rating with a premium to reflect the additional cost to arrange an incremental small debt issue.	114

Higher level principles deferred to the AES Inquiry, the Generic Cost of Capital Proceeding or a future Revenue Requirements Proceeding include:

- Framework for FEI's activities in a competitive thermal energy market;
- Degree of regulation required for discrete energy systems, which have natural competitive characteristics;
- Competitive issues related to gas suppliers and gas marketers;
- Provision of EEC funds for projects FEI owns and operates;
- Respective definitions of AES and thermal energy services (TES);
- Applicability of the General Terms & Conditions Section 12A – Alternative Energy of FEI's Tariff; for instance, would stand-alone natural gas boilers be eligible?;
- Thermal energy services as a new line of business or an extension of the natural gas system;
- Distinction between discrete and district energy services;
- A separate class of service for thermal energy services;
- Definition of a self-contained unit and its implications;

- Adequate corporate separation for a class of service;
- Adequate equity risk premium for a TES class of service;
- Principles for determining cost of debt for the TES class of service;
- Protection mechanism for natural gas customers; and
- Disposition of the TESDA account.

DATED at the City of Vancouver, in the Province of British Columbia, this 9th day of March 2012.

Original signed by:

L.A. O'HARA
PANEL CHAIR/COMMISSIONER

Original signed by:

D.M. MORTON
COMMISSIONER

Original signed by:

R.D. REVEL
COMMISSIONER

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BRITISH COLUMBIA UTILITIES COMMISSION

ORDER NUMBER G-31-12

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

and

An Application by the FortisBC Energy Inc.
for a Certificate of Public Convenience and Necessity for
Approval of Contracts and Rate for Public Utility Service to Provide Thermal Energy Service
to Delta School District Number 37

BEFORE: L.A. O'Hara, Panel Chair/Commissioner
D.M. Morton, Commissioner
R.D. Revel, Commissioner

March 9, 2012

O R D E R

WHEREAS:

A. By Order G-141-09 dated November 26, 2009, the British Columbia Utilities Commission (Commission) approved a Negotiated Settlement Agreement (NSA) in the FortisBC Energy Inc. (FEI) 2010 and 2011 Revenue Requirements and Delivery Rates proceeding, which included approval for the provision of Alternative Energy Services (AES) defined to include geo-exchange, solar thermal and district energy systems;

B. The NSA accepted General Terms and Conditions Section 12A: Alternative Energy Extensions (GT&C 12A) as the economic screening tool for AES projects and provided that FEI could make application for acceptance of project-specific contracts as a rate under the Alternative Energy class of service;

C. The NSA prescribed that the Certificate of Public Convenience and Necessity (CPCN) threshold of $5 million would apply to AES projects brought forward in 2010 and 2011;

D. On November 28, 2011, FEI filed an application for a CPCN for the construction and operation of thermal energy projects at 19 individual sites for the Delta School District Number 37 (Delta SD), under sections 45 and 46 of the *Utilities Commission Act* (Act), and for the approval of rates and rate design established by an Energy System Rate Development Agreement (RDA) and individual Energy System Service Agreements (Service Agreements) entered into between FEI and Delta SD (the Application), as just and reasonable rates under sections 59 through 61 of the Act;

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E. The Thermal Energy Upgrade Project (Project) described in the Application will provide thermal energy upgrades that involve the replacement of conventional boilers with high efficiency, condensing boilers at eight sites, the conversion of existing thermal plants to geo-exchange systems at 11 sites, and the retrofit or replacement of existing mechanical infrastructure at all 19 sites;

F. The Project will take place over two years with a total estimated cost of $6.5 million of which Delta SD will be contributing $1.357 million as a Contribution in Aid of Construction;

G. FEI will own, operate and maintain the new thermal facilities and will develop a single pooled cost of service based rate, developed pursuant to FEI's GT&C 12A, for thermal energy consumed with provision that the rate initially charged will be a market based rate to facilitate the transition from Delta SD's current costs of energy to the cost of service rate;

H. The Project falls within the broader thermal energy services class of service that is considered in the ongoing AES Inquiry (AES Inquiry) that was established by Commission Order G-118-11 dated July 8, 2011, for which, in establishing the scope of the AES Inquiry, the Commission noted that, notwithstanding that ongoing processes may to some degree overlap with the issues being considered in the AES Inquiry, such processes are to be decided on the evidence put before them;

