



IN THE MATTER OF

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY
FOR THE JOHN HART GENERATING STATION REPLACEMENT PROJECT

DECISION

February 8, 2013

Before:

**M.R. Harle, Commissioner/Panel Chair
N.E. MacMurchy, Commissioner
R.D. Revel, Commissioner**

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EXECUTIVE SUMMARY

This Decision relates to the Application to the British Columbia Utilities Commission by the British Columbia Hydro and Power Authority (BC Hydro) pursuant to section 46(1) of the *Utilities Commission Act* for a Certificate of Public Convenience and Necessity for the John Hart Generating Station Replacement Project (Project). The John Hart Generating Station is a Heritage Asset under Section 1 and Schedule 1 of the *Clean Energy Act*. This asset, along with the six dam structures which impound the John Hart Reservoir, are collectively known as the John Hart Facility (the Facility). The Facility serves Vancouver Island, BC Hydro's second largest load center and represents 17 percent of the total generating capacity available to BC Hydro on Vancouver Island. It provides voltage support services to the transmission network, particularly the North Vancouver Island 138 kV transmission network. It forms part of the cascading Campbell River Hydroelectric System which must be operated in hydraulic balance.

The Project has two main components:

1. **The Water Conveyance Work:** The replacement of most of the existing water conveyance system which consists of intakes, woodstave and steel pipelines, and surge towers. Except for the surge towers, the water conveyance system will be replaced with an underground tunnel which will have a replacement intake located on bedrock at the existing main concrete dam. The surge towers may be retained and connected to the tunnel. A flow bypass facility will be installed to provide flow replacement to the Campbell River should there be insufficient flow from the replacement powerhouse.
2. **The Powerhouse Work:** The replacement of the existing six unit powerhouse with a three unit powerhouse with dependable capacity of 128 MW; and, if the replacement powerhouse is located south of the existing powerhouse, transmission line adjustments and demolition and replacement of the site office and maintenance shops.

The Application identifies that the Project is needed to address seismic, safety, environmental, and reliability risks at the water conveyance system and powerhouse. The Project aligns with several BC energy objectives and the requirements imposed by Amended Special Direction 10, Section 6(2).

BC Hydro explored several alternatives to the Project some of which were not deemed viable, and some of which were considered as viable but were screened as being less cost-effective than the Project. Not viable alternatives included the status quo, a standalone bypass solution, a derating solution, and a decommissioning alternative. Viable but screened alternatives included rehabilitation, staged replacement, and four possible decommissioning solutions.

The Project will utilize a Design-Bid-Finance-Rehabilitate procurement methodology with an Expected Amount of \$940 million.

The proceeding was conducted as a written hearing. There were ten registered interveners, of which eight filed submissions. The latter included Mr. Chris Aikman, British Columbia Sustainable Energy Association-Sierra Club of BC, City of Campbell River, British Columbia Pensioners and Seniors Organization, Commercial Energy Consumers Association of British Columbia, British Columbia Residential Utilities Consumers Association, Mr. Alan Wait, and the Clean Energy Association of British Columbia (CEABC).

Several key issues emerged during the proceeding. These were addressed in the Decision and include:

- Several interveners express concerns with the Design-Bid-Finance-Rehabilitate approach to procurement proposed for the Project as it has not been previously used by BC Hydro for a hydroelectric project.
- CEABC asserts that several plans (a Capital Plan, a Campbell River System Plan, and a climate change adaptation plan) are required to adjudicate the Application. It also raises concerns related to Probable Maximum Flood, and it raises issues on the economics of the Project in relation to other alternatives.
- Mr. Aikman proposes an alternative to the Project.
- The CEC submits that Amended Special Direction 10, Part 3, Section 14 limits the alternatives that the Commission Panel is able to consider when adjudicating between the Project and alternatives.
- What weight, if any, should be given by the Commission to new evidence introduced through Final Submissions?

After having carefully considered and weighed the evidence and arguments of all parties participating in the proceeding, **the Commission Panel finds that the John Hart Generating Station Replacement Project is necessary and in the public interest as it is the most cost-effective long term solution. Subject to the directives contained in this Decision and the related Order, the Commission Panel grants BC Hydro a CPCN for the John Hart Generating Station Replacement Project.** The Commission Panel concludes that the Project is needed to address seismic, environmental, and reliability risks at the water conveyance system and powerhouse. We have also considered the requirements imposed by Amended Special Direction 10, Section 6(2). The Project aligns with and advances several of British Columbia's Energy Objectives. First Nations consultation and public engagement have been adequate to the point of our Decision.

1.0 INTRODUCTION

1.1 The Application

On May 25, 2012, British Columbia Hydro and Power Authority (BC Hydro) filed an application (the Application) with the British Columbia Utilities Commission (BCUC, Commission) pursuant to section 46(1) of the *Utilities Commission Act (UCA)* for a Certificate of Public Convenience and Necessity (CPCN) for the John Hart Generating Station Replacement Project (Project).

The John Hart Generating Station is a Heritage Asset under Section 1 and Schedule 1 of the *Clean Energy Act (CEA)*. This asset, along with the six dam structures which impound the John Hart Reservoir (Dam), is classified as a strategic facility for BC Hydro generation asset management purposes. Collectively, they are known as the John Hart Facility (the Facility). The Facility serves Vancouver Island, BC Hydro's second largest load center and represents 17 percent of the total generating capacity available to BC Hydro on Vancouver Island. It provides voltage support services to the transmission network, particularly the North Vancouver Island 138 kV transmission network. It forms part of the cascading Campbell River Hydroelectric System which must be operated in hydraulic balance.

The Project has two main components:

1. The Water Conveyance Work: The replacement of most of the existing water conveyance system which consists of intakes, woodstave and steel pipelines, and surge towers. Except for the surge towers, the water conveyance system will be replaced with an underground tunnel which will have a replacement intake located on bedrock at the existing main concrete dam. The surge towers may be retained and connected to the tunnel. A flow bypass facility will be installed to provide flow replacement to the Campbell River should there be insufficient flow from the replacement powerhouse.
2. The Powerhouse Work: The replacement of the existing six unit powerhouse with a three unit powerhouse with dependable capacity of 128 MW; and, if the replacement powerhouse is located south of the existing powerhouse, transmission line adjustments and demolition and replacement of the site office and maintenance shops.

Appendix 1 to this Decision describes the background to the Application, including a description of the Applicant, the Order sought by the Applicant, and the regulatory process by which the Application was heard.

1.2 Key Participants

There were ten registered interveners involved in this proceeding:

1. Mr. Chris Aikman, an individual living in BC Hydro's service area;
2. BC Sustainable Energy Association and Sierra Club of BC (BCSEA);
3. Cape Mudge and Campbell River First Nations, also known as We Wai Kai (WWK) and Wei Wai Kum (CRIB) respectively, in whose asserted territories the Project is to be situated. They withdrew intervener status during the proceeding on June 4, 2012;
4. City of Campbell River (City), the host community for the Project;
5. British Columbia Pensioners' and Seniors' Organization (BCPSO), previously the British Columbia Old Age Pensioners Organization (BCOAPO);
6. Commercial Energy Consumers Association of British Columbia (CEC);
7. British Columbia Residential Utility Customers Association (BCRUCA);
8. Mr. Alan Wait, a private ratepayer of FortisBC, outside BC Hydro's service area;
9. Association of Major Power Customers (AMPC); and
10. Clean Energy Association of British Columbia (CEABC).

Eight of the ten interveners filed Final Written Submissions. The First Nations and AMPC did not. Six of the eight support the Project and consent to the issuance of a CPCN, although some had concerns that are addressed in this Decision. Both CEABC and Mr. Aikman did not support the issuance of a CPCN; their positions are addressed in this Decision.

1.3 Key Issues

The major issues arising during the course of the proceeding relate to:

- Several interveners express concerns with the Design-Build-Finance-Rehabilitate (DBFR) approach to procurement proposed for the Project as it has not been previously used by BC Hydro for a hydroelectric project.
- CEABC asserts that several plans (a Capital Plan, a Campbell River System Plan, and a climate change adaptation plan) are required to adjudicate the Application. It also raises concerns related to Probable Maximum Flood (PMF), and it raises issues on the economics of the Project in relation to other alternatives.

- Mr. Aikman proposes an alternative to the Project.
- The CEC submits that Amended Special Direction 10¹, Part 3, Section 14 limits the alternatives that the Commission Panel is able to consider when adjudicating between the Project and alternatives.
- What weight, if any, should be given to new evidence introduced through Final Submissions?

These issues are explored more fully in this Decision.

1.4 Overview of the Decision

Section 2 of the Decision overviews the legislative authority and legal context of the Decision. It also addresses issues related to the attempted introduction of new evidence into the proceeding through Final Submissions.

Section 3 addresses the need for the Project and its justification.

Section 4 reviews alternatives considered to meet the need, and concludes that the Project is the preferred alternative proposed by BC Hydro.

Section 5 reviews alternative means of carrying out the Project, including the water conveyance work, the powerhouse work, and procurement approaches.

Section 6 considers cost estimates, the use of a reference case for purposes of a DBFR procurement, a net present value (NPV) analysis of alternatives, a unit energy cost (UEC) analysis of alternatives, rate impacts, the project agreement with the DBFR proponent, project reporting, and the Project schedule.

¹ In the CEC Final Submission there are references to Special Direction 10, although paragraph 5 of the Final Submission is headed "Special Direction 10 Amended" and the introductory paragraph under that heading refers to the amendment to SD 10 which took place on February 2, 2012. The Commission Panel therefore assumes that all references to SD 10 in the CEC Final Submission refer to Amended SD 10.

Section 7 assesses the alternatives to the Project and the objections raised by CEABC and Mr. Aikman.

Section 8 identifies and discusses the issues raised by interveners supporting the Project.

Section 9 outlines identified project risks and proposed risk management strategies, and assesses them.

Section 10 deals with First Nations Consultation, while Section 11 addresses public engagement.

Section 12 summarizes our overall Decision conclusions and determinations.

After having carefully considered and weighed the evidence and arguments of all parties participating in the proceeding, the Commission Panel concludes that the Project is needed to address seismic, environmental, and reliability risks at the water conveyance system and powerhouse. We have also considered the requirements imposed by Amended Special Direction 10, Section 6(2). For the reasons given in this Decision, **the Commission Panel finds that the John Hart Generating Station Replacement Project is necessary and in the public interest as it is the most cost-effective long term solution.** The Project aligns with and advances several of British Columbia's Energy Objectives. First Nations consultation and public engagement have been adequate to the point of our Decision. **Subject to the directives contained in this Decision and the related Order, the Commission Panel grants BC Hydro a CPCN for the John Hart Generating Station Replacement Project.**

2.0 BCUC LEGISLATIVE AUTHORITY

2.1 Legal Context

The Application has been filed by BC Hydro pursuant to section 46(1) of the *UCA*. Section 46(3) of the Act grants authority to the Commission to issue, refuse to issue, or issue with conditions the CPCN for the proposed facility. In deciding whether to issue a CPCN to BC Hydro, under section 46(3.3) of the *UCA*, the Commission must consider the interests of persons in British Columbia (BC) who receive or may receive service from BC Hydro, and must consider and be guided by BC's energy objectives.

In previous decisions the Commission has determined that the test of whether a project is in the interests of persons in BC who receive or may receive service from BC Hydro consist of: 1. Whether or not the project will meet a demonstrated need; and 2. Whether or not the project has been shown to be cost-effective in meeting that need.² **The Commission Panel determines that this test is the standard that continues to apply in assessing the merits of the Project.**

In assessing compliance with the public interest test the Commission must also assess whether consultation with First Nations who may be potentially affected by the Project has been adequate to the stage of the CPCN decision. The Commission must also assess whether the public has been sufficiently engaged in determining the public interest. BC Hydro submits that the Commission should consider both an overall provincial level of public interest, as well as regional and local community support, when evaluating the public interest test.

BC Hydro submits that there are four energy objectives that are relevant to this proceeding:

1. The legislated requirement for BC Hydro to be energy self-sufficient;
2. The 93 percent clean or renewable energy generation target;

² Decision *In the Matter of British Columbia Hydro and Power Authority: Certificate of Public Convenience and Necessity for the Ruskin Dam and Powerhouse Upgrade Project* (Ruskin Dam Decision) Decision and Order C-5-12, March 30, 2012.

3. The need to ensure that BC Hydro ratepayers receive the benefits of the Heritage Assets; and
4. The legislated greenhouse gas (GHG) targets.

The Commission concurs that these four objectives are to be considered when assessing the merits of the Project.

The Commission Panel must also take account of provisions of Amended Special Direction No. 10 to the BCUC, particularly Amended SD 10, Section 6(2). This requires that when deciding whether to issue a CPCN to BC Hydro for the Project, the BCUC must assume that BC Hydro requires the 806 GWh/year of firm energy and 128 MW of dependable capacity that the Project is capable of delivering by 2018 and continuing to deliver over the expected life of the Project to meet its electricity supply obligations. While the Project may not be the only alternative to meet the requirements of Amended SD 10, Section 6(2), any acceptable alternative must be capable of satisfying these conditions, in addition to being of equal or better cost effectiveness than the Project.

BC Hydro submits that in regards to satisfying the foregoing four energy objectives:

1. Given the provisions of Amended SD 10, Section 6(2), completion of the Project is necessary to achieve energy self-sufficiency. Failure to address the conditions of the Facility would hinder BC Hydro's progress towards self-sufficiency as it is not reasonable to assume that the Facility can contribute energy and dependable capacity at current levels without corrective action, and BC Hydro would remove the John Hart Facility from its resource stack in 2017.
2. The Facility qualifies as a clean or renewable energy resource under Section 1 of the *CEA* and contributes to achievement of the 93 percent clean or renewable generation target.
3. The Facility is a Heritage Asset under Schedule 1 of the *CEA* and will ensure that BC Hydro ratepayers receive the benefits of such assets.
4. The Facility is a hydroelectric energy facility that emits virtually no GHG's. The BC Government perceives the electricity is one of the means to achieve legislated GHG targets.

(Exhibit B-1, pp. 1-8, 1-9)

BCSEA concurs that the foregoing provides the appropriate legislative framework for the Commission to conduct its determinations in relation to the CPCN for the Project. (BCSEA Final Submission, pp. 1-3) The CEC also concurs with such requirements. However, the CEC also believes the BCUC ought also to consider two additional BC energy objectives, namely, *CEA* Section 2(f) ensuring that the utility's rates remain among the most competitive in North America, and *CEA* Section 2(m) maximizing the value of British Columbia's generation and transmission assets for the benefit of BC. (CEC Final Submission, pp. 4-6) However, **the Panel determines that there has been insufficient evidence provided during the proceeding to make decisions in regard to these two objectives.**

The CEC also indicates that the Commission also ought to consider Part 3, Section 14 of the *CEA* as being relevant to the Project. Section 14 includes:

- (1) The authority must not sell or otherwise dispose of the heritage assets.
- (2) Nothing in subsection (1) prevents the authority from disposing of heritage assets if the assets disposed of are no longer used or useful for their intended purpose, or they are replaced with one or more assets that will perform similar functions.

The CEC submits that this Section provides direction to BC Hydro that it must not otherwise dispose of heritage assets so long as they are useful for their intended purpose or are to be replaced with assets that will perform similar functions. In making its decision about granting a CPCN to BC Hydro for the Project, the Commission should assess whether the intent of this Section prohibits BC Hydro from disposing of the John Hart Facility assets. (CEC Final Submission, p. 4) This matter is dealt with further in Section 7.0.

2.2 The Introduction of New Evidence Through Final Submissions

BC Hydro asserts that "Mr. Aikman and CEABC introduce new information and materials for the first time through their Final Submissions." (BC Hydro Final Submission, p. 4) It acknowledges that this may be understandable for Mr. Aikman as this appears to be his first intervention in a BCUC hearing process. However, it asserts that CEABC has no such excuse, as it is relying on tactics used in the Ruskin Dam Decision proceeding (supplying information in its Final Submission that was

given no weight by the Commission Panel in that proceeding). Further, it asserts that “CEABC is the only regular intervener in BCUC proceedings related to BC Hydro that refuses to abide by the well-known rule that Final Submissions may not contain any new information and only refer to evidence on the record *in the particular proceeding*...CEABC’s practice of raising for the first time in argument new issues backstopped by references to new information not on the record in the particular proceeding is, in BC Hydro’s view, an abuse of the BCUC process.” (BC Hydro Reply, pp. 4-5)

2.2.1 CEABC

CEABC indicates that it “makes no apologies with respect to any liberties it may have inadvertently taken in the preparation of this Final Submission.” (CEABC Final Submission, p. 14) CEABC is concerned with the determination by the Commission that a procedural conference was unnecessary. (Exhibit A-7) CEABC believes that at a procedural conference it could have explored the necessity of an oral hearing phase to the proceeding at which there may have been the opportunity to cross-examine evidence. It indicates that it is only identifying omissions in BC Hydro’s evidence in its Final Submission. BC Hydro asserts that CEABC goes far beyond this by injecting new information fundamental to its Final Submission that is not on the record of this proceeding.

The Commission Panel notes that Order G-68-12 established this proceeding as a **written** public hearing process. It did not provide for an oral hearing, although it did provide for a potential procedural conference. It also provided for two rounds of information requests in the written hearing process. **The Commission Panel determines that CEABC had every opportunity to bring forward its concerns in the written hearing process. It did not do this. CEABC did not need to wait until Final Submissions to raise its concerns.** The Panel also notes BC Hydro’s observation “that CEABC’s Final Submission is the first time that BC Hydro has been made aware that CEABC desired an oral hearing.” (BC Hydro Reply, p. 35)

The new materials that BC Hydro asserts CEABC introduced in its Final Submission are discussed further in Section 7.0.

2.2.1 Mr. Aikman

Mr. Aikman's Final Submission proposes an alternative to the Project that he asserts is superior to the Project. His Submission includes several references and citations not in evidence on the record and, therefore not tested through Information Requests (IRs). These will be discussed further in Section 7.0.

3.0 NEED FOR THE PROJECT

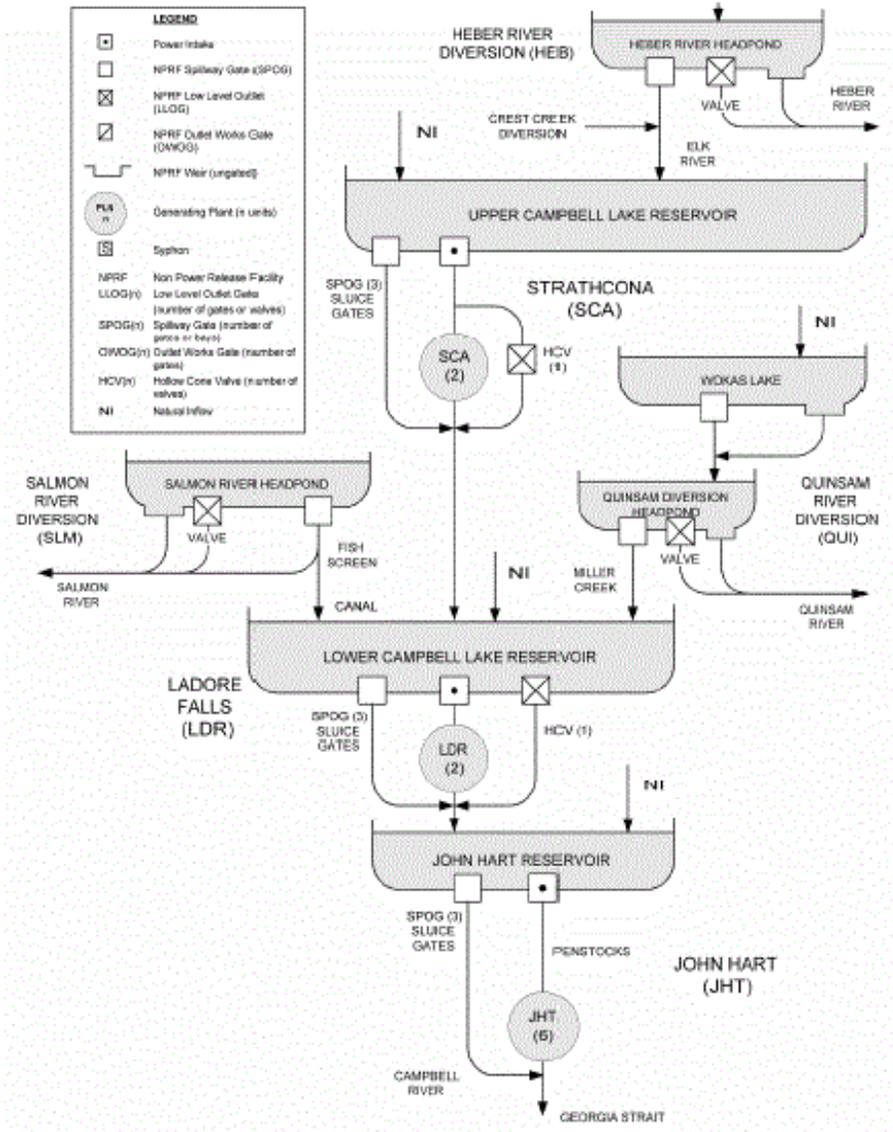
This Section reviews the considerations and rationale for undertaking the Project.