I. By Order G-205-11 dated December 2, 2011, the Commission established a written hearing process and regulatory timetable to review this Application;

J. In accordance with the provisions of the NSA, within the Alternative Energy class of service, for project-specific contracts with AES customers that will be filed with the Commission for acceptance as a rate, the Commission declared, via Order G-223-11 dated December 22, 2011, the economic test and GT&C 12A for AES projects as interim effective January 1, 2012;

K. The Commission has reviewed the Application and has determined that it is in the public interest to grant a conditional approval of this CPCN.

NOW THEREFORE pursuant to the provisions of sections 45, 46, and 59 through 61 of the Act, the Commission determines as follows:

1. A CPCN is granted for the Project on the condition that the Service Agreements and the RDA are assigned to an affiliate of FEI with proof of the assignments being submitted to the Commission by no later than 30 days from the date of this Order.

2. Approval of the proposed rate and rate design, as applied for and as set out in the RDA and the Service Agreements, is denied.

3. The Commission will accept for filing by no later than 30 days from the date of the Order a rate and rate design based upon a 60/40 debt equity capital structure which contains the following modifications:

    a) The rate schedule is restricted to Delta School District's current and future sites;

    b) 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";

    c) Includes 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

    d) Provides for a maximum 50 basis points premium above the benchmark Return on Equity or a lower negotiated equity premium.

4. If FEI accepts the condition attached to the grant of the CPCN and FEI and Delta School District agree to submit a revised rate schedule and rate design as referred to above, then FEI, or its affiliate, as the case may be, are directed to:

    a) Within 30 days from the date of this Order, file with the Commission a report stating what is the cost of debt rate as specified above and how it was determined;

    b) Within 30 days from the date of this Order, provide to Delta School District and the Commission a report setting forth the items that are included in the $4.1 million rate base at the end of the 20 year term with an explanation as to how that amount is to be recovered in the event the Service Agreements are not renewed;

    c) Within 30 days from the date of this Order, provide to Delta School District and the Commission a schedule showing the Net Present Value comparison between the "market rate" and the cost-of-service rate including in both instances the amortization of the SD37 Deferral Account;

    d) Within 30 days from the date of this Order, advise the Commission in writing whether its current Transfer Pricing Policy requires any amendments in the short term to deal with the regulated affiliate and services, which may be provided to it and follow its current Transfer Pricing Policy until the Commission otherwise orders;

    e) Maintain the entire Thermal Energy Services Deferral Account with FEI until such time as the Panels in the AES Inquiry, the FEU 2012/2013 RRA or other proceedings direct otherwise;

    f) Track and charge to its affiliate all overhead incurred for the provision of services to the Delta School District; and

    g) Examine, track and develop, if necessary, its cost allocation methodology to ensure all appropriate costs are allocated to the Delta School District thermal service, regardless of the particular entity providing them.

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5. The Commission will hold confidential the design build agreement as set out in Appendix C of the Application and the financial model as contained in Appendix D of the Application;

6. The Commission will hold the Service Agreements and RDA between FEI and Delta SD confidential until such time as the agreements are approved by the Commission and become public tariffs.

7. FEI is to comply with all directives set forth in the Commission's Decision which is issued concurrently with this Order.

DATED at the City of Vancouver, in the Province of British Columbia, this 9th day of March of 2012.

BY ORDER

Original signed by:

L.A. O'Hara
Panel Chair/Commissioner

An Application by FortisBC Energy Inc.
for a Certificate of Public Convenience and Necessity for
Approval of Contracts and Rate for Public Utility Service to Provide Thermal Energy Service
to Delta School District Number 37