3.1 The John Hart Facility

The John Hart Generating Station powerhouse generating equipment and water conveyance system were brought into service between 1947 and 1953 with no substantial upgrades or modifications made to either the water conveyance system or the powerhouse since the fifth and sixth generating units were added to the powerhouse in 1952. It is BC Hydro's contention that without investment the water conveyance system and powerhouse will no longer be fit for their intended purpose.

The John Hart Facility fits within a much larger context of the Campbell River Hydroelectric Facilities and the entire Campbell River water management system. The John Hart Facility lies at the downstream end of the larger system and constitutes the final water retention structure, water conveyance system, and powerhouse before the Campbell River discharges into the Georgia Strait. The Project, as applied for, relates only to the John Hart Facility water conveyance system and powerhouse, and not the broader Campbell River Hydroelectric Facilities system. To establish context, the broader system is shown below.

Figure 2-3 Schematic of Campbell River Hydroelectric Facilities



(Source Exhibit B-1, p. 2-8)

The proposed Project to address the perceived deficiencies involves two main components:

- “(i) Replacing the existing six unit powerhouse with a three unit powerhouse with a dependable capacity of 128 MW; and, if the replacement powerhouse is located south of the existing powerhouse, transmission line adjustments, and demolition and replacement of the site office and maintenance shops.
- (ii) Replacing most of the existing water conveyance system which consists of the intakes, woodstave and steel pipelines, and surge towers. Except for the surge towers, the water conveyance system will be replaced with an underground tunnel with a replacement intake located on bedrock at the existing main concrete dam. BC Hydro indicates surge towers may be retained and connected to the tunnel. A flow bypass facility will be installed to provide flow replacement to the Campbell River should there be insufficient flow from the replacement powerhouse.”

(Exhibit B-1, pp. 1-3 to 1-4)

With the exception of changes at the intake dam once the existing water conveyance system is decommissioned and at the main concrete dam for the replacement intake, the Project involves no changes to the Dam. The proposed in-service date (ISD) for the Powerhouse Work and Water Conveyance Work is November 2018. The anticipated Project Expected Amount is \$1,014.3 million and the P90 Amount is \$1,158.9 million (Exhibit B-1, p. 1-3) under the Defined-Bid-Build methodology (DBB). Under the DBFR methodology the Project cost is \$940 million (see Section 6.0).

BC Hydro submits the applied for project is driven by concerns broadly categorized into: seismic and safety concerns, environmental concerns, and reliability concerns.

3.1.1 Seismic/Safety Concerns

The water conveyance system and powerhouse are both susceptible to failure in a seismic event. Failure of either component has the potential to cause significant financial, property, environmental, and public and worker safety impacts, including loss of generation from the John Hart Facility.

BC Hydro summarizes its concerns related to seismic and safety considerations as follows:

“The water conveyance system has a low seismic withstand as compared against existing seismic standards and guidelines. In addition to these structural deficiencies, the woodstave portion of the water conveyance system is founded on sands and silts. Where these foundation materials lie below the groundwater table they are susceptible to seismic liquefaction under low to moderate earthquake loading, resulting in significant settlement and deformation of the supported foundations and structures. Failure of the water conveyance system could put at risk workers in the City water treatment building and BC Hydro workers in the site office and shop facility, as well as recreational users along walking trails and on the Campbell River.” ...

“The existing powerhouse superstructure would sustain major damage in a low earthquake and does not meet modern seismic design practices included in the National Building Code of Canada (NBCC). The powerhouse is frequently occupied by maintenance staff. Failure of this structure could result in injury or death.”

(Exhibit B-1, p. 1-10)

3.1.2 Environmental Concerns

BC Hydro estimates that approximately 95 percent of the river flow into the Campbell River downstream of John Hart Generating Station is through the powerhouse. The powerhouse contains no flow bypass facility. If the generating units are forced out of service, water flow through them is reduced. If flow cannot be restored through the generating units, opening the spillway is the only means of supplementing flow into Campbell River. Current operating procedures require a sweep of the upper canyon above Elk Falls to warn the public. The time required to undertake the sweep impacts the response time and limits the effectiveness of utilizing the spillway for emergency bypass to address flow disruption concerns. It can take 45 minutes to two hours or more for spilling to be safely initiated and for the water flow to reach the tailrace area, possibly having significant adverse impacts to fish and fish habitat such as fish stranding and riverbed drying. (Exhibit B-1, pp. 1-10, 1-11)

3.1.3 Reliability Concerns

BC Hydro indicates:

“The powerhouse contains 60-year old equipment and none of the major electrical and mechanical equipment has been replaced or refurbished since installation except for one

stator core and winding, and three of six generator step-up transformers. Of BC Hydro's 15 strategic generating facilities, the powerhouse is in the third poorest condition after: (1) the 105 MW Ruskin Facility powerhouse, for which a CPCN was recently granted; and (2) the 8 MW Alouette Facility powerhouse which has been forced out of service due to its poor condition. The John Hart Facility is operated to limit start/stop frequency of the generating units and to restrict the operating range for some of these units to reduce the likelihood of an in-service failure. This results in the John Hart Facility operating less efficiently than would be the case if such restrictions were not in place. In addition, operating staff is at the John Hart Facility 24 hours a day, seven days a week to address operating issues."

(Exhibit B-1, p. 1-11)

Given the condition of the powerhouse, according to BC Hydro it is not possible to maintain acceptable performance standards and rely on the John Hart Facility for dependable capacity and energy without the Project. BC Hydro concludes pursuant to its Equipment Health Ratings (EHR), the major powerhouse equipment and ancillary equipment have reached "poor" or "unsatisfactory" status. An independent consulting firm (MWH Americas, Inc. [MWH]) reached a similar conclusion in its December 2010 report titled "John Hart Generating Station Asset Condition Assessment Phase 1 Report." MWH rated all six units as poor, found the overall station rating to be poor, and indicated the powerhouse equipment has reached the end of its useful service life and should be rehabilitated or replaced to prevent a failure that could lead to a lengthy forced outage of one or multiple units. In a separate report MWH found that the likelihood of a major powerhouse equipment failure is very high. (Exhibit B-1, pp. 1-11 to 1-2)

3.2 Condition of the Water Conveyance System

3.2.1 Seismic Withstand and Condition Assessment

The water conveyance system could fail due to either a seismic event or an event related to the condition of the water conveyance system.

Seismic Hazard

Vancouver Island is the most seismically active zone in BC. The BC Dam Safety Regulation sets out a five-tier consequence classification system (low, significant, high, very high and extreme). The

present water conveyance system and dam are classified as an “Extreme Consequence” structure.

As a result of the Dam Safety Regulation classification and the Canadian Dam Association’s Dam Safety Guidelines (CDA Guidelines) which BC Hydro is expected to follow, these structures should be capable of safely retaining the reservoir in the event of a maximum design earthquake with a Peak Ground Acceleration of 0.74 g. They presently are not.

Additionally, the woodstave pipelines are founded on sands and silts. Where these foundation materials lie below the water table they are susceptible to seismic liquefaction under low to moderate earthquake loading resulting in significant settlement and deformation of the supported foundations and structures. Thus the woodstave pipelines are susceptible to seismic failure in a low to moderate earthquake due to both structural and foundation issues with potentially very severe consequences. (Exhibit B-1, pp. 2-18, 2-19)

Condition Assessment

Conveyance system pipelines were constructed in the late 1940s and early 1950s. BC Hydro conducts routine inspections to monitor their condition. In 2007, BC Hydro reviewed the condition of the three woodstave pipelines by making an external visual inspection of all three woodstave pipelines and taking core samples from the woodstaves. The review determined that the three woodstave pipelines have exceeded their expected life span of forty years. Approximately 100 new bands have been added where the existing bands were severely corroded, but there has been no systematic upgrade to the woodstave pipelines to improve the condition of the cradles or staves. The existing steel pipelines and surge tanks were inspected by BC Hydro during 2008 and 2009 and are considered to be in good condition. (Exhibit B-1, p. 2-20)

3.2.2 Risks

Each of the three pipelines carries 41 m³/s of water and combined about 124 m³/s of water.

Seismic triggers installed at various locations at the John Hart Facility site will protectively close the intake gates in response to vertical seismic ground motions exceeding 0.03 g. A failure of the water

conveyance system would be detected by the pipeline rupture detection system and would result in closure of the intake gates also. BC Hydro explains that a significant seismic event could in turn prevent the closing of the existing intake gates.

Failure of the John Hart Facility water conveyance system could place 58 workers at risk as well as those using the walking trails on BC Hydro owned property, the Elk Falls Provincial Park, and the Campbell River. Should the same event result in deformations at the existing intake that impede or prevent closure of the intake gates, this would significantly exacerbate the consequences due to prolonged, uncontrolled flow through the water conveyance system as the reservoir drains. The City of Campbell River withdraws raw domestic water from the three pipelines to supply commercial, residential, firefighting, and other City water uses. The City has no back up water supply.

Thus failure or loss of functionality for all three pipelines would result in the loss of water supply to the City and other users, while the failure of even a single pipeline would result in damage to the foundations of the other pipelines, and all three pipelines would require immediate dewatering. (Exhibit B-1, pp. 2-20 to 2-22)

3.3 Condition of the Powerhouse

BC Hydro notes that:

“The powerhouse is approximately 60 years old and none of the major electrical and mechanical equipment has been replaced or refurbished since installation except for U1 stator core and winding which were replaced in 1998; and the three generator step-up transformers T2, T4 and T6 on U2, U4 and U6, which are approximately eight years old.” (Exhibit B-1, p. 2-22)

The powerhouse was the subject of two condition assessments using BC Hydro’s EHR, and an independent assessment using hydroAMP, a methodology for condition assessment developed by a number of US and Canadian government agencies. The poor condition of the powerhouse is not due to one or two equipment types, but rather is caused by all equipment throughout the powerhouse and has resulted in operational impacts.

The primary input to the EHR is equipment condition based on specified tests and preventative maintenance inspection data, but also takes into account other factors such as the design and original quality of the asset, performance of the asset, maintenance issues, and the availability of spare parts and technical expertise to care for the asset. The hydroAMP methodology is based solely on equipment condition.

In BC Hydro's view, the four health assessment categories of EHR (good, fair, poor, or unsatisfactory) provide more flexibility in planning investment as equipment ages and condition declines, than the three assessment categories of hydroAMP (good, fair, and poor).

Equipment condition assessment rating from the BC Hydro EHRs and MWH hydroAMP are summarized in Table 2-3 below.

Equipment	Condition Assessment	
	BC Hydro – EHR	MWH – hydroAMP
Turbines	Poor	Poor
Generators ¹	Unsatisfactory – G2, G3, G5, G6; Poor – G1, G4	Poor - G1, G2,G3,G5 Fair – G4, G6
Exciters ²	Fair	Poor
Governors	Fair	Fair
Transformers ³	Good – T2, T4 and T6 Poor – T1, T3 and T5	Good – T1,T2,T4 and T6 Fair – T3, T5
Breakers ⁴	Fair	Good

(Source: Exhibit B-1, p. 2-26)

In addition, a risk assessment of equipment failure and the impact of those risks on energy production, showed the likelihood of a generating unit failure as being very high.

3.3.1 Operating and Maintenance Impacts

Operating

The nameplate capacity of each Powerhouse unit is 21 MW. As a result of the current condition of the generating units, BC Hydro operates the powerhouse units as follows:

- “U2 is limited to 19 MW due to faulted coils that have been cut out of the stator winding;
- U6 cannot be operated above 18 MW due to penstock vibrations;
- U5 cannot be operated between 18 and 20 MW due to penstock vibrations; it is difficult to take advantage of the tight 20 to 21 MW operating range due to worn mechanical parts in the governors;
- The units are kept on line continuously rather than starting and stopping the units as is the normal mode of operation at all other multi-unit hydro generating stations. Due to the fragile condition of the generators, there is increased likelihood that the stresses associated with starting and stopping units will cause additional stator failures;
- Due to the design of the unit cooling, which draws air from above the tailrace, the units must be kept on line except during July and August to prevent absorption of moisture into the stator winding;
- To minimize the impact of unplanned river flow reductions due to units forced off-line, more units are run than necessary to provide the required fish flows. This means loss of efficiency since units are not operating near full load.”

(Exhibit B-1, p. 2-27)

The purpose of this mode of operation is to address specific equipment deficiencies, to ‘coddle’ the units, and to extend their life for as long as possible. BC Hydro estimates that:

“... as a result of this mode of operation, the John Hart Facility generates approximately 7 GWh/year less energy than it would if this mode of operation were not in place and the John Hart Facility could operate reliably. The value of this energy not generated would be between \$315,000 and \$924,000 based on a value of energy of \$45/MWh (\$F2012) (valuing all energy based on Scenario C ‘BC buy price’ spot market price forecast) and \$132/MWh (\$F2012) (valuing all energy based on the long-term B.C. market price established for firm clean/renewable energy in the 2010 Clean Power Call).”

(Exhibit B-1, p. 2-28)

Maintenance

BC Hydro submits that maintenance costs at the powerhouse have been increasing significantly over the past five years and are expected to continue increasing until the powerhouse is refurbished or replaced. Maintenance and sustaining capital investment has been postponed in anticipation of the Project proceeding and it is not possible to achieve acceptable levels of performance without the Project proceeding. (Exhibit B-1, pp. 2-29, 2-30)

3.3.2 Risks

Environmental Risks: Flow Continuity and Lack of Flow Bypass Facility

One of the major Project drivers, and the most important environmental consideration, is the mitigation of flow disruption downstream of the John Hart Generating Station which currently poses a significant threat to fish and fish habitat. Approximately 95 percent of the Campbell River flow passes through the generators with the rest flowing down the original river course through Elk Canyon to the tailrace. As noted earlier, other than passing water through the generating units, the only other means of delivering flows to the tailrace area is by manually opening the spillway gates to Elk Canyon located more than 2 km upstream of the powerhouse.

The severity of environmental, financial, and social impacts of a forced outage depends on the magnitude and duration of the flow disruption. In the past fifteen years, there have been more than 100 forced outage events at the John Hart Facility; however, the majority were minor and of short duration. Forced outages that could lead to fish stranding or de-watering eggs or alevins are more significant, particularly if the outage is for an extended period of time. When flow drops below $79 \text{ m}^3/\text{s}$ fish stranding and exposure of fish eggs in gravel become a concern. BC Hydro has had a commitment to notify Fisheries and Oceans Canada (DFO), the B.C. Ministry of Environment (MoE), and the community (by media) of forced outages resulting in an unplanned flow reduction from the powerhouse of below $79 \text{ m}^3/\text{s}$ for over ten minutes.

The Campbell River supports numerous fish populations of Chinook, Coho, chum, pink, and sockeye salmon, as well as steelhead and resident populations of Dolly Varden, char, and rainbow and cutthroat trout. The Campbell River is one of the most valuable salmon stocks on the west coast and was designated a BC Heritage River in recognition of its importance as a salmon-bearing river. Since 2000, and in subsequent meetings, the DFO and MoE have strongly expressed their expectation that BC Hydro will undertake mitigative safeguards and capital improvements at the John Hart Facility to mitigate the number of unplanned flow reductions. (Exhibit B-1, pp. 2-30 to 2-34)

Worker Safety Risks

There are two sources of powerhouse-related worker safety risks. Firstly, the powerhouse structure does not meet modern seismic design practices and would experience considerable damage in response to a significant seismic event that could result in injury or death to personnel. Secondly, if a generator fails catastrophically there are significant safety hazards from fire or shrapnel to workers in the powerhouse. The Likelihood of Failure of each unit was assessed between 43 percent and 53 percent for 2012. (Exhibit B-1, pp. 2-34, 2-35)

Financial Risks

BC Hydro predicts that a significant failure of one of the units would likely result in an outage of a minimum of one year and likely longer due to the length of time it would take to bid, contract, design, manufacture, and install major generator components.

Furthermore BC Hydro asserts that:

“The long-term loss of one unit would result in loss of energy and capacity value. Based on historic discharge requirements, an extended outage of one unit would lead to a spill of the equivalent of 50 GWh annually; an extended outage of two units would lead to a spill of 142 GWh annually. Using the Scenario C ‘BC buy’ spot market \$45/MWh value (\$F2012), the loss from a single unit outage is worth \$2.3 million annually, from a two unit outage it is worth \$6.4 million annually. Spot market energy is non-firm and does not provide dependable capacity.... Assuming a loss of 18 MW of dependable capacity and using the lowest market value of capacity

of \$37/kW-year as a proxy, the loss from a single unit outage is worth about \$666,000 annually; from a two unit outage it is worth about \$1.3 million annually.” (Exhibit B-1, p. 2-35)

3.4 Load/Resource Balance

The effect of Amended SD 10 Section 6(2) is that no matter what the energy and capacity Load/Resource Balances (LRB) are, the BCUC must accept there is a need for the Project’s firm energy and dependable capacity. To provide context, BC Hydro summarized its assumptions for its energy and capacity LRBs for the Integrated System as follows:

Load Forecast

When compared to the 2010 Load Forecast, the 2011 Load Forecast is: lower in the short term, due mainly to the continuance of slower economic conditions; higher in the mid-term due to publicly announced life extensions of two BC mines; and similar in the long-term.

Other Considerations in the 2011 Load Forecast

The LRBs include electric vehicle (EV) load which is minimal in the first ten years of the 2011 Load Forecast, resulting in an increase of only 38 GWh in F2017, but rising to 2,120 GWh by F2031. Also the BC Government has indicated a high potential for the electrification of liquefied natural gas (LNG) export facilities in two projects, if approved: Kitimat and Douglas Channel. (Exhibit B-1, pp. 2-36, 2-37)

Smart Metering and Infrastructure Programs

Theft detection benefits resulting from both the Smart Metering and Infrastructure Programs have been factored into the LRB.

“The energy benefits begin at 64 GWh in F2017 and rise to approximately 555 GWh in F2025 and each year after that, and the associated capacity benefits begin at approximately 9 MW in F2017 and rise to approximately 78 MW in F2025 and each year after that. The effect is to reduce the load/resource gap.” (Exhibit B-1, p. 2-37)

Demand Side Management

Demand Side Management (DSM) planning in 2008 targeted 8,800 GWh/year of energy savings by F2021, equating to approximately 71 percent of BC Hydro's forecasted load increase by F2021.

(Exhibit B-1, p. 2-37)

Existing, Committed and Planned Resources

Existing and committed resources are considered in the LRB and have been stated by BC Hydro as follows:

- "Existing resources include BC Hydro's Heritage hydroelectric and thermal resources as well as IPP facilities delivering electricity to BC Hydro. Pursuant to subsection 1(2) of Amended SD 10, BC Hydro's average energy capability is calculated based on the maximum amount of annual energy that the Heritage Assets can produce under average water conditions. Burrard Thermal Generating Station's (Burrard) firm energy contribution is zero GWh/year as a result of subsections 3(5), 6(2)(d) and 13 of CEA. Pursuant to section 2 of the Burrard Thermal Electricity Regulation, Burrard's dependable capacity of 900 MW is phased out as Mica Units 5 and 6, the Interior to Lower Mainland Transmission Reinforcement Project (ILM) and the third transformer at Meridian Substation are introduced into service;
- Committed resources are those resources for which material regulatory approvals have been secured (BCUC, either secured or through exemption; and environmental assessment-related) if required, and the Board has authorized implementation. Recent committed resources include the average energy and dependable capacity contributions from the Ruskin Project; and the firm energy and dependable capacity contributions from the Bioenergy Phase II Call RFP and the Conifex Timber Inc. EPA;"

(Exhibit B-1, p. 2-38)

Planned resources are not considered in the LRB and comprise those resources that BC Hydro is pursuing but for which regulatory approval has not been secured.

Treatment of John Hart Facility in LRB Considerations

It is not reasonable to assume that the John Hart Facility can continue to contribute energy and dependable capacity without corrective action. For the purposes of the LRB calculations it is assumed that if the John Hart Facility is not refurbished, BC Hydro would decommission it and all

the units will be withdrawn from service. This would have a significant impact on LRB planning.

3.5 Conditions Imposed by Amended Special Direction 10 Section 6(2)

It is BC Hydro's contention that the:

"Amended SD 10 impacts the energy analysis in two ways. First, as a result of the new planning criterion of average water BC Hydro would rely on the Heritage hydroelectric system for average water inflow conditions and related energy output, including the John Hart Facility post-Project average energy output of 835 GWh/year. IPPs continue to be relied upon for their firm energy contribution. Second, subsection 6(2) of Amended SD 10 provides that the BCUC 'must assume' that BC Hydro 'requires ... to meet its electricity supply obligations, the 806 [GWh/year] of firm energy and 128 [MW] of dependable capacity that the [P]roject is capable of delivering by 2018 and continuing to deliver over the expected life of the [P]roject'. Subsection 6(2) of Amended SD 10 indicates that 806 GWh/year is required, and the Project delivers 806 GWh/year of firm energy and 835 GWh/year of average energy. Given the change in planning criterion, BC Hydro is required to rely on the Project's average energy output of 835 GWh/year for the purposes of determining need for new resources so it follows that the economic analysis should be based upon displacing 835 GWh/year of firm energy from IPPs. In addition, both energy and dependable capacity must be valued based on B.C. resources. By definition if the energy is required it is not surplus to BC Hydro's needs, and the spot market is only used to evaluate energy in a situation where there is a surplus. The spot market is not an alternative to the Project as subsection 6(2)(a) of *CEA* provides that BC Hydro must achieve electricity self-sufficiency by holding by 2016 and each year after that the rights to an amount of electricity that meets BC Hydro's electricity supply obligations. ... The John Hart Facility is a hydroelectric facility, and is a 'clean or renewable resource' as defined in section 1 of *CEA*. Therefore B.C.-based clean or renewable resources are the most appropriate benchmark for valuing energy. The value of the John Hart Facility's average energy is \$132/MWh (\$F2012), which is the levelized Clean Power Call firm energy price, adjusted for delivery to the LM (including transmission losses) and other factors, escalated and rounded. The Clean Power Call has been used to value energy because it is the most recent competitive BC Hydro power acquisition process that was open to any form of clean or renewable resource (excluding forest-based biomass) in B.C."

(Exhibit B-1, p. 2-10)

3.6 Intervener Submissions

Submissions Opposing the Project

Both CEABC and Mr. Aikman have come to the conclusion that the Application should not be approved. Their concerns are set out and addressed in Section 7. Mr. Aikman does acknowledge that renewal of the John Hart Facility is necessary. The Panel notes that BC Hydro responds to the concerns in its Final and Reply Submissions.

Submissions Supporting the Project

City of Campbell River: The City gives full support to the Project and “the need for the project to proceed is very real, the justification for the project as proposed is sound.” (City of Campbell River Final Submission, p. 2)

Alan Wait: Mr. Wait takes no specific position on the need for the Project; however, in the opening paragraph of his Final Submission he does say “It is very clear that given Amended Special Direction #10, the John Hart Generation Station Replacement will go ahead. Therefore all that the interveners can do is work to reduce the costs.” (Wait Final Submission, p. 2)

BCRUCA: The BCRUCA submits that there is sufficient evidence to grant BC Hydro a CPCN for the Project. (BCRUCA Final Submission, p. 2)

BCSEA: BCSEA submits “that the Commission should conclude that the Project is in the public interest. The Project is needed, cost-effective and consistent with BC Energy Objectives.” BCSEA Final Submission, p. 3)

CEC: The CEC finds the evidence supporting the priority of the Project broad and convincing and recommends that the Commission find that the Project should be a priority in granting the CPCN BC Hydro has requested. “The CEC believes that the BC Hydro assessment of the condition of the John Hart facility has been appropriate and that there are good and sound reasons for BC Hydro to be

pursuing a CPCN for the Project at this time. The CEC submits that the Commission should find that BC Hydro has sound safety concerns and reasons for applying for the CPCN for the Project and that the requested CPCN should be granted on the basis of these requirements in addition to the [Amended] Special Direction 10 requirements for energy and capacity.” (CEC Final Submission, p. 20)

BCPSO: BCPSO states “BCPSO submits that BC Hydro has adequately demonstrated on the record that due to safety, environmental and reliability concerns, the John Hart Generating Station cannot continue to operate in its current condition, supporting that something must indeed be done.” (BCPSO Final Submission, p. 6)

3.7 Commission Determination

The evidentiary record confirms that the current condition of the water conveyance system, the powerhouse and the attendant generating equipment are such that they represent significant safety, environmental, reliability and financial risks. They merit significant upgrading and rehabilitation.

The Commission Panel determines that the need for the Project has been established for safety, environmental, reliability and financial reasons. This conclusion is fully consistent with the requirements of Amended SD 10, Section 6(2) and BC’s energy objectives.

All interveners have concurred with the need to upgrade the John Hart Generating Facility except for CEABC. Its objections are dealt with in Section 7.0.

4.0 ALTERNATIVES TO THE PROJECT

BC Hydro explored several alternatives to the Project. These are clearly differentiated alternatives for meeting the known needs of the Project. There are two broad categories of alternatives considered by BC Hydro:

- *Viable*, which means they are capable of being carried out;
- *Screened*, which are not viable.

BC Hydro assessed four Screened Alternatives and seven Viable Alternatives. The Screened Alternatives include:

1. Status Quo;
2. Standalone Bypass;
3. Derating;
4. Decommissioning Alternative D.

The seven Viable Alternatives include:

1. The Project;
2. Rehabilitation;
3. Staged Replacement;
4. Decommissioning Alternatives B, B2, B3, and C.

The first level of review was aimed at determining whether a particular alternative was viable from a technical feasibility or a regulatory acceptance perspective. The second level of review consisted of analyzing the cost-effectiveness of the viable alternatives on the basis of NPV and levelized UEC. The Alternatives to the Project that were screened out by BC Hydro, therefore, fall into two categories:

- (i) those alternatives that were not viable from a technical, regulatory, or environmental perspective, and
- (ii) those alternatives that were not deemed as cost effective as the Project.

Four alternatives were investigated as possible strategies to address the need, but were screened as being not viable from a technical, regulatory, or environmental perspective. These include: Status Quo, Standalone Bypass, Derating, and Decommissioning Alternative D.

4.1. Alternatives Not Viable from a Technical, Regulatory, or Environmental Perspective

Status Quo

The Status Quo Alternative maintains things as they are. BC Hydro would address needs as they arise. Status Quo fails to address the significant seismic/safety deficiencies at the powerhouse and the water conveyance system, the reliability of the powerhouse, or the environmental issues associated with flow interruption. BC Hydro contends that the Status Quo is not a viable alternative because Fisheries and Oceans Canada is unlikely to accept the existing flow risk. (Exhibit B-1, p. 1-12)

Standalone Bypass

The Standalone Bypass Alternative involves constructing a flow bypass facility adjacent to the existing powerhouse, and repairing/upgrading John Hart Generating Station as required. Standalone Bypass was screened because it fails to address the seismic/safety issues with the water conveyance system, or the powerhouse safety and reliability concerns. Additionally, the Standalone Bypass provides only limited risk mitigation to flow disruption which makes DFO regulatory acceptance unlikely. (Exhibit B-1, p. 1-13)

Derating

Derating entails operating the Facility under a lower reservoir level at the present intake. It was deemed not technically feasible by BC Hydro because the existing intake bays are relatively shallow

compared to the normal operating level of elevation of 139.6 meters and cannot function at lower reservoir elevations. (Exhibit B-1, p. 1-13)

Decommissioning Alternative D

Decommissioning Alternative D consists of decommissioning the entire Campbell River System (including three Heritage Assets - the Strathcona Facility, the Ladore Facility, and the John Hart Facility). BC Hydro submits that Decommissioning Alternative D would trigger a large number of regulatory processes. It was screened out given the very low likelihood of regulatory acceptance due to: the significant costs which include replacing the Campbell River System's energy and dependable capacity; eliminating approximately 31 percent of Vancouver Island's generating capacity; and an increase in flooding risk. Also, it would not likely accommodate Amended SD 10's mandated date of 2018. (Exhibit B-1, pp. 1-13, 1-14)

Commission Determination

The Commission concurs with BC Hydro that the Status Quo, Standalone Bypass, Derating, and Decommissioning Alternative D are not viable alternatives to the Project because of the technical, regulatory, and environmental concerns they would create.

4.2 Alternatives Not Viable from a Cost-Effectiveness Perspective

Six alternatives were deemed as not viable from a cost-effectiveness perspective and were screened accordingly. These were Rehabilitation, Staged Replacement, and Decommissioning Alternatives B, B2, B3, and C.

Rehabilitation

Rehabilitation is a generating alternative consisting of upgrading the existing powerhouse and undertaking the Water Conveyance Work to resolve the environmental and seismic risks. BC Hydro submits that this alternative is not as cost-effective as the Project because it requires a greater capital investment, provides less incremental energy and dependable capacity than the Project,

and leaves BC Hydro exposed to material residual risks related to safety, environmental, cost and schedule during construction. The NPV of the Project is \$612 million and Rehabilitation has an NPV of \$509 million. (Exhibit B-1, p. 1-14)

Staged Replacement

Staged Replacement consists of undertaking the Project in two stages. In Stage 1, the Water Conveyance Work would be implemented and the tunnel and flow bypass would be connected to the existing powerhouse. In Stage 2, the replacement of the powerhouse and generating equipment would be completed at a later date. BC Hydro rejected this alternative because the NPV of Project is \$612 million and the NPV of Staged Replacement is \$519 million. Furthermore Staged Replacement leaves BC Hydro exposed to material residual risks related to reliability, cost and schedule during the Stage 1 construction phase and the period between Stage 1 and Stage 2. (Exhibit B-1, p. 1-14)

Viable Decommissioning Alternatives

BC Hydro examined four potentially viable ways to decommission the John Hart Facility: Decommissioning Alternatives B, B2, B3 and C (also referred to collectively as the Viable Decommissioning Alternatives, as distinct from the non-viable Decommissioning Alternative D).

Decommissioning Alternative B involves abandoning the John Hart Facility and lowering the reservoir. Decommissioning Alternative B2 involves abandoning the John Hart Facility, draining the reservoir by cutting a V notch in the main concrete dam but leaving that dam in place. This would eliminate vehicle and pedestrian access across the river. Decommissioning Alternative B3 involves abandoning the John Hart Facility and draining the reservoir through a hole in the bottom of the main concrete dam that would leave the road intact. Decommissioning Alternative C involves abandoning the John Hart Facility, draining the reservoir and removing all dam structures.

(Exhibit B-1, pp. 3-17 to 3-19)

It is BC Hydro's evidence that "The economic analysis in section 3.2.3.1 shows that the Project has the highest NPV making the Viable Decommissioning Alternatives not cost-effective, with a difference of \$612 million in favour of the Project at the Expected Amount over Decommissioning Alternative B, the lowest cost Viable Decommissioning Alternative." (Exhibit B-1, p. 1-15)

4.3 Purchase Required Energy from IPPs

One potential alternative to the Project is the acquisition of energy from the independent power producers (IPPs). It is BC Hydro's contention that the cost per megawatt hour and Unit Energy Cost of the Project is lower than those of IPPs:

"... at about \$75 per megawatt hour (/MWh) the Project has a lower Unit Energy Cost (UEC) than IPPs whether measured by: (1) the most recent, broadly based BC Hydro power acquisition process, the 2010 Clean Power Call; (2) the next most recent broadly-based BC Hydro power acquisition process, the F2006 Open Call for Power (F2006 Call); (3) the two recent Bioenergy Calls; or (4) BC Hydro's most recent (2010) Resource Options Report (ROR). The Project is cost-effective across a broad range of energy values. BC Hydro applied an energy value sensitivity of between \$78/MWh, which is based on the lowest Adjusted Bid Price (ABP) for an accepted Electricity Purchase Agreement (EPA) in the F2006 Call large stream and is 41 per cent lower than the levelized Clean Power Call price adjusted for delivery to the LM and other factors, and \$150/MWh."

(Exhibit B-1, p. 1-15)

This is discussed further in Section 7.0.

4.4 Intervener Submissions

4.4.1 Submissions Not Supporting the Project

CEABC and Mr. Aikman provided alternatives to the Project in their Final Submissions. Neither supports the proposed Project. Their submissions are more fully discussed in Section 7.0.

4.4.2 Submissions Supporting the Project

The following interveners expressed support for the proposed Project Alternative.

City of Campbell River: The City indicates that justification for the Project as proposed is sound. (City of Campbell River Final Submission, p. 2)

Alan Wait: Mr. Wait takes no specific position on the Project or project alternatives; however, in the opening paragraph of his Final Submission he does say “It is very clear that given Amended Special Direction #10, the John Hart Generation Station Replacement will go ahead. Therefore all that the interveners can do is work to reduce the costs. (Wait Final Submission, p. 2)

BCRUCA: The BCRUCA submits that there is sufficient evidence to grant BC Hydro a CPCN for the Project (BCRUCA Final Submission, p. 2). By implication it does not find any of the alternatives to the Project preferable.

BCSEA: The BCSEA acknowledges that the Project has the highest NPV and lowest UEC of the Project and alternatives. It is also satisfied that the “viable decommissioning” alternatives are not supportable based on BC Hydro’s “triple bottom line” analysis. It supports the Commission issuing a CPCN for the John Hart Project. (BCSEA Final Submission, p. 3, 5)

CEC: CEC makes the following submissions:

- “The CEC submits that the Commission may not consider the ‘Status Quo’ as an alternative.”
- “The CEC also agrees with BC Hydro that it [Standalone Bypass Alternative] is not a viable alternative.”
- “The CEC agrees with BC Hydro that this [De-rating] alternative is not viable.”
- “The CEC submits that the Commission may not consider this option [Decommissioning Alternative D] and agrees with BC Hydro that this option is not viable.”
- “So long as the Project can deliver the energy and capacity defined in [Amended] Special Direction 10 the CEC submits the Commission may not consider the viable decommissioning alternatives. The CEC agrees with BC Hydro that these four decommissioning alternatives may be viable but would not be cost-effective in any event.”
- “The CEC agrees with BC Hydro that the rehabilitation option would be less cost-effective than the Project.”

- “The CEC agrees with BC Hydro that the staged replacement would not be more cost-effective than the Project.”
- In short, “The CEC submits that the Commission should consider only the Project Alternative as meeting all of BC Hydro’s legislative requirements in regard to replacing the John Hart facilities.”

(CEC Final Submission, pp. 8-13)

The CEC finds the evidence supporting the priority of the Project to be broad and convincing. It recommends that the Commission find that the Project should be a priority in granting the CPCN BC Hydro has requested.

BCPSO: BCPSO submits “that BC Hydro has considered a reasonable range of alternatives. The proposed Project represents the most cost-effective option for addressing the current deficiencies of the John Hart Generating station and in meeting the requirements for SD#10.” (BCPSO Final Submission, p. 8)

4.5 Commission Determination

The Commission Panel determines that the Project is the most cost-effective and viable alternative to address the seismic, safety, environmental, reliability, and financial risks that give rise to the Project. It agrees with BC Hydro that Rehabilitation, Staged Replacement and Decommissioning Alternatives B, B2, B3 and C are not viable alternatives to the Project because they are less cost-effective.

5.0 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

BC Hydro examined a number of technically and economically feasible alternative means of carrying out the Project including:

- Alternative methods of carrying out the water conveyance work;
- Alternative methods of carrying out the powerhouse work: number of units and location; and
- Alternative procurement approaches.

The analysis indicates that the replacement of the water conveyance system with a tunnel and constructing a three unit powerhouse is the preferred preliminary design. The final location of the replacement powerhouse will be determined during the Implementation phase, but will be located near the existing powerhouse. (Exhibit B-1, p. 1-15)

5.1 Water Conveyance System Alternatives

BC Hydro's Preferred Water Conveyance Alternative for addressing the needs of the water conveyance system is to construct a hard rock tunnel. BC Hydro investigated refurbishment and replacement of the existing water conveyance system, including replacing only the woodstave portion of the pipelines with new steel or plastic which would be installed aboveground beside the existing pipelines, and leaving the existing steel pipeline portion intact with seismic upgrades where required. This is referred to as Water Conveyance Alternative 1. Geotechnical testing revealed that the ground under the water conveyance system and the intake is sand and silt. Because the groundwater is near the surface, the foundation materials under the water conveyance system are susceptible to seismic liquefaction under low to moderate earthquake loading. As a result Water Conveyance Alternative 1 would require soil densification along a significant portion of the water conveyance system. (Exhibit B-1, pp. 3-48, 3-49)

BC Hydro compared the above to its Preferred Water Conveyance Alternative of constructing a hard-rock tunnel for the water conveyance system. Its findings include:

“Cost estimates were completed for Water Conveyance Alternative 1 including soil densification and for the Preferred Water Conveyance Alternative. The direct costs for Water Conveyance Alternative 1 were estimated to be \$235.4 million (with a cost range between \$173.2 million and \$355.7 million, or about -25 per cent/+50 per cent) versus a cost of \$234.2 million (with a cost range between \$200.0 million and \$315.5 million, or about -15 per cent/+35 per cent) for the Preferred Water Conveyance Alternative.” (Exhibit B-1, pp. 3-49, 3-50)

BC Hydro also identified other benefits resulting from the Preferred Water Conveyance Alternative that cannot be achieved with Water Conveyance Alternative 1 related to earthquake safety and repair of the existing John Hart dams in the event of a major earthquake. It noted that the deeper intake would allow greater drawdown options for repair purposes and the hard-rock tunnel would be more resilient to withstand major earthquakes than the surface penstocks of Water Conveyance Alternative 1. (Exhibit B-1, p. 3-50)

The cost of the two alternatives is not dissimilar, but the benefits of the Preferred Water Conveyance Alternative outweigh those of Alternative 1 leading BC Hydro to reject Alternative 1.

5.2 Powerhouse Alternatives

5.2.1 Number of Units

The preferred replacement powerhouse configuration reduces the number of units from six to three new units to reduce the powerhouse size and the equipment maintenance requirements while still allowing adequate redundancy, flexibility for maintenance, better flow control, and the ability to operate at near peak efficiency year-round. The alternatives of installing only one or two units were reviewed but both options were considered to have technical and/or operational limitations related to reliability, redundancy, maintenance, or flow control when compared to the preferred three unit option. (Exhibit B-1, p. 3-51)

5.2.2 Location

In examining alternative means of carrying out the Project BC Hydro noted that there were options for the location of the new powerhouse while still maintaining the maximum elevation distance

between the reservoir and the generators. BC Hydro refers to these as the south, north, and centre locations. It notes that they were evaluated in terms of their constructability, risk, safety, and environmental impact. It is BC Hydro's evidence, based on environmental assessment studies, that none of the three powerhouse location alternatives is expected to cause significant adverse environmental effects on fish or fish habitat. (Exhibit B-1, p. 3-53)

BC Hydro indicates that it has not yet chosen the final location for the powerhouse but that when it does, the choice will be based on economic and geotechnical considerations, and will be near the existing powerhouse.

5.3 Alternative Procurement Approaches

BC Hydro examined a number of alternate procurement approaches to determine if any alternative approaches could yield cost savings and risk transfer or risk sharing in comparison to its traditional procurement method of Design-Bid-Build. Considered procurement alternatives to the DBB included: Design-Build-Finance- Operate (DBFO), Design-Build (DB), and Design-Build-Finance-Rehabilitate.

With the DBFO procurement method, BC Hydro would contract the design, construction, maintenance, and operation of the Project over a contractually defined period. This was screened out because it would not be rational to have a third party operate the John Hart Facility since it is operated as only a part of BC Hydro's larger integrated cascading Campbell River System. There are also concerns related to the acceptability of this procurement method under the *CEA*.

With the DB procurement method, the design and construction aspects of the Project are contracted for with a single entity but proponents are not required to consider the long-term project performance beyond a specified warranty period ranging from two to five years. Because of warranty considerations this procurement method was screened out.

With the DBB procurement method BC Hydro retains key design and construction risks such as construction costs, schedule, and performance of the asset. The contractors take responsibility for constructing the Project to the prescribed specifications while BC Hydro takes responsibility for contract coordination, integration, and design errors and omissions.

BC Hydro is proposing a DBFR procurement model for the Project. This model contemplates that the successful proponent will design, build, partly finance, and assume maintenance accountability (to BC Hydro) for the Project for a 15-year term from the Project In Service Date. BC Hydro will continue to own and operate the John Hart Facility and the John Hart Facility will continue to be a Heritage Asset. BC Hydro submits that the main benefits associated with the DBFR model are:

- cost certainty through predominantly transferring Project cost overrun risk to the successful proponent;
- schedule certainty as the successful proponent must complete Project construction by the date to be set out in the contract with the successful proponent; and
- a pay-for-performance payment structure that incents the successful proponent to consider long-term project performance requirements beyond the typical warranty period of one to five years.

(Exhibit B-1, p. 1-15; Exhibit B-1, pp. 3-57, 3-58)

Further analysis and comparisons of the application of the DBB and DBFR methodologies to the Project are included in Section 6.0.

5.4 Intervener Submissions

5.4.1 Submissions Not Supporting the Project

CEABC indicates that “it fully supports BCH’s use of a design, build, finance, and refurbish procurement model if it is used in the manner that maximizes the benefits.” (CEABC Final Submission, p. 9) However, CEABC expresses concern that DBFR participants would not have access to sufficient geotechnical information to provide cost estimates for a penstock vs. tunnel options for the water conveyance system. It submits the DBFR process should have been

structured so that proponents would have been requested to submit proposals for both DBB tunnel and penstock options. (CEABC Final Submission, pp. 9-10)

Mr. Aikman makes no submissions on alternative means of carrying out the Project including procurement methodologies.

5.4.2 Supporting Submissions

Alan Wait: Mr. Wait makes no specific submissions on alternative means of carrying out the Project. However, he does raise a number of concerns with the DBFR procurement process proposed by BC Hydro. These concerns are addressed in Section 6.3.