REGULATORY TIMETABLE

ACTION	DATE
FEI Submission of Supplemental ROE Evidence	Friday December 9, 2011
Registration of Interveners and Interested Parties	Wednesday, December 14, 2011
Commission Information Request No. 1 to FEI	Friday, December 16, 2011
Participant Assistance/Cost Award Budgets	Wednesday, December 21, 2011
Intervener Information Request No. 1 to FEI	Friday, December 23, 2011
FEI Response to Information Requests No. 1	Thursday, January 5, 2012
Submission of Intervener Evidence, if any	Thursday, January 12, 2012
Commission Information Request No. 2 to FEI	Monday, January 16, 2012
Intervener Information Request No.2 to FEI	Monday, January 16, 2012
Commission Supplementary Information Request to FEI	Wednesday, January 18, 2012
Commission Information Requests to Delta SD and Corix	Wednesday, January 18, 2012
FEI Response to Information Request No. 2	Wednesday, January 25, 2012
FEI Response to Supplemental Information Request	Wednesday, January 25, 2012
Delta SD and Corix Responses to Commission Information Requests	Wednesday, January 25, 2012
FEI Final Submissions	Thursday, February 2, 2012
Intervener Final Submissions	Friday, February 10, 2012
FEI Reply Submissions	Friday, February 17, 2012

UTILITIES COMMISSION ACT
Sections 59 and 60

Discrimination in rates

59 (1) A public utility must not make, demand or receive

(a) an unjust, unreasonable, unduly discriminatory or unduly preferential rate for a service provided by it in British Columbia, or

(b) a rate that otherwise contravenes this Act, the regulations, orders of the commission or any other law.

(2) A public utility must not

(a) as to rate or service, subject any person or locality, or a particular description of traffic, to an undue prejudice or disadvantage, or

(b) extend to any person a form of agreement, a rule or a facility or privilege, unless the agreement, rule, facility or privilege is regularly and uniformly extended to all persons under substantially similar circumstances and conditions for service of the same description.

(3) The commission may, by regulation, declare the circumstances and conditions that are substantially similar for the purpose of subsection (2) (b).

(4) It is a question of fact, of which the commission is the sole judge,

(a) whether a rate is unjust or unreasonable,

(b) whether, in any case, there is undue discrimination, preference, prejudice or disadvantage in respect of a rate or service, or

(c) whether a service is offered or provided under substantially similar circumstances and conditions.

(5) In this section, a rate is "unjust" or "unreasonable" if the rate is

(a) more than a fair and reasonable charge for service of the nature and quality provided by the utility,

(b) 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, or

(c) unjust and unreasonable for any other reason.

Setting of rates

60 (1) In setting a rate under this Act

(a) the commission must consider all matters that it considers proper and relevant affecting the rate,

(b) the commission must have due regard to the setting of a rate that

(i) is not unjust or unreasonable within the meaning of section 59,

(ii) provides to the public utility for which the rate is set a fair and reasonable return on any expenditure made by it to reduce energy demands, and

(iii) encourages public utilities to increase efficiency, reduce costs and enhance performance,

(b.1) the commission may use any mechanism, formula or other method of setting the rate that it considers advisable, and may order that the rate derived from such a mechanism, formula or other method is to remain in effect for a specified period, and

(c) if the public utility provides more than one class of service, the commission must

(i) segregate the various kinds of service into distinct classes of service,

(ii) in setting a rate to be charged for the particular service provided, consider each distinct class of service as a self contained unit, and

(iii) set a rate for each unit that it considers to be just and reasonable for that unit, without regard to the rates fixed for any other unit.

(2) In setting a rate under this Act, the commission may take into account a distinct or special area served by a public utility with a view to ensuring, so far as the commission considers it advisable, that the rate applicable in each area is adequate to yield a fair and reasonable return on the appraised value of the plant or system of the public utility used, or prudently and reasonably acquired, for the purpose of providing the service in that special area.

(3) If the commission takes a special area into account under subsection (2), it must have regard to the special considerations applicable to an area that is sparsely settled or has other distinctive characteristics.

(4) For this section, the commission must exclude from the appraised value of the property of the public utility any franchise, licence, permit or concession obtained or held by the utility from a municipal or other public authority beyond the money, if any, paid to the municipality or public authority as consideration for that franchise, licence, permit or concession, together with necessary and reasonable expenses in procuring the franchise, licence, permit or concession.