BCRUCA: BCRUCA makes no specific submissions on the alternative means of carrying out the Project. However, it does indicate that “the BCUC should impose a cost collar on the CPCN given the lack of experience BC Hydro has with the implementation of a DBFR.” (BCRUCA Final Submission, p. 30) This concern is addressed in Section 6.3.

BCSEA: BCSEA makes no specific submission on the alternative means of carrying out the Project. BCSEA is concerned that BC Hydro has not previously used the proposed DBFR procurement model for a major hydroelectric facility upgrade project and that to date there have been no DBFR procurement processes in BC. Further, it submits that “procurement is relevant to a CPCN decision because procurement can affect overall project costs, risks and associated BC Hydro ratepayer impacts.” In making this claim, it also acknowledges that the evidence concerning the DBFR process does not support a conclusion that the proposed DBFR procurement model renders the Project less cost-effective than any feasible alternative or that the DBFR process limits any future prudency review that may arise. With regard to the alternate procurement model BCSEA “...respectfully suggest that the Commission impose stringent reporting requirements as a condition of a CPCN.” (BCSEA Final Submission, pp. 4, 5)

CEC: The CEC makes several submissions in relation to alternative means of carrying out the Project:

- The CEC submits that “BC Hydro’s approach to the replacement of the water conveyance system is soundly based ... and that the evidence for alternatives considered does not successfully lead to a conclusion that BC Hydro’s approach is flawed and that some element of the alternatives reviewed would represent an improvement. The CEC recommends that the Commission approve BC Hydro’s approach to replacement of the water conveyance system.”
- “The CEC recommends that the Commission approve BC Hydro’s approach to the replacement of the powerhouse generating units.”
- The CEC submits that “the Commission give no weight in granting a CPCN to BC Hydro with regard to transformer replacement.”
- “BC Hydro has adequately assessed the Campbell River System context to select replacement options for the John Hart Facility heritage assets needing replacement.”
- “The Commission should give little weight to any consideration of pumped storage options.”
- “BC Hydro has identified the best options for maintaining fish flows.”

(CEC Final Submission, pp. 13-17)

With respect to the proposed DBFR methodology the CEC makes the following observation:

“The CEC is skeptical about the DBFR approach to procurement for the Project and believes that there may be risks related to its use, many which have been identified on the record. The CEC on balance is inclined to give BC Hydro the benefit of the doubt with respect to the approach because its design specifically aims to transfer some risks and provide certainty with respect to delivering the project. ... Upon reflection CEC believes that there is value in innovation and is prepared to support this DBFR approach for its potential and reserve its concerns for eventual prudence review.”

(CEC Final Submission, pp. 18, 19)

BCPSO: BCPSO acknowledges the alternative means to complete the Project but makes no submissions with respect to them. With respect to the DBFR procurement model, BCPSO indicates that “it is fair to say that the DBFR procurement model is new to BC Hydro and only experience will tell whether the incentives built into the Project Agreement work as anticipated. BCPSO submits

that BC Hydro should closely monitor the performance of the successful proponent from this perspective and report on lessons learned as part of any future proposal to adopt the DBFR model for additional new projects.” (BCPSO Final Submission, p. 10)

5.5 Commission Determination

Water Conveyance System

The Commission Panel concurs with BC Hydro that the Preferred Water Conveyance Alternative with a hard rock tunnel is appropriate because it better addresses seismic risks associated with liquefaction than Water Conveyance Alternative 1, and provides optionality with respect to future dam seismic work.

Powerhouse and Generation Equipment

The Commission Panel concurs with BC Hydro that the Preferred Powerhouse Alternative with three generating units is superior to the alternatives assessed because of its reduction in powerhouse size and equipment maintenance requirements, and because it allows adequate redundancy, flexibility for maintenance, better flow control, and the ability to operate near peak efficiency year round.

The Commission Panel is satisfied with BC Hydro’s proposal on the powerhouse location which is yet to be chosen. Based on the environmental assessment studies we accept that none of the south, north, or centre options considered will have significant adverse environmental effects on fish or fish habitat. We accept that a final location will be based on economic and environmental considerations as the Project proceeds, and that it will be near the existing powerhouse.

Procurement Methodologies

The Commission Panel concurs with not pursuing DBFO and DBB procurement methodologies because of the need for BC Hydro to maintain operational responsibility for the John Hart Facility as part of the overall Campbell River System, and because of warranty considerations.

The Commission Panel notes CEABC's view that the DBFR procurement model should have provided for potential bidding proponents to submit proposals for both the hard rock tunnel and penstock water conveyance options because of its concern regarding the availability of geotechnical data for the bidders. However, we also note that CEABC has acknowledged that BC Hydro has made available the Geo Report in the DBFR data room. (CEABC Final Submission, pp. 9, 10)

As noted by BCSEA the Commission Panel also acknowledges "that BC Hydro's confirmation that the DBFR procurement model does not impact the scope of a potential future prudency review and that the actions or inaction of the successful proponent could form part of a potential prudency review." (BCSEA Final Submission, p. 5)

6.0 PROJECT COSTS

This Section of the Decision reviews: Project Cost Estimates (Section 6.1); the use of the Design-Bid-Build estimated amounts (Sections 6.2); the Design-Build-Finance-Rehabilitate procurement methodology, cost estimate, and affordability ceiling (Sections 6.3, 6.4, and 6.5); Net Present Value Analysis of the Project (Section 6.6); Unit Energy Cost analysis and rate impacts (Sections 6.7 and 6.8); the Project Agreement with the DBFR proponent (Section 6.9); Project reporting (Section 6.10), and the Project schedule (Section 6.11).

6.1 Design-Bid-Build Project Cost Estimates

The DBB cost estimation methodology is the traditional methodology that BC Hydro has used in developing cost estimates for use in applications for CPCNs for major infrastructure projects. Under this approach BC Hydro undertakes a detailed design for a project and then solicits tenders for multiple contract packages. The selected contractors are responsible for the project construction while BC Hydro is responsible for contract co-ordination and for design errors and omissions. BC Hydro would make payments to the contractors as construction progresses.

In the Application, for the first time, BC Hydro is proposing to use a different procurement methodology – the DBFR methodology. BC Hydro has provided cost estimates under both procurement methodologies. This section sets out the DBB cost estimates.

BC Hydro's application requests approval for a CPCN in the amount of \$1,014.3 million which is based on the "Expected Amount" of Project costs based on P50 cost estimates under the DBB procurement methodology. The accuracy of the Expected Amount is +25 percent to -15 percent. The P90 DBB estimate which includes higher amounts for contingencies, inflation, capitalized overhead and interest during construction (IDC) is \$1,158.9. (Exhibit B-1, pp. 4-7, 4-8)

The Project comprises the following components and cost elements:

John Hart Dam Project Cost Component	(\$ millions)
Direct Construction	450.4
Construction Management	17.7
Project Management and Engineering	63.3
Other Non-Construction Costs	66.7
Sub-total Direct and Indirect	598.1
Contingency on Expected Amount	110.7
Decommissioning and Removal of Existing Plant	8.8
Inflation	77.8
Sub-total Implementation Amount	795.4
Capital Overhead (COH)	13.9
IDC	97.9
Sub-total, Implementation, Loaded	907.2
Identification, Definition and Early Implementation Phases (Loaded)	107.1
Total DBB Expected Amount (P50 Estimate)	1,014.3
Contingency on P90 Amount	225.1
P90 Inflation, Capital Overhead and IDC	219.8
Total DBB P90 Amount	1,158.9

(Source: Exhibit B-1, Table 4-3, p. 4-9)

6.2 Use of the DBB Reference Case Expected Amount

BC Hydro does not use DBB as the procurement methodology that it intends to pursue in the Application; however, it does use the DBB estimates for several purposes. BC Hydro uses the DBB cost estimation methodology to evaluate alternatives to the Project. DBFR was not seen as viable methodology for the alternatives, so DBB P50 and P90 estimates were developed for each of the viable alternatives and provide the underlying basis for the comparison of alternatives with the Project.

One critical use of the DBB Expected Amount is as the foundation for the calculation of the Affordability Ceiling, a key component of the DBFR methodology (see Section 6.5). The DBB Expected Amount is also used as a comparator to test whether the Project would be competitive under DBFR with a DBB based Project.

Given the use of the DBB methodology in assessing project alternatives, and its use as the basis for the calculation of the Affordability Ceiling, BC Hydro is requesting that the CPCN be issued on the basis of the DBB Expected Amount. However, BC Hydro is “not opposed” to the issuance of a CPCN on the basis of the DBFR \$940 million Expected Amount (see Section 6.4 below). (BC Hydro Final Submission, pp. 62-63)

6.3 The DBFR Procurement Methodology

BC Hydro requests approval for a CPCN based on using the DBFR methodology. Under this procurement model proponents bid to design and construct the Project and to finance a significant portion of it (about 60 percent). The successful proponent also assumes maintenance accountability for the Project Agreement term which runs from the start of construction until 15 years after Project start up (about 20 years in total).

The key characteristics of this methodology as applied in the Project are:

- Following a competitive process BC Hydro would select a proponent that would perform the design and construction of the Project, finance a significant portion of the Project (about 60 percent), and assume maintenance accountability over an approximately 20-year Project Agreement term;
- BC Hydro would at all times own and operate the John Hart Facility which remains a Heritage Asset;
- In establishing a request for proposals BC Hydro has established an “Affordability Ceiling” of \$521 million which it defines as the maximum net present cost of all payments BC Hydro expects to make to the successful proponent (see Section 6.5 for a discussion of the Affordability Ceiling);
- If there are no proposals that are under or equal to the Affordability Ceiling, BC Hydro will go back to the BC Hydro Board for further direction;
- Progress payments will be made to the successful proponent during the construction period of up to 40 percent of the cost of work completed;
- Availability payments will be made to the successful proponent over a 15-year term commencing from service commencement;

- Proponents bidding on the Project may propose changes to the design that increase efficiency or reduce costs, provided the design meets the energy and capacity requirements; and
- Based on the contract entered into with the successful proponent a number of risks that would typically be borne by BC Hydro under the DBB procurement model are transferred to the proponent.

(Exhibit B-1, pp. 3-57 to 3-59, 4-12 to 4-14)

Mr. Wait prefers the DBB procurement process because of a number of concerns with the DBFR process. He submits that:

- With few bidders there will be higher fees and loose bid estimates;
- The less definite the parameters of the project, the higher the costs will be because of the uncertainty;
- The successful proponent will charge an added fee to compensate for having to finance parts of the project, thereby depleting the contractor's working capital;
- The fee charged by the contractor to protect itself from potential costs during the 15 year guarantee period will be significant;
- Given the record low level of interest rates currently, the borrowing costs of BC Hydro to pay for future Availability payments will entail higher borrowing costs each year compared to BC Hydro borrowing the entire amount at the time of construction.

(Wait Final Submission, pp. 2-3)

While no other intervener actively opposed the use of the DBFR procurement methodology, several interveners expressed general concerns with the methodology because it is an approach not used before by BC Hydro for a hydroelectric generation project. These concerns are acknowledged by BC Hydro in its Reply Submission where it states that most interveners supportive of the project "express varying degrees of unease with the application of DBFR as the procurement process for a BC Hydro hydroelectric project." (BC Hydro Reply, p. 16)

The BCRUCA is concerned that the use of the DBFR methodology relies on the good will of the successful proponent to find cost efficiencies and pass these efficiencies on to BC Hydro. To ensure the DBFR delivers the anticipated cost savings BCRUCA recommends the setting of a cost collar. BCRUCA also recommends more frequent reporting requirements. (BCRUCA Final Submission,

pp. 3-4)

In its Reply Submission BC Hydro submits that a cost collar is not appropriate because:

- No evidence has been filed with respect to the appropriate level of such a cost collar or how this mechanism would work; and
- Before costs of the Project will be put into rate base there will be an opportunity for the BCUC to determine if all of the incremental costs related to the Project were prudently incurred.

To alleviate concerns of interveners, BC Hydro proposes that, in the event there is a cost over-run as compared to the DBB Expected Amount of \$1,014.3 million, BC Hydro would be obligated to put forward evidence justifying any material increase in cost beyond that considered by the BCUC to be in the interest of BC Hydro's customers. (BC Hydro Reply, pp. 22-23)

Commission Determination

The Commission Panel acknowledges that the proposed DBFR procurement process is untried in the context of BC Hydro development of hydroelectric power projects. This raises the prospect that unexpected issues may arise that potentially could negate the cost efficiencies that BC Hydro foresees in using this new methodology. On the other hand, the Commission Panel is supportive of the efforts of BC Hydro to try a new approach that has the potential to provide cost savings to its customers.

The Commission Panel approves the use of the DBFR procurement strategy proposed by BC Hydro. Given the lack of experience with this methodology the Commission will require enhanced reporting requirements as set out in Section 6.10. BC Hydro will be required to justify the prudence of any cost increases beyond what is approved in this Decision. Given this requirement and the lack of evidence as to what would constitute an appropriate cost collar, the Panel finds that a cost collar is not appropriate or necessary.

6.4 DBFR Cost Estimate

BC Hydro estimates that the Project cost Expected Amount (P50) under the DBFR model will be \$940 million. The DBFR methodology is seen to result in higher financing costs for the Project because private finance costs are higher than government financing costs. However, this is seen as being offset by expected costs savings equal to 7 percent of capital cost and a 50 percent reduction in construction management costs. The following Table sets out a comparison of DBFR and DBB Expected Costs.

DBB and DBFR Capital Cost Comparison (\$ millions, rounded to the nearest million)		
Cost Category	DBB Capital Cost	DBFR Capital Cost
Pre-construction costs	86	86
Direct and Indirects ¹	673	649
Sub-total Capital (nominal)	759	735
Total contingency/risk (real)	111	59
Inflation	12	6
Sub-total contingency/risk (nominal)	123	65
Financing ²	119	132
Capital Overhead ³	14	8
Total Loaded Capital Cost	1,015	940

¹Reduction is a result of DBFR efficiencies of 7 percent and 50 percent construction management.

²Successful proponent funded portion financed at its weighted average cost of capital, about 7.6 percent.

³Capital overhead only on BC Hydro funded costs.

(Source: Exhibit B-1, Table 3-13, p. 3-60)

Commission Determination

The Commission Panel approves a Project cost of \$940 million. Given that the Project will be delivered using the DBFR methodology it is appropriate to approve the cost of the Project in granting the CPCN on the basis of the expected cost under this methodology, \$940 million.

The Commission Panel further orders that in the event there is a cost over-run for the Project above the \$940 million amount approved by the Commission in granting the CPCN, the onus is on BC Hydro to provide evidence that clearly justifies any cost increase above this level before such costs are allowed to be considered for recovery in rates.

6.5 Affordability Ceiling

A key component of the DBFR procurement methodology proposed by BC Hydro is the “Affordability Ceiling.” This is a cost ceiling calculated by BC Hydro to be equal to the maximum net present cost to BC Hydro of all payments BC Hydro anticipates making to the successful proponent. It is the maximum amount acceptable by BC Hydro in awarding the contract for the Project. The Affordability Ceiling is set at \$521 million (\$2013). The Affordability Ceiling is developed by starting with the Expected Amount under the DBB methodology (P50 estimate), adding expected higher costs due to the higher financing costs faced by the successful proponent relative to the cost of government borrowing, and subtracting cost efficiencies that are expected to result from the management of the design and build process by the successful proponent.

The payments BC Hydro will make to the successful proponent will consist of:

- Progress payments. These represent the approximately 40 percent share of the construction costs that will be borne by BC Hydro. The remaining 60 percent of costs will be financed by the successful proponent.
- Decommissioning payments. On completion of the decommissioning of the existing powerhouse and water conveyance infrastructure BC Hydro will reimburse the proponent for decommissioning costs.
- Availability payments. Upon the project being commissioned into service BC Hydro will make availability payments to the successful proponent that cover operating costs, capital repayment, financing cost and risks transferred over the Project Agreement term. Deductions will be made from availability payments if the successful proponent does not meet defined availability and performance standards.

In the event that no proposals are received that are less than or equal to the Affordability Ceiling, BC Hydro would return to the BC Hydro Board for further direction.

(Exhibit B-1, pp. 4-13 to 4-16)

6.6 Net Present Value Analysis

In evaluating the Project against viable alternatives BC Hydro has undertaken a Net Present Value analysis of each of the viable alternatives. In doing this analysis BC Hydro has estimated the costs of each viable decommissioning alternative and the cost of obtaining BC-based replacement resources to provide the needed energy and dependable capacity. The cost of replacing 835 GWh/year of energy is estimated by BC Hydro to be \$132/MWh. The BC Hydro estimate for replacing 128 MW of dependable capacity is \$56/kW-year. The details behind these estimates are set out in Exhibit B-1, Section 2.2.2.1.

A summary of the NPV analysis is set out below. It indicates that the NPV of the Project and the Alternatives are:

NPV (\$ million PV F2012)		
Project/Alternative	Based on Expected Amount (P50)	Based on P90 Amount
The Project	612	538
Alt B: Abandonment with Crest Notch	0	0
Alt B2: Abandonment with Full Notch	(38)	(49)
Alt B3: Abandonment with Archway	(42)	(54)
Alt C: Abandonment with Dam Removal	(96)	(124)

(Source: Exhibit B-1, Table 3-4, p. 3-28)

6.7 Unit Energy Cost Analysis

Using the NPV analysis set out above, BC Hydro determined the Unit Energy Cost for the Project and for each of the Alternatives. As the viable decommissioning alternatives do not provide any generation, the UEC is calculated by dividing the PV of the alternative by the energy the Project produces plus the cost of acquiring BC-based replacement resources (IPPs). (Exhibit B-1, p. 3-27)

The UEC estimates of BC Hydro are set out in Table 3-4 of Exhibit B-1, pp. 3-28 and 3-29. A summary of the UEC analysis for the Project and the alternatives is:

Unit Energy Cost (\$/MWh)		
Project/Alternative	Based on Expected Amount (P50)	Based on P90 Amount
The Project	74.73	81.58
Alt B: Abandonment with Crest Notch	132.00	132.00
Alt B2: Abandonment with Full Notch	135.54	136.58
Alt B3: Abandonment with Archway	135.92	137.07
Alt C: Abandonment with Dam Removal	140.96	143.57

(Source: Exhibit B-1, Table 3-4, pp. 3-28, 3-29)

CEABC contends that BC Hydro is misrepresenting the UEC for the Project. It bases this claim on the following factors:

- BC Hydro calculates the Project UEC on the P50 cost estimate when final costs of BC Hydro Projects are most often at or above the P90 cost estimate;
- BC Hydro includes in the Project UEC calculation a credit for not having to demolish the dam (\$16/MWh) and for new capacity that will not have to be purchased (\$9/MWh); and
- An addition to the Project UEC of \$12/MWh is warranted to account for capitalized overhead or capitalized interest.

CEABC further argues that the \$132/MWh estimate for alternative energy sources is overstated and should be reduced because of a number of factors including:

- There should not be an assumed 2 percent annual escalation in the cost of power from alternative energy sources;
- There should be an assumption that there will be technological advances in wind generation;
- Weaker US and European currencies should result in a decrease in capital intensive energy projects; and
- The Adjusted Firm Energy Cost from the Clean Power Call was never representative of the cost of energy delivered from these projects.

(CEABC Final Submission, pp. 12-14)

BC Hydro rejects the position taken by CEABC for the following reasons:

- The claims of CEABC that construction projects generally exceed the P90 estimate is false. BC Hydro provides a Table showing five major projects undertaken by BC Hydro since 2008.

The sum of the project Expected Amounts for the five projects is about 1 percent over the individual project amounts;

- The decommissioning credit recognizes the benefit to BC Hydro ratepayers of avoiding the cost of decommissioning the John Hart facility if it is retained as a generating facility;
- The capacity credit recognizes the benefits to BC Hydro ratepayers of avoiding or deferring purchases of firm capacity resources, whereas renewable IPPs, such as run-of-river, or wind provide little dependable capacity;
- The UEC calculation discounts capital expenditures to account for the time value of money. This ensures costs of various alternatives are measured at the same point in time, which is important in making comparisons of alternatives;
- BC Hydro considers the Clean Power Call to be the best comparator given that it reflects current pricing, and a large volume and variety of clean, renewable technologies; and
- BC Hydro recognizes there are uncertainties with respect to IPP prices and for this reason undertook an energy sensitivity analysis. BC Hydro's conclusion is that the IPP cost it used is reasonable.

(BC Hydro Reply, pp. 69-75)

CEABC's concerns are further addressed in Section 7.0.