CLEAN ENERGY ACT
Section 2

British Columbia's energy objectives

2 The following comprise British Columbia's energy objectives:

(a) to achieve electricity self-sufficiency;

(b) to take demand-side measures and to conserve energy, including the objective of the authority reducing its expected increase in demand for electricity by the year 2020 by at least 66%;

(c) to generate at least 93% of the electricity in British Columbia from clean or renewable resources and to build the infrastructure necessary to transmit that electricity;

(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;

(e) to ensure the authority's ratepayers receive the benefits of the heritage assets and to ensure the benefits of the heritage contract under the *BC Hydro Public Power Legacy and Heritage Contract Act* continue to accrue to the authority's ratepayers;

(f) to ensure the authority's rates remain among the most competitive of rates charged by public utilities in North America;

(g) to reduce BC greenhouse gas emissions

(i) by 2012 and for each subsequent calendar year to at least 6% less than the level of those emissions in 2007,

(ii) by 2016 and for each subsequent calendar year to at least 18% less than the level of those emissions in 2007,

(iii) by 2020 and for each subsequent calendar year to at least 33% less than the level of those emissions in 2007,

(iv) by 2050 and for each subsequent calendar year to at least 80% less than the level of those emissions in 2007, and

(v) by such other amounts as determined under the *Greenhouse Gas Reduction Targets Act*;

(h) to encourage the switching from one kind of energy source or use to another that decreases greenhouse gas emissions in British Columbia;

(i) to encourage communities to reduce greenhouse gas emissions and use energy efficiently;

(j) to reduce waste by encouraging the use of waste heat, biogas and biomass;

(k) to encourage economic development and the creation and retention of jobs;

(l) to foster the development of first nation and rural communities through the use and development of clean or renewable resources;

(m) to maximize the value, including the incremental value of the resources being clean or renewable resources, of British Columbia's generation and transmission assets for the benefit of British Columbia;

(n) to be a net exporter of electricity from clean or renewable resources with the intention of benefiting all British Columbians and reducing greenhouse gas emissions in regions in which British Columbia trades electricity while protecting the interests of persons who receive or may receive service in British Columbia;

(o) to achieve British Columbia's energy objectives without the use of nuclear power;

(p) to ensure the commission, under the *Utilities Commission Act*, continues to regulate the authority with respect to domestic rates but not with respect to expenditures for export, except as provided by this Act.

DISTRICT ENERGY SYSTEMS vs. DISCRETE ENERGY SYSTEMS

There has been a significant amount of debate within both the Delta Proceeding and the AES Inquiry as to the usefulness of the district and discrete energy systems categories. FEI believes that the distinction between discrete and district systems is a useful concept to understand the nature of the service being provided but the definitions should not be pressed to the point of making precise distinctions between the two. FEI further argues that the distinction is not always a simple one to make, as in some cases a discrete system could with fairly minor changes be considered a district energy system (Exhibit B-3, BCUC 1.104.3). Corix submits that there is a distinction between discrete and district systems and that this distinction is important in how the Commission may choose to regulate these systems. (Exhibit A2-14, BCUC 1.16.1)

The following section lays out some of the key characteristics of district and discrete energy systems as described in the Delta Proceeding.

Comparison of Key Characteristics

District energy systems have been described as having the following attributes:

- Multiple customers receive service through a common energy distribution system (Exhibit B-10, 2.13.1; Exhibit C4-4, BCUC 1.4.1-2)
- A physically interconnected energy system (Exhibit B-10, BCUC 2.39.2)
- Presence of thermal distribution piping and energy transfer stations (Exhibit B-3, BCUC 1.108.1)
- Connected to one or more heat sources or central energy plants (Exhibit B-10, 2.13.1)
- Unknown thermal energy demand (Exhibit B-1, p. 3)
- Limited Economies of scale (Exhibit A2-12, p. 12)

Discrete energy services have been described as having:

- A single customer (Exhibit A2-7, BCUC 1.9.1)
- Known energy demand. (Exhibit B-1, p. 3)
- A standalone system with no distribution network serving more than 1 customer/building/property. (Exhibit C4-4, BCUC 1.2.2)

While FEI characterises their view of the Delta project as a thermal energy project, rather than as either a discrete or district project (Exhibit B-10, BCUC 2.13.2), they describe the Delta project as consisting of a dedicated contract, for a single customer, on their own land, with a known energy

demand. (Exhibit B-1, pp. 2-3) The energy systems for Delta are each designed to serve the loads of the buildings they are located in. There is no excess capacity. (Exhibit B-3, BCUC 1.52.5)

FEI has also stated their belief that "serving physically interconnected customers or contractually/rate connected customers is effectively the same" (Exhibit B-10, BCUC 2.39.2).

BCSEA characterises the project as a collection of discrete energy systems, as opposed to the district energy systems already regulated by the BCUC (BCSEA Final Submission, p. 7).

Existing Precedents

The other thermal energy systems currently regulated by the Commission (UniverCity, Dockside, River District and Central Heat) were described as district energy systems in their applications to the BCUC (Exhibit B-3, BCUC 1.104.1). Corix's Sun Rivers project, consisting of a number of stand-alone geoexchange loop fields serving individual houses, is described by Corix as a series of discrete energy systems (Exhibit C4-4, BCUC 1.1.1.1). The Sun Rivers thermal service is currently not regulated by the Commission, and customers are charged a monthly fee to recover the original invested capital including a return on investment plus the costs for maintaining the loop fields, based on a contractual agreement between the parties involved (Exhibit C4-4, BCUC 1.2.4).

Delta is the first BCUC application to request cost of service based regulation for a standalone energy system. FEI has not been able to provide another example in North America where geo-exchange thermal services are regulated as a public utility with cost of service rate-making (Exhibit B-3, BCUC 1.15.2; Exhibit B-10, BCUC 2.13.3).

The presence of ESAC members exclusively in the discrete energy market (either through own/operate models or traditional performance contracting models), with none of their members involved in developing district energy systems in BC (Exhibit A2-11, FEU 1.1.2), appears to support the argument that there are real differences between the district and discrete product offerings.

While there may be an area of ambiguity in some cases when distinguishing between district and discrete energy systems, there appears to be none in the case of the DSD project. As FEI has pointed out, the thermal system has been designed and optimised to meet the known energy demand of each school site, for a single customer on its own land. There is no additional energy capacity in the system to cater for new connections to the systems, nor is there any intention currently to physically connect any new customers.

There are sufficient differences between discrete and district energy systems as currently defined within this Proceeding and the AES Inquiry, to justify consideration of these system types separately. The Delta SD Project is best characterised as a series of discrete thermal energy systems.

LIST OF ACRONYMS

Act	*Utilities Commission Act*
AES	Alternative Energy Solutions
AFUDC	Allowance for Funds Used During Construction
ASC	Al Stober Construction Ltd.
BCSEA	B.C. Sustainable Energy Association and the Sierra Club of British Columbia
BCUC, Commission	British Columbia Utilities Commission
bps	Basis Points
CAC	Climate Action Charter
CAS	Climate Action Secretariat
CCA	Capital Cost Allowance
CEA	*Clean Energy Act*
CIAC	Contribution in Aid of Construction
Commission	British Columbia Utilities Commission
COPE 378	Canadian Office and Professional Employees Union Local 378
Corix	Corix Utilities Inc.
COS	Cost of Service
CPCN	Certificate of Public Convenience and Necessity
DBRS	Dominion Bond Rating Service
Delta	Board of Education of School District No. 37
Delta SD, DSD, SD	Delta School District Number 37
Dockside Green	Dockside Green Energy LLP
Dockside Green, UniverCity, River District	collectively the Three DEUs
EEC	Energy Efficiency and Conservation
ESAC	Energy Services Association of Canada
ESCO	Energy Service Companies
FEI	FortisBC Energy Inc.
FEU	FortisBC Energy Utilities
FEVI	FortisBC Energy (Vancouver Island) Inc.
GGRTA	*Greenhouse Gas Reduction Targets Act*

GHG	Greenhouse Gases
GJ	Gigajoule
GSHP	Ground Source Heat Pumps
GT&C	General Terms and Conditions
GT&C 12A	GT&C Section 12A
HEGB	high efficiency natural gas boilers
IRs	Information Requests
JCLP	Johnson Controls L.P.
MEM	British Columbia Ministry of Energy and Mines
NPV	Net Present Value
NSA	Negotiated Settlement Agreement
O&M	Operations and Maintenance
PSECA	Public Sector Energy Conservation Agreement
RDA	Energy System Rate Development Agreement
River District	River District Energy Utility
RMDM	Retail Markets Downstream of the Utility Meter
ROE	Return on Equity
RRA	Revenue Requirements Application
SCADA	Supervisory Control and Data Acquisition
SD37 Deferral Account	RDA deferral account
Service Agreements	Energy System Service Agreement
tCO2e	tonnes of carbon dioxide equivalent
TES	Thermal Energy Services
TESDA	Thermal Energy Services Deferral Account
TGI	Terasen Gas Inc. (now FEI)
UCA	*Utilities Commission Act*
UniverCity	Neighbourhood Utility Service at UniverCity