Commission Determination

The Commission Panel sees the UEC Analysis as a mechanism to provide a comparison among alternatives, not as a process to provide an estimate of actual energy costs that would face the BC Hydro ratepayer. For this reason **the Commission Panel finds it appropriate to include the adjustments for decommissioning costs and for capacity in the UEC analysis.**

The BC Hydro methodology to account for the time value of money is also appropriate to ensure an "apples to apples" comparison. BC Hydro has based the future cost of alternatives on the Clean Power Call which has a clear factual basis. In its Final Submission CEABC asserts that a number of cost factors could differ in the future and thus warrant a different calculation. **The Commission Panel finds that there has not been evidence placed on the record that substantiates the assertions by CEABC regarding differing cost factors in the future. The Commission Panel recognizes that there is uncertainty in forecasting the future costs of alternative energy sources but finds that the approach taken by BC Hydro is a reasonable one.**

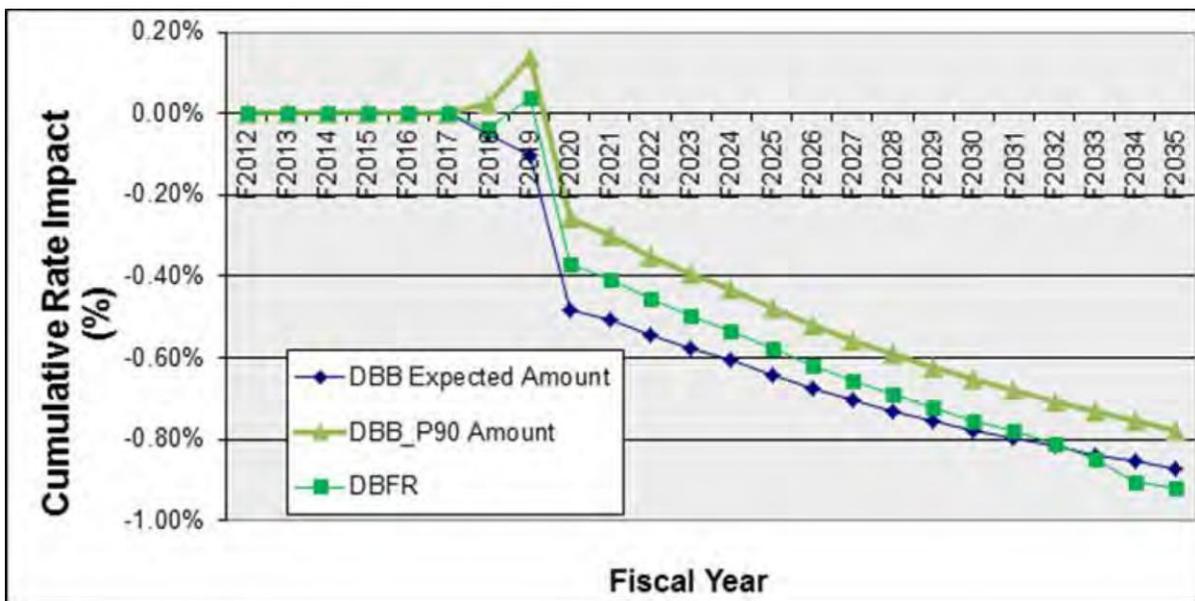
Based on the NPV and UEC comparative analyses prepared by BC Hydro the Commission Panel finds that the Project is the most cost-effective means to provide the required energy and capacity.

6.8 Rate Impacts

BC Hydro prepared a rate impact analysis comparing the rate impacts under both the DBB and DBFR procurement methodologies. Under both the DBB P90 and the DBFR Expected Amount there is an increase in rates in F2019 reflecting the one-time cost of retiring the existing pipelines and powerhouse. Under all three forecasts (DBB Expected Amount, DBB P90, and DBFR) BC Hydro is projecting that ratepayers will be paying lower rates after F2019 than would be the case if BC Hydro does not proceed with the Project and removes the John Hart energy and capacity from its resource stack. (Exhibit B-1, pp. 3-59 to 3-61)

The following Figure sets out BC Hydro’s Rate Impact Comparison. BC Hydro has not adjusted the model for the differing risk profiles that would occur in DBB versus DBFR.

Figure 3-5 Rate Impact Comparison



(Source: Exhibit B-1, p. 3-61)

The BC Hydro comparison above only depicts the rate impact through F2035. BC Hydro estimates that the DBFR rate impact, calculated over the 50+ year life of the Project, will be lower than the rate impact under the DBB Expected Amount.

Based on its rate impact analysis BC Hydro concludes that DBFR is competitive with DBB. BC Hydro has set the Affordability Ceiling to be rate neutral between DBB and DBFR. It has an expectation that the competition among proponents will result in a cost cap below the Affordability Ceiling set out in the application. (Exhibit B-1, pp. 3-61, 3-62)

6.9 Project Agreement with the DBFR Proponent

The process to reach a Project Agreement with a DBFR Proponent is as follows:

- BC Hydro issues a Request for Proposals (RFP);
- Under the RFP process each proponent will provide an interim financial submission;
- The interim submissions will be reviewed by BC Hydro to determine if the proponents can comply with the Affordability Ceiling;
- If no proposals are received that comply with the Affordability Ceiling BC Hydro will return to its Board of Directors for further direction.

It is anticipated that the Project Agreement will be entered into by the summer of 2013. The basic terms of the Agreement that will be included in the RFP document include:

- An agreement term of approximately 20 years from the time of the signing of the agreement (a five year dismantling and construction period and a 15 year availability term);
- BC Hydro will remain the owner and operator of the John Hart Facility;
- Minimum requirements for First Nations contract opportunities will be specified;
- The Proponent is responsible for providing a design that meets Performance Agreement performance specifications, construction, partial financing, maintenance and life cycle rehabilitation of the Project over the 15 year availability term;
- For the 15 year availability term the successful proponent will be contracted to provide maintenance, rehabilitation, and site services;

- Compensation for the successful proponent will be made through progress payments as construction goes forward and through monthly availability-based payments over the 15 year availability term;
- The availability payments cover operating costs, capital repayment, financing costs, and risks transferred over the Project Agreement term;
- Deductions will be made from availability payments if the successful proponent fails to meet defined availability and performance criteria;
- Asset condition requirements will be specified in the Project Agreement. ‘Holdbacks’ at the end of the term will ensure that the Agreement contract provisions related to these are met.

(Exhibit B-1, pp. 4-12 to 4-16)

Commission Determination

Given the lack of experience with the DBFR methodology and the key role played by the Affordability Ceiling and the Project Agreement entered into by BC Hydro with the successful proponent, **the Commission Panel directs BC Hydro to file with the Commission a copy of the Project Agreement contract with the successful proponent within two weeks of finalizing the contract. The Commission will consider whether the contract is in accordance with the Application and the approvals set out in this Decision.**

6.10 Project Reporting

The issue of project reporting was a concern of many of the interveners. Concerns of specific interveners are set out in Section 8.0.

BC Hydro acknowledges that a number of interveners have some unease with the DBFR approach and that Project reporting is a valid mechanism to deal with their unease. BC Hydro proposes that the CPCN be conditioned to require BC Hydro to provide the Commission with financial and construction reports on a semi-annual basis with a final report to be filed after Project completion. This report would include:

- A comparison of DBFR-related costs to the Project Expected Amount;
- Actual construction progress against planned milestones; and

- Descriptions of material issues and risks, including mitigation plans to deal with such risks.
(BC Hydro Reply, p. 23)

BC Hydro has no objections to the BCPSO proposals that:

- BC Hydro closely monitor the performance of the successful proponent and report on lessons learned for use in proposals to use a DBFR model for new projects;
- Any reporting regime established by the Commission should include a post-project completion assessment of the savings achieved;
- BC Hydro be required by the Commission to host a workshop to discuss Project reporting, IBA related costs, and future capital project applications to be made to the Commission; and
- The Commission require BC Hydro to circulate public versions of Progress Reports to Interveners participating in the current CPCN process.

(BCSPO Final Submission, pp. 10, 12)

BC Hydro sees the performance monitoring, post-project completion report, and circulation of a public progress report as part of the final report as proposed by BC Hydro. BC Hydro would also see the circulation of a public version of the Progress reports as being applicable to the semi-annual reports. BC Hydro proposes that the workshop would be held after the BC Hydro Board of Directors DBFR decision, but no later than the Fall of 2013. (BC Hydro Reply, p. 29)

With respect to BCSEA's proposal to include actual mitigation activities in the 'reporting requirements' on the basis that BC Hydro has not "formally committed to follow through with all of the proposed mitigation measures", BC Hydro does not believe such reporting is necessary. However, BC Hydro is not opposed to such reporting provided it is clear such reporting is not seeking Commission input or approval on these activities.

BC Hydro sees the CEC's concerns with reporting of safety issues as being covered by the portion of the semi-annual reports describing material emerging issues and risks. BC Hydro does object to reporting on "on-going First Nations relationships" as proposed by the CEC. The Commission's right to require BC Hydro to provide information with respect to First Nations consultation is acknowledged by BC Hydro. However it notes that the Commission cannot act on this information.

The proposal by the CEC that BC Hydro provide information concerning Campbell River System risks as a “context” for the semi-annual reports is seen by BC Hydro as beyond the project for which a CPCN is being sought. BC Hydro is prepared to provide on a voluntary basis reports on any Campbell River System risks to the extent they are relevant to the Project as part of the emerging issues or risks portion of the Project semi-annual Progress reports. (BC Hydro Reply, pp. 29-31)

Commission Determination

The Commission recognizes the legitimate concerns of interveners with the implementation of the “untried and untested” DBFR procurement model. It agrees with interveners and BC Hydro that a robust reporting mechanism can help alleviate some of these concerns, as well as provide an opportunity to evaluate the merits of the DBFR approach and possibly learn how to improve on its application to future projects. The Commission Panel finds that BC Hydro’s response to the reporting requirement requests of interveners has generally been constructive and well-reasoned.

After assessing the evidence and the concerns expressed by interveners **the Commission Panel provides the following directions to BC Hydro with respect to reporting:**

- **Following BC Hydro Board approval of the Project Agreement and no later than the Fall of 2013 BC Hydro is to host a workshop with interveners of this proceeding and with BCUC staff to develop a detailed methodology of semi-annual reporting. The methodology developed must be submitted to the Commission for approval no later than December 1, 2013.**
- **BC Hydro will provide semi-annual progress reports in the form approved by the Commission.**
- **During the 15 year availability term, the semi-annual reports should specify at a minimum the amounts paid under the Project Agreement, and the amounts and reasons for any deductions made to availability payments.**
- **BC Hydro, either concurrently with the semi-annual report workshop or in a separate workshop, is to host a workshop with interveners of this proceeding and with BCUC staff to develop a detailed methodology for the final report to be filed with the Commission upon Project completion. The methodology developed is to be submitted to the Commission for approval.**

- **The final report should include an assessment of the DBFR methodology relative to a DBB approach, lessons learned in implementing the Project, and recommendations for the use of DBFR in future projects. The methodology developed is to be submitted to the Commission for approval.**

6.11 Project Schedule

BC Hydro will not be able to determine the final schedule until the Project Agreement has been signed. However BC Hydro projected the following Project Milestone Dates in Exhibit B-1, Table 4-6, p. 4-21.

Project Milestone Dates

Key John Hart Project Milestones	Schedule
Issue RFQ	March 2012
Issue RFP to short-listed proponents	June 2012
Receive Interim Financial Submissions	Fall 2012
Receive RFP Technical Submissions	Winter 2013
Receive CEAA Decision	January 2013
Receive Park Boundary Adjustment Decision	Fall 2012-January 2013
Receive RFP Financial Submissions	Winter/Spring 2013
Receive CPCN Decision	No later than May 2013
Board Decision regarding Project Agreement Award	Spring/Summer 2013
First Unit in Service	Fall 2017
Second Unit and Third Unit in Service	Winter 2018
Flow By-Pass in Service	Fall 2018
Total Project Completion	November 2018

In establishing a Project schedule BC Hydro considered the following constraints that had to be recognized:

- A lead time of about 33 months from the date of the notice to proceed in order to secure delivery of the turbine and generator components for the first generating unit;
- A lead time of 27 months for transformers; and
- Operational issues associated with maintaining generation and flow throughout the Project period.

Commission Determination

The Commission recognizes that until a successful proponent has been selected and a Project Agreement signed, a definitive project schedule cannot realistically be prepared. **Once the Project Agreement has been finalized BC Hydro is directed to prepare and file a Project Schedule with the Commission.**

7.0 INTERVENER ALTERNATIVES

This Section explores the evidence on the Alternatives proposed by CEABC and Mr. Aikman, and the conclusions they reach based upon the evidence which was first introduced by them in their Final Submissions. BC Hydro asserts the introduction of such evidence after the record has been closed is contrary to the rules of natural justice and fairness. It submits that the introduction of information not on the record through argument is improper and should not be permitted.

7.1 CEABC

7.1.1 CEABC Final Submission

The Need for Plans

CEABC has concluded that the Application should not be approved. It questions “whether the Project is the best available way to achieve the needs of ratepayers within the constraints of rate increases expressed by the provincial government.” (CEABC Final Submission, p. 1) It implies that such a determination is not possible without reviewing several plans that have not been made available. These plans include:

1. An overall Capital Plan;
2. A Campbell River System Powerhouse and Seismic Spending Plan;
3. A Campbell River System Probable Maximum Flood (PMF) Plan; and
4. A Plan to deal with the impacts of climate change on the Campbell River System.

(CEABC Final Submission, pp. 3-11)

CEABC argues that accepting the John Hart Facility proposal is tantamount to accepting all future investments in the Campbell River system without ever seeing an overall plan for the future. It argues that BC Hydro has examined only one total system alternative, that being Decommissioning Alternative D. It submits one “obvious total system option would be to remove the John Hart dam and the Ladore powerhouse ..., and then connect the Ladore reservoir directly to a powerhouse at John Hart with an overland penstock or tunnel.” (CEABC Final Submission, p. 4)

CEABC also submits that BC Hydro has not adequately dealt with PMF risk mitigation options for the Campbell River system “in the Application including providing a cost estimate for the John Hart dams or for the Strathcona and Ladore dams.” (CEABC Final Submission, p. 8)

The Characterization of Project Costs

CEABC also submits that BC Hydro’s purported UEC of \$75/MWh “isn’t the true cost of producing energy from the Facility.” It argues that the “things that make the \$75 cost appear deceptively small are things that will never actually happen. They are hypothetical things that won’t be on the ratepayers’ bills.” It argues that these hypothetical things include: “the dam won’t have to be demolished, and new capacity won’t have to be purchased.” (CEABC Final Submission, p. 12) It then argues that the true UEC will be substantially higher. It submits that BC Hydro is “creating a false impression in the public’s mind that these projects can be done so cheaply.” (CEABC Final Submission, p. 13)

CEABC argues that BC Hydro’s characterization of \$132/MWh as the UEC from alternative energy sources as a result of the purchase of additional IPP energy is much higher than the actual impact on ratepayers’ bills. It submits a number of reasons for this. (CEABC Final Submission, pp. 13-14)

7.1.2 BC Hydro Reply Submission

The Need for Plans

BC Hydro identifies several matters and items that it asserts are not on the record in this proceeding yet are referenced throughout CEABC’s Final Submission. It then argues why these items cannot be given any weight by the BCUC in rendering its decision on the Application.

For example, it references the “obvious option” referred to by CEABC that entails removal of the John Hart dam and Ladore powerhouse. BC Hydro indicates that “if this option is ‘obvious’ one has to question why CEABC did not put the option forward in IRs; instead CEABC relies on introducing

new options in argument.” BC Hydro indicates there is no evidence on the record to substantiate the viability of this option. Indeed, it submits that the option would trigger a re-opening of the Campbell River Water Use Plan and would not satisfy Amended SD 10’s binding requirements that any alternative to the Project must be capable of delivering 806 GWh of firm energy and 128 MW of dependable capacity by 2018 and each year after that for the expected life of the Project. (BC Hydro Reply, p. 9)

BC Hydro also addresses the issue of Probable Maximum Flood risk mitigation raised by CEABC. It indicates that CEABC “cites material from the F07/08 RRA that is not on the record in this proceeding. In doing so, CEABC leans on dated information of 2006 vintage. Again, if CEABC thought this was an issue it was incumbent upon CEABC to pose IR(s) in this proceeding and put the F07/F08 RRA materials to BC Hydro for a response, particularly given the out-of-date nature of the CEABC’s references.” (BC Hydro Reply, p. 10) It notes that CEABC did not ask a single IR in this proceeding on the topic of PMF or flood passage (BC Hydro Reply, p. 52)

BC Hydro responds to CEABC’s assertion that the several plans are needed before the Commission is in a position to adjudicate the merits of the Project. It notes that expenditure planning provisions of the *UCA* are permissive and not mandatory. It also notes that the Commission’s CPCN Guidelines set out information requirements for “Project Need, Alternatives, and Justification” but there is no reference to a capital plan being a requirement to justify a project. (BC Hydro Reply, pp. 36)

BC Hydro explains that it has justified the priority of the Project on the basis of equipment health ratings and reliability, public and employee safety, environmental risk exposure, as well as economic return on investment (BC Hydro Reply, pp. 38-40). It also submits that CEABC’s request for a Campbell River System Plan is “tantamount to asking the BCUC to undertake a Water Use Plan (WUP)-like trade-off analysis for an entire river system within a CPCN application review process for a single project, and is not supported by the *BCUC CPCN Guidelines*.” (BC Hydro Reply, p. 42) Such an undertaking would preclude meeting the Amended SD 10 requirements that acceptable alternatives be implemented by 2018. It submits that it has met the evidentiary burden set out in

the *BCUC CPCN Guidelines* and as circumscribed by Amended SD 10.

In response to CEABC's assertion of the need for a plan dealing with the impacts of climate change on the Campbell River System, BC Hydro references two reports on the record of this proceeding:

- (1) *Hydrological Impacts of Climate Change* (Exhibit B-4-2, CEABC IR 1.6.1, Attachment 2)
- (2) Environmental Assessment Report (EA Report) (Exhibit B-4-2, CEABC IR 1.6.1, Attachment 1)

The EA Report concluded that "the effect of climate change on the Project is expected to be negligible." (Exhibit B-4-2, CEABC IR 1.1.1, Attachment 1, p. 3 of 3) BC Hydro also indicates that there "are no studies indicating significant detrimental impacts on the reservoir use or John Hart Facility operations as a result of climate change." (BC Hydro Reply, p. 62) BC Hydro concludes that "CEABC, on the basis of an unfounded assertion that climate change may cause spills somewhere on the Campbell River System sometime in the future, is asking the BCUC to defer a needed Project for an undetermined but likely lengthy period of time while BC Hydro asks ... stakeholders to reconvene the WUP Consultative Committee to revise the WUP ... Such a course of action is not in the interests of ... stakeholders who are being asked to bear significant risks posed by the existing water conveyance system and powerhouse over that period. It is also difficult to see how CEABC's position accords with Amended SD 10's mandated requirement for 806 GWh/yr of firm energy and 128 MW of dependable capacity by 2018." (BC Hydro Reply, p. 67)

The Characterization of Project Costs

BC Hydro identifies items in CEABC's Final Submission that BC Hydro asserts is new information not on the record and is being used to "position IPPs as cost-effective as compared to the Project." (BC Hydro Reply, p. 10) These items relate to the CEABC's attempt to establish comparability of the Project's UEC of \$75 per MW and the cost of IPPs as represented by the 2010 Clean Power Call-related price of \$132 per MW. BC Hydro addresses each of these items and indicates that "CEABC only posed one IR on the topic of the value of energy and a total of three IRs on the UEC alternative analysis, and did not follow up in the second round of IRs ... CEABC could have and should have put

IRs to BC Hydro regarding these [items] ... to permit BC Hydro, and other interveners and/or BCUC staff to respond to and test [them].” (BC Hydro Reply, p. 14)

CEABC has posed four adjustments to the \$75/MWh UEC of the Project. These include adjustments related to assertions that:

- (1) BC Hydro costs are more often at or above P90 cost estimates;
- (2) Avoided costs of decommissioning are hypothetical;
- (3) Costs of replacing capacity are hypothetical; and
- (4) Capital overhead and interest during construction should be treated differently.

In response to the first proposed adjustment BC Hydro submits that there is no basis to CEABC’s assertion that costs are above P90 estimates and reproduces Exhibit B-1, Table 1-1 to demonstrate this. (BC Hydro Reply, pp. 68-69)

In response to the second proposed adjustment BC Hydro submits that CEABC’s comparison of the gross Project UEC to the \$132/MWh is incorrect. CEABC has claimed that decommissioning costs are hypothetical and would not show up on ratepayer bills. BC Hydro argues that such costs *would* be seen by ratepayers if an IPP alternative were selected instead of the Project. This is because the BC Dam Regulation and the *Fisheries Act* would require decommissioning of the John Hart Facility to address seismic and environmental risks at the site of the John Hart Facility if IPP alternatives to the Project could replace the energy provided by the Facility. (BC Hydro Reply, p. 70)

In response to the third proposed adjustment BC Hydro indicates that CEABC employs the same argument for the cost of replacing capacity. It argues that it must acquire dependable capacity somewhere if IPPs are pursued as an alternative to the Project. Such dependable capacity would come at a cost and this must be taken into account when considering alternative UECs to the Project’s. (BC Hydro Reply, pp. 71-72)

Finally, in response to the fourth proposed adjustment BC Hydro challenges CEABC's assertions on how capitalized overhead (COH) and interest during construction should be treated in a comparison between available resources. BC Hydro indicates that it does not include COH in evaluating alternatives and this is comparable to the treatment of COH included by an IPP in the cost of an electricity purchase agreement. BC Hydro also argues that IDC are real costs that exist for UEC calculations and are treated in a comparable manner for both the Project and IPP acquired energy. (BC Hydro Reply, pp. 72-73)

BC Hydro concludes that "the evidence on the record confirms that IPPs are not cost-effective as compared to the Project." (BC Hydro Reply, p. 73) It further concludes that "CEABC's Final Submission is based on a mix of new evidence and opinion not supported by the record in this proceeding, and provides no basis whatsoever for the BCUC to refuse to issue a CPCN to BC Hydro for the Project." (BC Hydro Reply, p. 75)

7.1.3 CEC

With respect to Capital Plans and Priorities, "CEC agrees with BC Hydro and submits that the expenditure planning provisions of the Utilities Commission Act (UCA) are permissive and not mandatory. There is nothing in the UCA to prevent BC Hydro from submitting a CPCN application ...BC Hydro has explained its process of determining its priorities as being based on asset condition and low seismic withstand capability." (CEC Final Submission, pp. 2-3)

In its Final Submission the CEC draws several conclusions related to its interpretation of Amended SD 10 and Part 3 of the CEA. Such conclusions include:

- "... the preservation of the Heritage Assets is a mandate and therefore [CEC] interprets the phrasing with respect to the Project 'delivering and continuing to deliver over each year of its expected life' as definitive direction that if John Hart can deliver the Commission must assume it is required. The CEC reads this as defining that alternatives must be improvements to the Project and cannot simply be alternatives from anywhere else."
- "Only alternatives which improve upon the Project 'delivering from the John Hart facilities' can be considered by the Commission, unless the facilities are no longer used and useful in which case they may be disposed of."

- “The CEC submits that IPP supply is not sufficiently similar in function and that the replacement must be with Heritage Assets such as the Project provides, if it is feasible to do so.”
- “The CEC submits that this regulatory proceeding is therefore confined to examining the most cost-effective means of achieving the needed energy and capacity from the John Hart Generating Station Replacement Project.”
- “The CEC submits that [Amended] Special Direction 10 does not allow for the purchase of energy from other sources as an alternative to the Project, but rather requires the energy and capacity from the Project.”
- “CEC also notes that BC Hydro has demonstrated that the Project is cost-effective in its own right against other supply.”

(CEC Final Submission, pp. 7-8)

BC Hydro observes that “CEC ... argues the BCUC can only scrutinize the different ways the Project can be carried out.” It acknowledges that it “cannot say with confidence that a court would find CEC interpretation of Amended SD 10 unreasonable.” (BC Hydro Reply, p. 19) BC Hydro also notes that “CEC submits that Part 4 of the *Clean Energy Act* and Amended SD 10 preclude that BCUC from even considering the Viable Decommissioning Alternatives, thus again highlighting CEABC’s error in not addressing Amended SD 10 to all or part of its various requests.” (BC Hydro Reply, pp. 54-55)

7.1.4 Commission Determination

The Need for Plans

The Commission Panel concurs with BC Hydro and the CEC that the requirements for expenditure planning in the *UCA* for BC Hydro are permissive and not mandatory. Further, the BCUC’s CPCN Guidelines do not require a capital plan to justify a project.

Furthermore, the BCUC does not have legislative authority or obligation to require a total river system spending plan, a PMF plan, or a climate change impact assessment plan for a total river system when considering the merits of a CPCN for a single project. The Commission does have a mandate to assess the need for the Project, alternatives to the Project, and justification of the Project, as is described in the BCUC’s CPCN Guidelines.

The CEABC has not made its case that BC Hydro capital expenditure plans, Campbell River powerhouse and seismic spending plans, Campbell River PMF plans, and plans to deal with the impacts of climate change on the Campbell River system are necessary before the Commission is able to adjudicate on the merits of the Project. Furthermore, if CEABC wished to pursue its concerns in these areas further, including the assessment of additional alternatives to the Project, it was at liberty to do so through the two rounds of IRs, which it did not do. We are concerned that acquiescing to CEABC's views would open up broad requirements for consultation and water use planning, which would preclude satisfying the requirements of Amended SD 10 and would not satisfy the public interest because of the exposure created to the significant risks associated with the existing water conveyance system and powerhouse.

As indicated earlier in this Decision, BC Hydro has established the need and justification for the Project on the basis of equipment health ratings and reliability, public and employee safety, environmental risk exposure, the economic return on investment, and overall cost-effectiveness.

For the reasons outlined above **the Commission Panel determines that it will give no weight to the need for plans as proposed by CEABC in its assessment of the Project and alternatives. Furthermore, no weight is given to the option to the Project proposed by CEABC in its Final Submission.**

The Characterization of Project Costs

The Commission Panel concurs with BC Hydro:

- There is no evidence on the record to support CEABC's assertion that BC Hydro costs are more often at or above the P90 cost estimates. In fact, BC Hydro has provided evidence to the contrary;
- Decommissioning costs of the John Hart Facility are "real" costs that would be visible to ratepayers, if IPP alternatives to the Project were considered to replace energy provided by the Project. Such costs would need to be considered when comparing the UECs of alternatives;

- Dependable capacity would have to be acquired somewhere if IPP alternatives were considered in lieu of the Project. The costs of acquiring such dependable capacity must be taken into account when considering alternative UECs to the Project; and
- The treatments of COH and IDC must be comparable when considering the Project and IPP sourced energy alternatives.

The attempts by CEABC to make adjustments in its Final Submission to BC Hydro's UEC analysis for the Project in order to cast the UEC of IPP energy in a more favourable light are based on evidence that is not properly part of the evidentiary record. Participants should not base their Final Submissions on evidence that is not properly on the record. The applicant is entitled to know the evidence that interveners are relying on. It may decide to ask IRs on that evidence and provide rebuttal evidence. It may also decide to shape its Final Submissions differently depending on the responses to the IRs and any rebuttal evidence it chooses to call. To allow a participant to base its Final Submission on evidence that is not properly on the record denies the applicant the opportunity to make those decisions.

Therefore, for reasons of natural justice and fairness, the Commission Panel determines that CEABC has not provided adequate evidence on the record that BC Hydro's UEC analysis is sufficiently deficient to deny a CPCN for the Project.

CEC's Submission on Limitations of Alternatives to be Considered by the BCUC

In its Final Submission the CEC made several assertions that Amended SD 10 and Part 3, including Section 14, of the *CEA* limit the alternatives to the Project that the Commission Panel is able to consider when adjudicating between the Project and alternatives. **The Panel declines to make a determination on this issue in this Decision.** First, as CEC itself has acknowledged, BC Hydro has demonstrated that the Project is cost-effective in its own right against other supply. Secondly, as set out earlier in this Decision, the Panel finds that the Project is the most cost-effective alternative. **Since the Panel has determined that the statutory requirements of the *UCA* and Amended SD 10, Section 6(2) have been met, and that the Project is the most cost effective**

alternative, it is unnecessary to rule on the statutory interpretation issue raised by CEC. Any determination in this regard would make no difference to the result.

7.2 Mr. Aikman

7.2.1 Mr. Aikman's Proposed Alternative

Mr. Aikman accepts that “renewal of the John Hart power generation facility is necessitated by its aged and worn condition.”, and, “In its application to the BCUC for a ...Certificate of Public Convenience and Necessity (CPCN), BC Hydro makes a strong case of replacing the powerhouse generating equipment and water conveyance system that were brought into service between 1947 and 1953. On that matter there can be little difference of opinion.” (Aikman Final Submission, p. 2)

However, he asserts that the Project fails to meet its main objectives related to reliable electrical generation, seismic risk, and river flow and fishery considerations. To overcome the asserted shortcomings, Mr. Aikman has proposed an alternative to the Project. Mr. Aikman also makes several assertions or raises questions related to statements made in BC Hydro's Final Submission, many of which are similar to those made by CEABC regarding resource plans, the Campbell River system, climate change consequences, and UECs.

BC Hydro identifies several references in Mr. Aikman's Final Submission that he relied upon in his assertion that his proposed alternative is superior to the Project. These references are founded upon new information that is not on the record of this proceeding and relate to integrating intermittent energy for reliable electrical generation, the effects of climate change, and river flow considerations for fish flow requirements and hydraulic imbalances. (BC Hydro Reply, pp. 6-7)

BC Hydro concludes that Mr. Aikman's proposed alternative is not viable for the reasons set out in section 4.2.1(d) of its Final Submission. The reasons include:

- It would require a substantial diversion of the Campbell River that would result in adverse environmental effects on fish and fish habitat;

- It would trigger a large number of regulatory reviews that, in turn, would make it extremely unlikely that the requirements of Amended SD 10 would be met by 2018;
- There are assertions by Mr. Aikman that are unsupported by evidence on the record related to Mr. Aikman's costing assumptions and climate change induced effects;
- It is at odds with the Controller of Water Rights in regards to the river flow regime in the Campbell river; and
- The integration of intermittent energy of IPPs is not a driver for the Project.

(BC Hydro Reply, pp. 77-80)

CEC "finds Mr. Aikman's proposal interesting but clearly lacking in the level of evidence which would be required for the Commission to give sufficient weight to deny the CPCN BC Hydro is requesting. The CEC is persuaded that this proposal could not be accomplished in the timeframes required by [Amended] Special Direction 10 and that possibly it would not be feasible for a number of the concerns raised." (CEC Final Submission, p. 12)

7.2.2 Commission Determination

The Commission Panel concurs with BC Hydro that the alternative proposed is not viable for the reasons set out in its Reply Submission. We also concur with the conclusions reached by the CEC in its Final Submission. Therefore, **the Commission Panel determines that there is not sufficient evidence on the record to give weight to the alternative proposed by Mr. Aikman to deny the CPCN requested by BC Hydro for the Project.**

8.0 ISSUES RAISED BY INTERVENERS SUPPORTING THE PROJECT

This Section sets out the issues or concerns that have been raised by interveners who have taken the position that the project should proceed.

8.1 Alan Wait

Mr. Wait takes the position that “the John Hart Facility taking its present flow is required, even though a 2.1 km penstock at a 6% grade is not the optimum location attribute.” (Wait Final Submission, p. 5)

Mr. Wait raises two specific concerns. First, he would prefer to see the traditional DBB process used rather than the proposed DBFR procurement model. His specific issues in this regard are set out earlier in Section 6.3. The Commission Panel’s views on the procurement methodology are also set out in Section 6.3.

Mr. Wait’s second concern is that while BC Hydro has a mandated 70/30 debt/equity ratio under Special Directions HC1 and HC2, it currently is operating with close to an 80/20 debt/equity. Mr. Wait believes this is to the detriment of BC Hydro ratepayers and he recommends that BC Hydro put forward to the Government of British Columbia a proposal for the Government to provide an infusion of capital so as to bring BC Hydro’s paid capital to the 30 percent level. (Wait Final Submission, p. 4)

In its Reply Submission BC Hydro indicates that HC1 is a direction to BC Hydro on an assumed debt/equity ratio to be used by BC Hydro in calculating its annual payment to the BC Government. HC2, among other things, requires the BCUC to use a “deemed equity” of 30 percent in setting BC Hydro’s rates. BC Hydro does not believe the current process is a hearing as to whether the provisions of HC1 and HC2 are appropriate or fair, or to determine BC Hydro’s capital structure. (BC Hydro Reply, p. 20)

Commission Determination

The Application relates to the approval of a CPCN for the replacement of the water conveyance system and powerhouse at the John Hart Facility. This is not a forum to deal with issues of capital structure, including the formulation of recommendations to the Government of British Columbia in this regard. **No direction is provided to BC Hydro regarding its capital structure at this time.**

8.2 BC Residential Utility Customers Associations

While the BCRUCA is of the view that the evidence justifies the granting a CPCN for the Project to BC Hydro, it has a concern that the DBFR methodology is “inconsistent with a cost minimization strategy that would be in the best interest of residential customers and revenue requirement minimization.” BCRUCA reaches this conclusion on the basis that the DBFR procurement process relies on the good will of the successful proponent to pass on cost efficiencies to BC Hydro. Because of its concerns BRUCA recommends the setting of a cost collar and more frequent reporting requirements. (BCRUCA Final Submission, p. 3)

The Commission deals with DBFR methodology issues in Section 6.3 and with Project reporting requirements in Section 6.10, and has made its determinations therein.

8.3 B.C. Sustainable Energy Association-Sierra Club of BC

BCSEA supports the granting of the CPCN for the John Hart Facility as applied for by BC Hydro. The only concern raised by BCSEA is the “untried and untested nature of the DBFR procurement model.” In this regard BCSEA appears to be somewhat reassured by BC Hydro’s submission that the DBFR procurement model does not impact the scope of a prudency review. BCSEA recommends that the Commission impose stringent reporting requirements as a condition of the CPCN.

The Commission deals with DBFR methodology issues in Section 6.3, and with Project reporting requirements in Section 6.10, and has made its determinations therein.

8.4 Commercial Energy Consumers Association of British Columbia

The CEC supports the granting of a CPCN to BC Hydro subject to certain conditions.

These conditions include:

- Attaching a condition to the CPCN that BC Hydro is accountable to its DBFR estimate of \$940 million; and
- Requiring BC Hydro to provide regular reports, including information in these reports to assist the Commission in monitoring safety issues related to the John Hart Facility; the DBFR approach (including a clear record of the risks and potentials as BC Hydro utilizes this approach), and First Nations relationships. (CEC Final Submission, pp. 19, 21)

While the CEC has concerns that the BC Hydro data on failures with durations of over 200 days across its entire system “do not support the risk estimates for the John Hart Dam” it remains supportive of the granting of the CPCN for the facilities as applied for. The CEC however does request that BC Hydro provide information with respect to Campbell River System risks as part of its reporting on the project (CEC Final Submission, pp. 15, 16, 23)

Issues relating to the DBFR methodology are dealt with in Section 6.3, and Project reporting issues are dealt with in section 6.9. Related Commission determinations have been therein.

While the CEC has “been skeptical” about the DBFR methodology, it is “inclined to give BC Hydro the benefit of the doubt” with respect to its use. The CEC suggests that there is value in innovation and that if its concerns materialize they can be dealt with in a future prudency review. (CEC Final Submission, pp. 18-19)

The CEC also raises the issue that the Commission must also consider Part 3, Section 14 of the *CEA* dealing with the preservation of heritage assets, which could limit the number and kind of alternatives that the Commission is able to consider in adjudicating on the Application. The Commission Panel has made its determinations in this regard in Section 7.1.

In the DBFR process BC Hydro will pay unsuccessful bidders for the Project Agreement a stipend of up to \$1 million to cover costs incurred in preparing their bids. This payment is seen as ensuring comprehensive proposals and promoting competition for the Project Agreement. (Exhibit B-1, p. 4-13) The RFP terms also grant BC Hydro a royalty-free licence for all intellectual property rights contained in the proposals. (Exhibit B-4, BCUC 1.70.3) In consultation with its external auditor BC Hydro considers that these costs would likely not be eligible for capitalization under IFRS. (Exhibit B-4, BCUC 1.70.1, 1.70.2, 1.70.3) The CEC believes the stipends are costs that are directly attributable to the project and should be capitalized. The CEC submits that the fact that BC Hydro is purchasing intellectual property rights from the unsuccessful proponents, which will contribute to the eventual design of the project, reinforces this position.

The Commission Panel agrees with BC Hydro that the capitalization or expensing of the stipends should be determined by International Financial Reporting Standards (IFRS) as interpreted by BC Hydro's external auditors.

8.5 British Columbia Pensioners' and Seniors' Organization

BCSPO is supportive of granting BC Hydro a CPCN for the Project as filed. Concerns raised by BCSPO all relate to the DBFR procurement approach. These concerns include:

- The confidentiality required by BC Hydro for some of the DBFR information, while understandable, results in something less than a fully transparent review;
- Under the DBFR model much of the information that is typically reported to the BCUC semi-annually will not be available to be reported;

To deal with these concerns BCSPO recommends that:

- BC Hydro closely monitor the performance of the successful proponent and report on lessons learned for use in proposals to use a DBFR model for new projects;
- Any reporting regime established by the Commission should include a post-project completion assessment of the savings achieved;

- BC Hydro be required by the Commission to host a workshop to discuss Project reporting; IBA related costs; and future capital project applications to be made to the Commission; and
- The Commission require BC Hydro to circulate public versions of Progress Reports to Interveners participating in the current CPCN process.

(BCSPO Final Submission, pp. 10, 12)

BCSPO also recommends that BC Hydro be ordered by the Commission to report on actual mitigation activities that are undertaken as part of the CPCN reporting requirements. This is seen by BCSPO as means to ensuring that the proposed measures are implemented. (BCSPO Final Submission, p. 13)

Reporting issues are dealt with in Section 6.9 and the Panel's determinations are included therein.

8.6 The City of Campbell River

The City of Campbell River is fully supportive of the granting of the CPCN to BC Hydro as requested. It raised no concerns. (City of Campbell River Final Submission, pp. 1-2)

9.0 RISK AND RISK MANAGEMENT

The identification of risks and risk management is an important component of any substantive capital undertaking. In the Application risk management is a central issue in that the use of the DBFR procurement methodology shifts some risks that would typically be borne by BC Hydro under a traditional DBB approach to the successful bidder for the Project Agreement. This section of the Decision deals with definition phase risks (Section 9.1), implementation phase risks (Section 9.2) and operational risks (Section 9.3).

9.1 Definition Phase Risks

The application sets out four definition phase risks. These are:

- Securing the CPCN from the British Columbia Utilities Commission.
- Receiving authorization from the DFO under the *Fisheries Act*. This is required because construction of the replacement powerhouse tailrace is likely to result in a harmful alteration, disruption or destruction of fish habitat. This requirement triggers a screening under the *Canadian Environmental Assessment Act (CEAA)*. This is the lowest level of review under this Act.
- Obtaining approval from the Government of British Columbia to adjust the boundary of Elk Falls Provincial Park.
- Achieving adequate consultation with First Nations to ensure that there is no challenge by them with respect to any of the applied for regulatory approvals.

(Exhibit B-1, pp. 1-17, 1-18, 6-2, 6-3)

In its Final Submission BC Hydro advises that only two Definition phase risks remain, the granting of the CPCN, and the approval to adjust the Park boundary. Under amendments to *CEAA* made after the filing of the Application the Project no longer requires a screening. (BC Hydro Final Submission, p. 68)

On October 12, 2012, BC Hydro received a letter from the BC Minister of the Environment advising BC Hydro that the Minister would be bring forward to Cabinet a recommendation to proceed with legislative amendments to change the Elk Falls Lake Park boundaries to accommodate the construction of the John Hart Facility. (Exhibit E-8)

Commission Determination

With the issuance of this Decision the Commission Panel finds that the Definition Phase risks are largely eliminated. This recognizes the letters of support from First Nations and the finding of the Commission Panel that the consultation with First Nations was adequate (see Section 10).

9.2 Implementation Phase Risks

The significant implementation phase risks relate to construction cost escalation, potential schedule delays, and constructability issues. Under the DBFR procurement methodology a number of these risks are transferred under the Project Agreement to the successful proponent. This raises a further risk related to failure to retain a successful proponent or the potential failure of the successful proponent to meet its obligations.

The DBFR Proponent related risks include:

Procurement of a DBFR proponent – a Request for Quotations (RFQ) by BC Hydro resulted in eight RFQ responses. Responders to the RFQ were assessed for suitability to undertake the Project, including their financial capability. Subsequently three proponents were selected to move to the RFP stage (the RFP was issued on June 27, 2012). (Exhibit B-4-2, BCRUCA 1.9.1.3, 1.9.1.3.2.1; Exhibit B-4, BCUC 1.154.2)

Successful Proponent Default – BC Hydro has identified the three RFP contenders and has assessed their engineering and financial capacity. The Project Agreement will have default provisions and “off-ramps” to deal with a proponent that does not remedy a deficiency within a reasonable time period.

Financing - As noted above BC Hydro has assessed the RFP contenders for their financial capacity and sees risk in this area as low.

Failure to Receive a Bid Under the Affordability Ceiling – BC Hydro sees this risk as low given the methodology it used to determine the affordability ceiling.

Commission Determination

The Commission Panel finds the risk of obtaining a qualified proponent is low. Given the requirement for BC Hydro to file a copy of the executed Project Agreement with the Commission to consider whether it is in accordance with the terms of the CPCN, the Panel sees a minimal risk with respect to the Affordability Ceiling.

Cost escalation, schedule delay, and constructability risk are in large part transferred from BC Hydro to the Project proponent through the Project Agreement. Cost escalation for work retained by BC Hydro such as trails relocation, access road upgrades, and site preparation are seen by BC Hydro as having a low probability. (Exhibit B-1, p. 6-7)

The one construction area where BC Hydro does retain a risk for cost overruns is in the tunnel excavations for the new penstocks. This type of construction is seen as a higher risk activity because of the possibility of unforeseen geological formations or soil conditions. BC Hydro has attempted to mitigate this risk by a comprehensive field investigation program, geotechnical modeling, and retention of external expertise to evaluate the tunnel concept, technical specifications, key risks, and independent verification of the Project cost estimate and timetable.