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

and

FortisBC Energy Inc.
Application for a Certificate of Public Convenience and Necessity ("CPCN") for Approval of Contracts and Rate for Public Utility Service to Provide Thermal Energy Service to Delta School District Number 37

EXHIBIT LIST

EXHIBIT NO.	DESCRIPTION
COMMISSION DOCUMENTS	
A-1	Letter dated November 29, 2011 - Appointment of Panel
A-2	Letter and Order G-205-11 dated December 2, 2011 - Establishing a written public hearing process and the Regulatory Timetable
A-3	Letter dated December 16, 2011 – Information Request No. 1 to FortisBC Energy
A-4	Letter dated December 16, 2011 – Confidential Information Request No. 1 to FortisBC Energy
A-5	Letter dated December 22,2011 – Commission Order G-223-11 and Reasons
A-6	Letter L-4-12 dated January 13, 2012 – Amended Regulatory Timetable
A-7	**CONFIDENTIAL** Letter dated January 16, 2012 – Confidential Information Request No. 2 to FortisBC Energy
A-8	Letter dated January 16, 2012 –Information Request No. 2 to FortisBC Energy
A-9	Letter dated January 18, 2012 – Information Request No. 1 to Corix
A-10	Letter dated January 18, 2012 – Information Request No. 1 to Delta SD
A-11	Letter dates January 18, 2012 – Supplemental Information Request to FEI
A2-1	Letter dated December 15, 2011 – Commission Staff filing FEU 2012-2013 Revenue Requirements Undertaking No. 45

EXHIBIT NO.	DESCRIPTION
A2-2	Letter dated December 15, 2011 – Commission Staff filing FEU 2012-2013 Revenue Requirements Undertaking No. 56
A2-3	Letter dated December 15, 2011 – Commission Staff filing City of Coquitlam Committee Memo dated October 18, 2011
A2-4	Letter dated January 13, 2012 – Commission Staff filing BC Hydro Organization Charts, August 1987
A2-5	Letter dated January 13, 2012 – Commission Staff filing screenshot from Delta School District Web Site
A2-6	Letter dated January 13, 2012 – Commission Staff filing Exhibit C1-5 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-7	Letter dated January 13, 2012 – Commission Staff filing Exhibit C1-6 from the FortisBC Energy Alternative Energy Solutions and Other New Initiatives Inquiry
A2-8	Letter dated January 13, 2012 – Commission Staff filing Exhibit C1-7 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-9	Letter dated January 13, 2012 – Commission Staff filing Exhibit C1-8 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-10	Letter dated January 13, 2012 – Commission Staff filing Exhibit C1-9 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-11	Letter dated January 13, 2012 – Commission Staff filing Exhibit C1-10 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-12	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-5 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-13	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-6 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-14	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-7 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-15	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-7-1 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-16	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-8 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry

EXHIBIT NO.	DESCRIPTION
A2-17	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-8-1 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-18	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-9 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-19	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-10 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-20	Letter dated January 13, 2012 – Commission Staff filing Exhibit C12-10-1 from the FortisBC Energy Alternative Energy Solutions and other New Initiatives Inquiry
A2-21	Letter dated January 13, 2012 – Commission Staff filing transcript of NRRI Teleseminar – Seventh Circuit Reversal of FERC Postage Stamp Transmission Pricing