The Project Agreement will share the geotechnical risk of building the tunnel by setting out a geotechnical baseline report. If the geotechnical conditions encountered by the successful proponent are worse than set out in this report, the risks and costs associated with the changed conditions will reside with BC Hydro. If conditions are the same or better than the conditions

outlined in the report, the proponent will have no claim against BC Hydro. (Exhibit B-1, pp. 6-8, 6-9)

To deal with risks to public safety BC Hydro:

- Completed a field review of possible areas where public safety may be involved;
- Established plans to minimize areas of public interface with the Project during construction; and
- Will approve a Public Safety Management Plan that the successful proponent must implement.

(Exhibit B-1, pp. 6-10, 6-11)

BC Hydro expects the Project to reduce environmental risks once it is completed. To mitigate risks during construction BC Hydro will specify mitigation measures in the Project Agreement. The successful proponent will be required to execute plans that meet BC Hydro and government environmental requirements. BC Hydro will approve the successful proponents Environmental Management Plan, which will include provisions for on-site environmental monitoring during the construction period. (Exhibit B-1, p. 6-11)

Commission Determination

Subject to the review of the executed Project Agreement, the Commission Panel finds that the implementation phase risks are acceptable for a project of this nature and that the mitigation plans proposed by BC Hydro are reasonable.

9.3 Operational Phase Risks

BC Hydro sees the Project as providing operational benefits, included reduced environmental risk, enhanced worker and public safety, and greater reliability compared to the current John Hart Facility. Under the Project Agreement the successful proponent will be predominantly responsible for any risks related to latent defects, availability problems, asset management and preservation, and plant output and generation capability for the 15 years after project completion. (Exhibit B-1,

p. 6-13)

A long-term operational risk borne by BC Hydro after the Project Agreement term is potential changes in hydrologic conditions due to climate change. The CEABC questions the ability of the Project deal with changes due to climate change. It suggests that the PMF study done for the Campbell River system in 2005 should be updated. CEABC also recommends that as set out in the study, "Hydrologic Impacts of Climate Change", BC Hydro undertake scenario analyses to assess how sensitive hydroelectric power generation is to the hydrological impacts of climate change. (CEABC Final Submission, pp. 10, 11)

On the other hand, based on the same study, which contains analysis specific to the Campbell River system, and on climate change modeling of the Campbell River watershed, BC Hydro does not foresee significant concerns. The modeling work suggests that in the Campbell River system there will be increased Fall and Winter discharges, and decreases in Spring freshet discharge. BC Hydro believes the Project will be able to withstand increased discharges due to climate change. BC Hydro also notes that the Hemmera Environmental Assessment report concludes "the effect of climate change on the Project is expected to be negligible." (Exhibit B-1, p. 6-13; BC Hydro Reply, pp. 61-64)

Commission Determination

Subject to the executed Project Agreement assigning risks as set out in this application, **the Commission Panel finds that the operational phase risks associated with the Project are acceptable, especially when the effect is, for the most part, to reduce risks relative to those related to the existing facility. While the impact of climate change may be an ongoing issue to be dealt with by energy providing facilities, the Commission Panel does not find that the issues warrant further studies or actions prior to the awarding of the CPCN for this Project.** The Panel further notes that, relative to the current facility, the Project, when complete, should result in a facility that is in a better position to cope with hydrologic changes stemming from climate change.

10.0 FIRST NATIONS CONSULTATION

This Section of the Decision explores the adequacy of BC Hydro's consultation with Aboriginal peoples regarding the Project. The focus is primarily on the We Wai Kai Nation, Campbell River Indian Band, and K'ómoks First Nation, which are the First Nations who assert Aboriginal rights and title in the Project area. A significant amount of the evidence on First Nations consultation was submitted as confidential in the proceeding. Where that evidence has been referenced in this section, it is for context only and does not contain any sensitive information.

10.1 The Duty to Consult

10.1.1 The Crown's Duty

As a Crown Corporation, BC Hydro has a duty to consult First Nations whenever it contemplates conduct that might adversely affect Aboriginal rights or title and it has real or constructive knowledge of the potential existence of the right or title. This duty is grounded in the honour of the Crown, a principle requiring the Crown to act with integrity and honour and avoid "even the appearance of sharp dealing" in all its dealings with aboriginal peoples, including the dealings of treaty making and treaty interpretation. (*Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73 (*Haida Nation*), paras. 16, 19, and 35)

The duty to consult is triggered when the Crown has knowledge, actual or constructive, of the rights asserted under section 35(1) of the *Constitution Act, 1982* which states, in part, "[t]he existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed."

10.1.2 Reciprocal First Nations' Duty

While the Crown has a duty to consult First Nations, First Nations have a reciprocal obligation to participate in consultation in good faith, without frustrating the consultation process. "At all stages, good faith on both sides is required. The common thread on the Crown's part must be the 'the intention of substantially addressing [Aboriginal] concerns' as they are raised (Delgamuukw,

supra, at para.168), through a meaningful process of consultation. Sharp dealing is not permitted. However, there is no duty to agree; rather the commitment is to a meaningful process of consultation. As for Aboriginal claimants, they must not frustrate the Crown's reasonable good faith attempts, nor should they take unreasonable positions to thwart government from making decisions or acting in cases where, despite meaningful consultation, agreement is not reached: See *Halfway River First Nation v. British Columbia (Ministry of Forests)*, 1999 BCCA 470 (CanLII), [1999] 4 C.N.L.R. (B.C.C.A.), at p.44; *Heiltsuk Tribal Council v. British Columbia (Minister of Sustainable Resource Management)* 2003 BCSC 1422 (CanLII), 19 B.C.L.R. (4th) 107 (B.C.S.C.). Mere hard bargaining, however, will not offend the Aboriginal people's right to be consulted." (*Haida Nation*, para. 42)

10.1.3 The Commission's Role

The Commission Panel's role is to assess whether the Crown's constitutional duty of consultation has been fulfilled with respect to the Project to the date of the Commission Panel's decision on the Application. This typically involves determining when the Crown's duty to consult on the Project arose, the scope of the duty and whether it has been fulfilled. The question the Commission must decide "is whether the consultation efforts up to the point of its decision were adequate." (*Kwkwetlem First Nation v. British Columbia (Utilities Commission)*, 2009 BCCA 68, paras. 13, 15 and 70)

10.2 Identification of Potentially Impacted First Nations

The first step of consultation is for the Crown to determine which First Nations may potentially be impacted by the Project. For this Project, BC Hydro reviewed the following resources to broadly identify First Nations that assert rights or title interests in the vicinity of the Project area:

- Information from past work in the area, including the Campbell River Water Use Plan Traditional Use Study;
- Material submitted to the BC Treaty Commission related to asserted traditional territories including Statement of Intent maps;
- First Nations and government websites;

- Information available from First Nations and associated groups such as the Laich-Kwil-Tach Treaty Society's traditional use studies; and
- An August 2007 report entitled *An Evaluation of Aboriginal Interests in the John Hart/ Strathcona Dams Areas*, written by Bouchard and Kennedy, researchers who were engaged by BC Hydro to conduct the study. (Exhibit B-1, pp. 5-2 to 5-3)

Using information gleaned from these sources, BC Hydro determined that the Project area lies within the asserted traditional territories of:

- We Wai Kai Nation;
- Campbell River Indian Band;
- K'ómoks First Nation (K'ómoks); and
- Homalco First Nation (Homalco).

(Exhibit B-1, p. 5-3)

WWK and CRIB, along with Kwaikah First Nation (discussed below) consider themselves to be a part of the Laich-Kwil-Tach Nation (a group of several First Nations that share a common language, culture and history). Together the Laich-Kwil-Tach Nation has formed the Laich-Kwil-Tach Treaty Society (LTS) for the purpose of collectively negotiating a treaty through the BC Treaty Process. The LTS has submitted a Statement of Intent map of their collective traditional territory to the BC Treaty Commission. Although these First Nations have joined together for the treaty process, each First Nation individually asserts Aboriginal rights and title but the precise boundaries of their individual territories are not shown on the Statement of Intent map (Exhibit B-1, pp. 5-4 to 5-5). BC Hydro determined that WWK and CRIB individually assert Aboriginal rights and title in the Project area.

K'ómoks is negotiating independently in the BC Treaty Process. Its Statement of Intent map indicates that K'ómoks claims title and aboriginal rights across territory that includes the Project area (Exhibit B-1, pp. 5-8 to 5-9).

BC Hydro initially assessed that Homalco's asserted traditional territory includes the Project area. However, the 2007 Bouchard and Kennedy report did not indicate any historical or ethnographic information that supported this (Exhibit B-1, p. 5-4). In a December 2010 email to BC Hydro, Homalco indicated to that it was deferring all matters of consultation related to the Project to WWK and CRIB, stating that the Project was not within Homalco's core territory. Homalco reiterated this in a meeting with BC Hydro in March 2011, but indicated it was still interested in receiving updates about the Project and employment opportunities (Exhibit B-1, pp. 5-11 to 5-12).

10.2.1 Other First Nations

BC Hydro also considered whether several additional nearby First Nations may have interests in the Project area. These First Nations are:

- Kwaikah First Nation (Kwaikah);
- Mowachaht/Muchalaht First Nation (Mowachaht/Muchalat); and
- Tlowitsis First Nation (Tlowitis);

Through its review of the information available, BC Hydro determined that the interests of each of these additional First Nations were outside of the Project area. Nonetheless, BC Hydro contacted all three First Nations and either received confirmation that the Project was outside the Nation's asserted territory or did not receive a response from the First Nation. (Exhibit B-1, pp. 5-12 to 5-13; Exhibit B-4, BCUC 1.106.3)

BC Hydro's view is that there is no further duty to consult Kwaikah, Mowachaht/Muchalaht, or Tlowitsis. BC Hydro has not identified any additional First Nation or Aboriginal groups that may have a potential interest or claim in the Project area. No First Nation or Aboriginal group other than WWK and CRIB have registered as Interveners or expressed an interest in the Project area during the evidentiary phase of the Proceeding.

10.2.2 Commission Determination

The Commission Panel finds that BC Hydro correctly identified WWK, CRIB, K'ómoks, and Homalco as First Nations that have asserted Aboriginal rights and/or title in the Project area.

BC Hydro engaged Bouchard and Kennedy to conduct a study of the historical habitation of the Project area. Bouchard and Kennedy's research indicated that the island Comox (including present day K'ómoks) and the Lekwiltok people (present day We Wai Kai and CRIB) historically inhabited the Project area. These findings were consistent with information in the Campbell River Water Use Plan traditional use study as well as LTS's 2011 and 2011 traditional use studies.

The Commission also finds that BC Hydro made reasonable attempts to identify other First Nations or Aboriginal groups that might potentially be impacted by the Project, and concludes that BC Hydro has adequately consulted those First Nations or Aboriginal groups with respect to the Project.

BC Hydro identified First Nations who had asserted rights or title in nearby areas, and whose claim could potentially extend into the Project area. BC Hydro made efforts to contact those First Nations to inform them of the Project and give them an opportunity to identify their interests with respect to the Project. BC Hydro received explicit confirmation from Homalco and Mowachaht/Muchalaht that the Project was outside of their respective territories. BC Hydro provided Kwaikah and the LTS (which Kwaikah is a member of) several opportunities to indicate any claim that Kwaikah may have to the Project area but Kwaikah did not respond. The LTS provided BC Hydro with two traditional use studies, both of which indicated Kwaikah territory is outside of the Project area. Tslowitsis confirmed that it had received information about the Project provided by BC Hydro in 2007 but did not assert any rights or title in the Project area or indicate a desire to be consulted.

The evidence does not indicate that BC Hydro specifically notified Homalco, Kwaikah, Mowachaht/Muchalaht, or Tlowitsis of the Application, or provided them with copies of it.

However, notice of the Application and all exhibits were made public.

All First Nations potentially impacted by the Project had the opportunity to register as Interveners and submit evidence of their Aboriginal rights or title to the Commission and to engage in consultation with BC Hydro on those matters. Not having received any information to the contrary, the Commission Panel finds, in regards to the Project, that BC Hydro has, to the extent it was required, adequately consulted Hamalco, Mowachaht/Muchalaht, Kwaikah, and Tlowitsis.

10.3 Did BC Hydro Fulfill its Duty to Consult with WWK, CRIB and K'ómoks?

10.3.1 Consultation Conducted

On March 22, 2007, BC Hydro sent letters to WWK, CRIB, and K'ómoks notifying them of the proposed Project and initiating the consultation process. From March 2007 to January 2011 BC Hydro met with WWK and CRIB separately, and from January 2011 onward met with them collectively at the First Nations' request. During that same time period BC Hydro met with K'ómoks separately.

BC Hydro submits that through the series of meetings and correspondence beginning in 2007, it provided WWK, CRIB and K'ómoks with information and updates about the Project and Project Alternatives. BC Hydro informed each First Nation of the Environmental Assessment program, provided various technical studies and environmental reports, and sought their feedback on potential impacts and mitigation measures. BC Hydro also submits that it discussed training, employment, and procurement options with each First Nation on numerous occasions. (Exhibit B-1, pp. 5-25 to 5-44)

BC Hydro notified WWK, CRIB, and K'ómoks of the Application in February 2012, and provided all three First Nations with a draft of the Application in May 2012, prior to filing the Application on May 25, 2012. WWK and CRIB jointly registered as interveners in the Proceeding while K'ómoks did not.

10.3.1.1 Capacity Funding Agreements

BC Hydro entered into Capacity Funding Agreements with WWK, CRIB, and LTS³ in 2008, 2011, and 2012 to ensure the First Nations “had the resources to participate in the consultation process, to review technical information, and provide meaningful feedback on the nature and extent of potential Project impacts to [their] asserted Aboriginal rights and title.” (Exhibit B-1, p. 5-32) The funding was also provided to support environmental and technical review activities, and for WWK and CRIB to complete studies on traditional use, Aboriginal interest and use, and archaeology. (Exhibit B-1, p. 5-43)

BC Hydro finalized Capacity Funding Agreements with K’ómoks in 2008, 2010, and 2011 to continue ongoing consultation, enhance long-term capacity building, and conduct a traditional use study.

10.3.1.2 Impact Benefit Agreements

Beginning in January 2011 BC Hydro worked on negotiating Impact Benefit Agreements (IBA) with the First Nations. WWK and CRIB indicated that they would negotiate for an IBA collectively and the parties reached an agreement on June 22, 2012. (Exhibit B-3, p. 1; Exhibit B-4, BCUC 1.107.1) BC Hydro reached an Impact Benefit Agreement with K’ómoks on September 13, 2012. (Exhibit B-6, BCUC 2.37.1)

10.3.1.3 Adequacy of Consultation

On June 25, 2012 CRIB submitted a letter of support to the Commission indicating that CRIB supports the Project and consents to the issuance of a CPCN. The letter also explicitly states:

“the Campbell River Indian Band confirms that it has been adequately consulted and accommodated with respect to its asserted aboriginal rights and title in respect of the John Hart Project.” (Exhibit C3-3, p. 1)

³ LTS was only party to the 2011 and 2012 Agreements.

WWK submitted a similar letter of support on June 27, 2012. (Exhibit C3-4)

On September 6, 2012, K'ómoks also submitted a letter of comment in the Proceeding, in which it confirmed its support of the Project, the issuance of the CPCN, and the adequacy of consultation with respect to its rights (Exhibit E-7).

BC Hydro submits that the two Impact Benefit Agreements, along with the letters of support from WWK, CRIB, and K'ómoks are conclusive evidence that consultation with each First Nation has been adequate to the point of the CPCN decision. (BC Hydro Final Submission, p. 10)

10.3.2 Commission Determination

The Commission Panel finds that BC Hydro's consultation with WWK, CRIB, and K'ómoks has been adequate to this point because each of the First Nations agrees that it has been adequately consulted and accommodated with respect to asserted Aboriginal rights and title in respect of the Project.

11.0 PUBLIC ENGAGEMENT

The Facility is located within the city limits of Campbell River and is used by the community for recreation, drinking water supply, and fire suppression, making community as well as public consultation imperative in BC Hydro's opinion. (Exhibit B-1, p. 5-71)

BC Hydro submits that it engaged with the public at the local government, individual, and community levels, as follows:

- Individuals of the general public were engaged through open invitations to workshops and open houses;
- Local governments were engaged through meetings between BC Hydro and the City's Mayor and Council, as well as city staff;
- The community was engaged through two committees: the Liaison Committee (established in the Fall of 2007); and the Recreation Advisory Committee (established in December 2008).

At the time the Application was filed, the Liaison Committee had 23 members, consisting of representatives from various federal and provincial ministries, representatives of municipal and regional district interests, environment and recreation groups, industry representatives, and individual stakeholders. The members of the Liaison Committee also participated in the Recreation Advisory Committee, along with additional members representing environmental organizations, and local recreation and eco-tourism businesses and interest groups. (Exhibit B-1, p. 5-72)

11.1 Engagement Methods

BC Hydro submits that it conducted five presentations regarding the Project to the Mayor and Council of Campbell River, and also gave the Council a tour of the site. (Exhibit B-1, p. 5-72) BC Hydro had 13 meetings with the Liaison Committee between 2007 and 2012, and seven meetings with the Recreation Advisory Committee before it merged with the Liaison Committee in 2011. (Exhibit B-1, p. 5-72)

BC Hydro submits that it communicated and engaged with local organizations and members of the public through “site visits, local newspaper advertisements and articles, newsletters, presentations, the BC Hydro web site, e-mails and personal communications with Project staff.” (Exhibit B-1, p. 5-73)

11.2 Issues Raised

BC Hydro submits that any issues raised with respect to the Project are solely related to construction phase impacts. BC Hydro grouped these issues into seven categories: 1) Campbell River access from BC Hydro property; 2) Canyon View Trail use; 3) domestic water supply to the City; 4) interpretive site plan; 5) the condition and use of Brewster Lake Road Bridge, and access across Brewster Lake Road and to the Park; 6) potential fish habitat impacts and flows around First Island; and 7) economic opportunities during construction. (Exhibit B-1, p. 5-75)

11.2.1 Mitigation of Concerns

BC Hydro submits that it has committed to a number of mitigation measures to address the concerns of local governments, stakeholders and the public. These mitigation measures include, but are not limited to:

- providing continued access to local government and river-based tourism companies to the Campbell River on a best-effort basis throughout construction;
- providing continued public access to the Campbell River in the upper part of BC Hydro’s property after construction;
- installing safety and interpretive signage along trails on its property;
- creating an access road to mitigate the closure of the Brewster Lake Road during construction;
- upgrading or replacing the Brewster Lake Road Bridge in the years following Project construction; and
- introducing local businesses to the three proponents competing for the Project.

BC Hydro collaborated with the City of Campbell River to come up with a solution with respect to the City's domestic water supply. BC Hydro submits that the City agreed that a separate City intake into John Hart Reservoir was the preferred solution. The City has accepted BC Hydro's funding contribution proposal to provide 75 percent, up to a cap of \$12.5 million, of the funding required for the relocation of the City water withdrawal infrastructure. (Exhibit B-4, BCUC 1.81.1)

11.3 Expressed Support

Various local government and stakeholder organizations have written letters in support of the Project, as follows:

- Campbell River City Mayor and Council (Exhibit B-1, Appendix I-1, pp. 2-5);
- Strathcona Regional District Board (Exhibit B-1, Appendix I-1, p. 6);
- Campbell River and District Chamber of Commerce (Exhibit B-1, Appendix I-1, pp. 7 to 8);
- B.C. Chamber of Commerce (Exhibit B-1, Appendix I-1, p. 9);
- Claire Trevena, MLA for North Island (Exhibit B-1, Appendix I-1, p. 10);
- Campbell River Environmental Committee (Exhibit B-1, Appendix I-1, pp. 11-12);
- Campbell River Salmon Foundation (Exhibit B-1, Appendix I-1, pp. 13-15);
- Greenways Land Trust (Exhibit E-1);
- North Island College (Exhibit E-2);
- Vancouver Island Construction Association (Exhibit E-3);
- Vancouver Island Economic Alliance (Exhibit E-4);
- Campbell River Economic Development Corporation (Exhibit E-5); and
- Rotary Club of Campbell River (Exhibit E-6).

BC Hydro submits that there has been no opposition to the Project from the public. (Exhibit B-1, p. 5-75)

11.4 Commission Determination

The Commission Panel finds that overall public consultation efforts have been adequate to date.

The Commission's Public Consultation Guidelines have been followed in that: stakeholders who may be directly impacted by the Project have been identified; information and consultation programs have been undertaken with them; their issues and concerns have been identified; measures to address these have been indicated or explanations provided as to why no further action is required; outstanding issues and concerns have been identified; and BC Hydro has committed to address these as the Project proceeds.

12.0 CONCLUSIONS AND COMMISSION PANEL DETERMINATIONS

After having carefully considered and weighed the evidence on the record and submissions of all parties participating in the proceeding, the Commission Panel concludes that the John Hart Generating Station Replacement Project is needed to address safety, environmental, reliability, and financial risks. For the reasons given in this Decision, we find that the Project is necessary and in the public interest. It is consistent with Amended SD 10, Section 6(2) and BC's energy objectives, and it is the most cost-effective long term solution. We find that First Nations consultation has been adequate to the date of this Decision. We also find that public engagement has been sufficient.