APPLICANT DOCUMENTS

B-1	**FORTISBC ENERGY INC (FEI)** Letter dated November 28, 2011 - Application for a Certificate of Public Convenience and Necessity ("CPCN") for Approval of Contracts and Rate for Public Utility Service to Provide Thermal Energy Service to Delta School District Number 37
B-1-1	**CONFIDENTIAL** Letter dated November 28, 2011 - Confidential Application for a Certificate of Public Convenience and Necessity ("CPCN") for Approval of Contracts and Rate for Public Utility Service to Provide Thermal Energy Service to Delta School District Number 37
B-2	Letter dated December 9, 2011 – FEI Submitting Supplement Evidence on ROE of Thermal Energy Service
B-2-1	Letter dated December 12, 2011 – FEI Submitting Supplemental ROE Expert Evidence of Kathy C. McShane
B-3	Letter dated January 5, 2012 - FEI Response to BCUC Information Request No. 1
B-3-1	**CONFIDENTIAL** Letter dated January 5, 2012 - FEI Response to BCUC Confidential Information Request No. 1
B-3-2	**CONFIDENTIAL** Letter dated January 5, 2012 - FEI Response to BCUC Confidential BCUC IR 1.59 series and Attachments 35.1 and 35.2.4
B-4	Letter dated January 5, 2012 - FEI Response to BCSEA Information Request No. 1

EXHIBIT NO.	DESCRIPTION
B-5	Letter dated January 5, 2012 - FEI Response to Corix Information Request No. 1
B-6	Letter dated January 25, 2012 - FEI Response to BCSEA Information Request No. 2
B-7	Letter dated January 25, 2012 - FEI Response to Corix Information Request No.2
B-7-1	**CONFIDENTIAL** Letter dated January 25, 2012 - FEI Response to Corix Confidential Information Request No. 2.1.1
B-8	Letter dated January 25, 2012 - FEI Response to BCUC Supplemental Information Request
B-9	**CONFIDENTIAL** Letter dated January 25, 2012 - FEI Response to BCUC Confidential Information Request No. 2
B-10	Letter dated January 26, 2012 - FEI Response to BCUC Information Request No. 2
B-10-1	**CONFIDENTIAL** Letter dated January 25, 2012 - FEI Confidential Response to BCUC Information Request No.

INTERVENER DOCUMENTS

C1-1	**BOARD OF EDUCATION OF SCHOOL DISTRICT NO. 37 DELTA (BESD)** Online registration dated December 6, 2011 - Request for Intervener Status by Frank Geyer
C1-2	Letter dated January 24, 2012 – BESD Submitting Responses to BCUC IR No. 1
C2-1	**BC SUSTAINABLE ENERGY ASSOCIATION AND SIERRA CLUB BRITISH COLUMBIA (BCSEA)** Letter dated December 8, 2011 – Request for Intervener Status by William Andrews and Thomas Hackney
C2-2	Letter dated December 23, 2011 – BCSEA Submitting Information Request No. 1
C2-3	Letter dated January 16, 2012 – BCSEA Submitting Information Request No. 2
C3-1	**ABBOTSFORD SCHOOL DISTRICT NO. 34 (ASD)** Online registration dated December 8, 2011 - Request for Intervener Status by Tom Louie
C4-1	**CORIX UTILITIES INC (CORIX)** Letter dated December 13, 2011 – Request for Intervener Status by David Bursey, Ian Wigington, and Matthew Keen
C4-2	Letter dated December 23, 2011 – Corix submitting Information Request No. 1
C4-3	Letter dated January 16, 2012 – Corix Submitting Information Request No. 2

EXHIBIT NO.	DESCRIPTION
C4-4	Letter dated January 25, 2012 - Corix Submitting Response to BCUC Information Request No. 1
C5-1	**BC MINISTRY OF ENERGY AND MINES (MEM)** Online registration dated December 14, 2011 - Request for Intervener Status by Erik Kaye
C6-1	**CANADIAN OFFICE AND PROFESSIONAL EMPLOYEES UNION LOCAL 378 (COPE 378)** Letter dated January 4, 2012 – Request for Intervener Status by Jim Quail

INTERESTED PARTY DOCUMENTS

D-1	**JOHNSON CONTROLS CANADA LP (JCC)** Online registration dated December 12, 2011 - Request for Interested Party Status by Stuart Morrow
D-1-2	Letter dated December 14, 2011 – JCC Submitting comments and details for Interested Party Status
D-2	**ENERGY SERVICES ASSOCIATION OF CANADA (ESAC)** Letter dated December 14, 2011 – Request for Interested Party Status by Karl Gustafson, Ronald Cliff and Peter Love
D-2-1	Letter dated January 5, 2012 – ESAC Submitting letter of comment
D-3	**BABER, CHRIS (BABER)** Online registration dated December 15, 2011 - Request for Interested Party Status by Chris Baber