Subject to the directives contained in this Decision and the related Order, **the Commission Panel grants BC Hydro a CPCN for the John Hart Generating Station Replacement Project as set out in the Application.**

In the Decision the Panel has made a number of specific determinations and directives. These are summarized below.

Overall

The Commission Panel finds that the John Hart Generating Station Replacement Project is necessary and in the public interest as it is the most cost-effective long term solution. Subject to the directives contained in this Decision and the related Order, the Commission Panel grants BC Hydro a CPCN for the John Hart Generating Station Replacement Project.

Legislative Authority

The Commission Panel determines that the test of:

- 1. Whether or not the project will meet a demonstrated need, and**
- 2. Whether or not the project has been shown to be cost effective in meeting the need is the standard that continues to apply in assessing the merits of the Project.**

The Commission concurs that these four BC energy objectives are to be considered when assessing the merits of the Project:

1. The legislated requirement for BC Hydro to be energy self-sufficient;
2. The 93 percent clean or renewable energy generation target;
3. The need to ensure that BC Hydro ratepayers receive the benefits of the Heritage Assets;
and
4. The legislated greenhouse gas targets.

The Commission Panel determines that there has been insufficient evidence provided during the proceeding to make decisions in regard to BC energy objectives:

- (f) ensuring that the utility's rates remain among the most competitive in North America,
and
- (m) maximizing the value of British Columbia's generation and transmission assets for the benefit of BC.

The Commission Panel determines that CEABC had every opportunity to bring forward its concerns in the written hearing process. It did not do this. CEABC did not need to wait until Final Submissions to raise its concerns.

Need for the Project

The Commission Panel determines that the need for the Project has been established for safety, environmental, reliability and financial reasons. This conclusion is fully consistent with the requirements of Amended SD 10, Section 6(2) and BC's energy objectives.

Alternatives to the Project

The Commission concurs with BC Hydro that the Status Quo, Standalone Bypass, Derating, and Decommissioning Alternative D are not viable alternatives to the Project because of the technical, regulatory, and environmental concerns they would create.

The Commission Panel determines that the Project is the most cost-effective and viable alternative to address the seismic, safety, environmental, reliability, and financial risks that give rise to the Project. It agrees with BC Hydro that Rehabilitation, Staged Replacement and Decommissioning Alternatives B, B2, B3 and C are not viable alternatives to the Project because they are less cost-effective.

Alternative Means of Carrying Out the Project

Water Conveyance System

The Commission Panel concurs with BC Hydro that the Preferred Water Conveyance Alternative with a hard rock tunnel is appropriate because it better addresses seismic risks associated with liquefaction than water Conveyance Alternative 1, and provides optionality with respect to future dam seismic work.

Powerhouse and Generation Equipment

The Commission Panel concurs with BC Hydro that the Preferred Powerhouse Alternative with three generating units is superior to the alternatives assessed because of its reduction in powerhouse size and equipment maintenance requirements, and because it allows adequate redundancy, flexibility for maintenance, better flow control, and the ability to operate near peak efficiency year round.

The Commission Panel is satisfied with BC Hydro's proposal on the powerhouse location which is yet to be chosen. Based on the environmental assessment studies we accept that none of the south, north, or centre options considered will have significant adverse environmental effects on fish or fish habitat. We accept that a final location will be based on economic and environmental considerations as the Project proceeds, and that it will be near the existing powerhouse.

Procurement Methodologies

The Commission Panel concurs with not pursuing DBFO and DBB procurement methodologies because of the need for BC Hydro to maintain operational responsibility for the John Hart Facility as part of the overall Campbell River System, and because of warranty considerations.

Project Costs

DBFR Methodology

The Commission Panel approves the use of the DBFR procurement strategy proposed by BC Hydro. Given the lack of experience with this methodology the Commission will require enhanced reporting requirements as set out in Section 6.10

Approved Project Cost

The Commission Panel approves a Project cost of \$940 million.

The Commission Panel further orders that in the event there is a cost over-run for the Project above the \$940 million amount approved by the Commission in granting the CPCN, the onus is on BC Hydro to provide evidence that clearly justifies any cost increase above this level before such costs are allowed to be considered for recovery in rates.

The Commission Panel finds it appropriate to include the adjustments for decommissioning costs and for capacity in the UEC analysis.

The Commission Panel finds that there has not been evidence placed on the record that substantiates the assertions by CEABC regarding differing cost factors in the future. The Commission Panel recognizes that there is uncertainty in forecasting the future costs of alternative energy sources but finds that the approach taken by BC Hydro is a reasonable one.

Based on the NPV and UEC comparative analyses prepared by BC Hydro the Commission Panel finds that the Project is the most cost-effective means to provide the required energy and capacity.

Approved Project Agreement

The Commission Panel directs BC Hydro to file with the Commission a copy of the Project Agreement contract with the successful proponent within two weeks of finalizing the contract. The Commission will consider whether the contract is in accordance with the Application and the approvals set out in this Decision.

Project Reporting

The Commission Panel provides the following directions to BC Hydro with respect to reporting:

- Following BC Hydro Board approval of the Project Agreement and no later than the Fall of 2013 BC Hydro is to host a workshop with interveners of this proceeding and with BCUC staff to develop a detailed methodology of semi-annual reporting. The methodology developed must be submitted to the Commission for approval no later than December 1, 2013.
- BC Hydro will provide semi-annual progress reports in the form approved by the Commission.
- During the 15 year availability term, the semi-annual reports should specify at a minimum the amounts paid under the Project Agreement, and the amounts and reasons for any deductions made to availability payments.
- BC Hydro, either concurrently with the semi-annual report workshop or in a separate workshop, is to host a workshop with interveners of this proceeding and with BCUC staff to develop a detailed methodology for the final report to be filed with the Commission upon Project completion. The methodology developed is to be submitted to the Commission for approval.
- The final report should include an assessment of the DBFR methodology relative to a DBB approach, lessons learned in implementing the Project, and recommendations for the use of DBFR in future projects. The methodology developed is to be submitted to the Commission for approval.

Project Schedule

Once the Project Agreement has been finalized BC Hydro is directed to prepare and file a Project Schedule with the Commission.

Intervener Alternatives

The Commission Panel determines that it will give no weight to the need for plans as proposed by CEABC in its assessment of the Project and alternatives. Furthermore, no weight is given to the option to the Project proposed by CEABC in its Final Submission.

For reasons of natural justice and fairness, the Commission Panel determines that CEABC has not provided adequate evidence on the record that BC Hydro's UEC analysis is sufficiently deficient to deny a CPCN for the Project.

The Panel declines to make a determination on the issue raised by the CEC regarding SD 10, Part 3, Section 14 in this Decision. Since the Panel has determined that the statutory requirements of the *UCA* and Amended SD 10, Section 6(2) have been met, and that the Project is the most cost effective alternative, it is unnecessary to rule on the statutory interpretation issue raised by the CEC.

The Commission Panel determines that there is not sufficient evidence on the record to give weight to the alternative proposed by Mr. Aikman to deny the CPCN requested by BC Hydro for the Project.

Issues Raised by Intervenors Supporting the Project

No direction is provided to BC Hydro regarding its capital structure at this time.

Risks and Risk Management

With the issuance of this Decision the Commission Panel finds that the Definition Phase risks are largely eliminated.

The Commission Panel finds the risk of obtaining a qualified proponent is low. Given the requirement for BC Hydro to file a copy of the executed Project Agreement with the Commission to consider whether it is in accordance with the terms of the CPCN, the Panel sees a minimal risk with respect to the Affordability Ceiling.

Subject to the review of the executed Project Agreement, the Commission Panel finds that the implementation phase risks are acceptable for a project of this nature and that the mitigation plans proposed by BC Hydro are reasonable.

The Commission Panel finds that the operational phase risks associated with the Project are acceptable, especially when the effect is, for the most part, to reduce risks relative to those related to the existing facility. While the impact of climate change may be an ongoing issue to be dealt with by energy providing facilities, the Commission Panel does not find that the issues warrant further studies or actions prior to the awarding of the CPCN for this Project.

First Nations Consultation

The Commission Panel finds that BC Hydro correctly identified WWK, CRIB, K'ómoks, and Homalco as First Nations that have asserted Aboriginal rights and/or title in the Project area.

The Commission also finds that BC Hydro made reasonable attempts to identify other First Nations or Aboriginal groups that might potentially be impacted by the Project, and concludes that BC Hydro has adequately consulted those First Nations or Aboriginal groups with respect to the Project.

The Commission Panel finds that BC Hydro's consultation with WWK, CRIB, and K'ómoks has been adequate to this point because each of the First Nations agrees that it has been adequately consulted and accommodated with respect to asserted Aboriginal rights and title in respect of the Project.

Public Engagement

The Commission Panel finds that overall public consultation efforts have been adequate to date.

DATED at the City of Vancouver, in the Province of British Columbia, this 8th day of February 2013.

Original signed by:

M.R. HARLE
PANEL CHAIR/COMMISSIONER

Original signed by:

N.E. MACMURCHY
COMMISSIONER

Original signed by:

R.D. REVEL
COMMISSIONER



**BRITISH COLUMBIA
UTILITIES COMMISSION**

**ORDER
NUMBER C-2-13**

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

and

An Application by British Columbia Hydro and Power Authority
for Approval of the John Hart Generating Station Replacement Project

BEFORE: M.R. Harle, Panel Chair/Commissioner February 8, 2013
N.E. MacMurchy, Commissioner
R.D. Revel, Commissioner

CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

WHEREAS:

- A. On May 25, 2012, British Columbia Hydro and Power Authority (BC Hydro) applied (the Application) pursuant to subsection 46(1) of the *Utilities Commission Act* (the Act) for a Certificate of Public Convenience and Necessity (CPCN) to construct and operate the John Hart Generating Station Replacement Project (Project) as described in the Application;
- B. The Project is located at the existing John Hart Dam and Generating Station (John Hart Facility) located on the Campbell River on Vancouver Island. The John Hart Facility was originally brought into service between 1947 and 1953. There is no flow bypass facility, and the John Hart water conveyance system and powerhouse have seismic deficiencies which require remediation to mitigate public and employee safety, financial, and environmental risks. The age and condition of the existing generator units at the John Hart Facility represent a significant and increasing risk to reliability;
- C. The Project has two main components: (1) the replacement of most of the existing water conveyance system. Except for the surge towers, the water conveyance system will be replaced with an underground tunnel which will have a replacement intake located on bedrock at the existing main concrete dam. The surge towers may be retained and connected to the tunnel. A flow bypass facility will be installed to provide replacement to the Campbell River should there be insufficient flow from the replacement powerhouse; and (2) the replacement of the existing six unit powerhouse with a three unit powerhouse with a dependable capacity of 128 megawatts;
- D. The Project has an Expected Amount of \$1,014.3 million, referenced on a Design-Bid-Build (DBB) P50 estimate that includes costs to date. The Project has an Expected Amount of \$940 million, referenced on a Design-Bid-Finance-Rehabilitate (DBFR) P50 estimate. The Project has an expected in-service date of November 2018;
- E. By Order G-68-12 dated May 28, 2012, the British Columbia Utilities Commission (the Commission) established a Written Public Hearing process for the review of the Application having two rounds of Information Requests according to the Regulatory Timetable as set out in Appendix A to that Order;

**BRITISH COLUMBIA
UTILITIES COMMISSION**

**ORDER
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- F. On August 24, 2012, the Commission notified Registered Interveners that a Procedural Conference would be held on September 26, 2012 in Vancouver BC;
- G. On September 21, 2012, BC Hydro advised the Commission that it had canvassed all remaining Registered Interveners on the need for a Procedural Conference. BC Hydro advised that all five of BC Hydro's customer interveners will not be submitting evidence, that they see no need for a third round of information requests and consequently do not see a need for a Procedural Conference. BC Hydro further stated that Mr. Aikman, a BC Hydro customer, advised that he had "no objection to proceeding directly to legal arguments." However, Clean Energy Association of British Columbia (CEABC), representing independent power producers, and Mr. Alan Wait, a private ratepayer of FortisBC Inc., are of the view that a Procedural Conference was necessary;
- H. BC Hydro submitted that a Procedural Conference was not needed on the basis that: (1) no intervener has indicated it intends to file evidence; (2) a third round of information requests was not necessary; and (3) that disagreements can and should be addressed through Final Submissions, subject to BC Hydro following up with CEABC regarding the adequacy of a tunnel related response;
- I. By letter dated September 21, 2012, the Commission advised all Registered Interveners that it had considered BC Hydro's letter regarding the need for a Procedural Conference, and concluded that the Procedural Conference scheduled for September 26, 2012 was not required and therefore was cancelled;
- J. By Order G-138-12 dated October 2, 2012, the Commission approved BC Hydro's request for a revised Regulatory Timetable as set out in Appendix A to that Order;
- K. Final and Reply Submissions were made by November 22, 2012 in accordance with the revised Regulatory Timetable; and
- L. The Commission has reviewed and considered the Application, the evidence and the submissions presented on the Application, and has determined, as set out in the Decision issued concurrently with this Order, that the Project is in the public interest and that a Certificate of Public Convenience and Necessity should be issued to BC Hydro for the Project, subject to the conditions and directions set out in this Order.

NOW THEREFORE pursuant to section 46 of the *Utilities Commission Act* the Commission orders as follows:

1. A Certificate of Public Convenience and Necessity is granted to BC Hydro for the Project as set out generally in the Application.
2. The Certificate of Public Convenience and Necessity is granted for a maximum amount of \$940 million based on the Design-Bid-Finance-Rehabilitate P50 Expected Amount, and having an in-service date for total project completion of November 2018.
3. BC Hydro shall not obtain a recovery through rates of any cost overrun exceeding \$940 million until the Commission determines whether those costs have been incurred prudently or, alternatively, determines that a prudency review could be waived because that waiver is in the public interest and is otherwise in accordance with the *Utilities Commission Act*.

**BRITISH COLUMBIA
UTILITIES COMMISSION**

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4. BC Hydro is to file with the Commission a copy of the Project Agreement contract with the successful Proponent within two weeks of finalizing the contract.
5. BC Hydro is directed to comply with the following Commission directives with respect to reporting:
 - Following BC Hydro Board approval of the Project Agreement and no later than the Fall of 2013 BC Hydro is to host a workshop with interveners of this proceeding and with BCUC staff to develop a detailed methodology of semi-annual reporting. The methodology developed must be submitted to the Commission for approval no later than December 1, 2013.
 - BC Hydro will provide semi-annual progress reports in the form approved by the Commission. The semi-annual progress reports will be filed within 45 days of the end of each reporting period.
 - During the 15 year availability term, the semi-annual reports should specify, at a minimum, the amounts paid under the Project Agreement, and the amounts and reasons for any deductions made to availability payments.
 - BC Hydro, either concurrently with the semi-annual report workshop or in a separate workshop, is to host a workshop with interveners of this proceeding and with BCUC staff to develop a detailed methodology for the final report to be filed with the Commission upon Project completion. The methodology developed is to be submitted to the Commission for approval.
 - The final report should include an assessment of the Design-Bid-Finance-Rehabilitate methodology relative to a Design-Bid-Build approach, lessons learned in implementing the Project and recommendations for the use of Design-Bid-Finance-Rehabilitate in future projects. The methodology developed is to be submitted to the Commission for approval. The final report will be filed within six months of the end or substantial completion of the Project. The final report is to include a complete breakdown of the final costs of the Project, a comparison of these costs to the DBFR P50 Expected Amount set out in the Application, and an explanation and justification of all material cost variances.
6. BC Hydro is directed to prepare and file with the Commission a Project Schedule once the Project Agreement has been finalized.

DATED at the City of Vancouver, in the Province of British Columbia, this 8th day of February 2013.

BY ORDER

Original signed by:

Michael R. Harle
Panel Chair/Commissioner

BACKGROUND AND REGULATORY PROCESS

The Applicant

BC Hydro is a Crown Corporation established in 1962 under the *Hydro and Power Authority Act*. Among other things, BC Hydro is mandated to upgrade its power sites. BC Hydro is charged with the responsibility of owning and operating the generation and storage Heritage Assets set out in Schedule 1 to the *Clean Energy Act*, including the John Hart Facility.

BC Hydro is an agent of Her Majesty the Queen in right of the Province of BC. BC Hydro has the financial capacity to undertake the Project and other large projects by means of: borrowing guaranteed by the Province, borrowing directly from the Province, and by funds generated internally from the operation of its business. Moody's Investors Service and Standard & Poor's Corporation rated BC Hydro bonds as Aaa and AAA, respectively. Dominion Bond Rating Service rates BC Hydro as AA High.

BC Hydro has been responsible for the planning, design and construction of generation facilities since 1962. Between 2007 and 2012, BC Hydro placed six generation facility upgrades into service, each of which had a capital cost of over \$50 million. These projects are: Revelstoke Unit 5; Mica Generator Stator Replacement (Units 1-4); Peace Canyon Generator Stator Replacement and Rotor Modification; Aberfeldie Redevelopment; Coquitlam Dam Seismic Improvement; and Fort Nelson Generating Station Upgrade. The final project costs for these projects ranged from \$64.9 million to \$242.6 million with a total of \$724.3 million.

The Project team is composed of full time BC Hydro employees and consultants who have extensive experience in all aspects of project delivery for major hydroelectric facilities from design through to completion. Their collective experience includes past BC Hydro projects, as well as major hydroelectric and other capital projects prior to joining BC Hydro. BC Hydro retained the services of consultants to provide advice on various aspects of the Project, including technical expertise for infrastructure development, cost and project monitoring, procurement, and ground engineering and earth science, as well as expertise on alternatives analysis, environmental services, and First Nations consultation.

The Order Sought

BC Hydro requests that a Certificate of Public Convenience and Necessity (CPCN) be granted for the Project as proposed because among other things: (1) the Project aligns with and advances several of "British Columbia's energy objectives" set out in Section 2 of *the Clean Energy Act*; and (2) the Project is in the interests of persons in BC who receive or who may receive service from BC Hydro. Applying for a CPCN for the Project is consistent with BC Hydro's Capital Project Filing Guidelines. The rationale for applying for a CPCN for the Project pursuant to subsection 46(1) of the *Utilities Commission Act (UCA)* is as follows:

- The John Hart Generating Station has been in operation since 1947. As a result, pursuant to subsections 45(2)(a) and (b) of the *UCA*, BC Hydro has a deemed CPCN to operate the John Hart Generating Station, and to construct and operate 1 extensions to the John Hart Generating Station such as the Powerhouse Work.
- However, due to its condition the powerhouse must either be replaced, or decommissioned and replaced with another electricity resource. Replacing the powerhouse through the Project would result in an increase in the equipment efficiency and energy amount of approximately 57 GWh/year for a total of 835 GWh/year of average energy and an increase of 7 MW of dependable capacity for a total of 128 MW of dependable capacity. The replacement of the powerhouse is an “extension” as that term is used in section 45 of the *UCA* for these two reasons – facility requiring either replacement or replacement with another electricity resource, and an increase in capacity rating and energy generation.
- The Water Conveyance Work is driven by seismic/safety issues and will not increase the capacity rating or energy generation of the John Hart Facility, and therefore is not an extension.
- BC Hydro is filing for a CPCN for the entire Project because: (1) the BC Hydro Board of Directors approved the Project as a whole and not on a component-by-component basis; (2) the Powerhouse Work and Water Conveyance Work are inter-related.

BC Hydro seeks the CPCN on the basis of, amongst other things, the Expected Amount. This is also consistent with the Guidelines, as the Guidelines provide that the form of the Board authorization informs the Application. On February 23, 2012, the Board approved proceeding with the Project in accordance with the materials provided, that were based on the Expected Amount, and supported filing the CPCN Application with the British Columbia Utilities Commission. The Board resolution requires management to return to the Board for approval of: (1) the procurement-related Affordability Ceiling. The Board approved the Affordability Ceiling on May 16, 2012.

BC Hydro is seeking an order granting a CPCN to BC Hydro for the Project as described in the Application and as informed by the evidentiary record of the CPCN proceeding.

In past CPCNs and section 44.2 *UCA* capital expenditure schedule filings, BC Hydro has offered and the BCUC has accepted reporting obligations as a condition, and in particular the filing with the BCUC of semi-annual project progress reports followed by a final report. One of the issues in the FortisBC Inc. Kettle Valley Project prudency review is whether such reports can be used as evidence of prudency in Revenue Requirement Applications or other prudency reviews. BC Hydro will propose a reporting regime once the outcome of the Kettle Valley Project prudency review is known. A reporting regime would likely consist of the following:

- If the procurement process described in the Application results in a successful proponent, the semi-annual progress reports would track payments to the successful proponent against the successful proponent's bid, and also report on BC Hydro's owner costs.
- The final report would include a breakdown of all final costs of the Project.

The semi-annual progress report and the final report format would be determined by BC Hydro in consultation with BCUC staff, or by determination of the BCUC Panel.

The Regulatory Process

On May 28, 2012, Commission Order G-68-12 established a Written Public Hearing and Regulatory Timetable for the review of the Application consisting of two rounds of Information Requests. On August 16, 2012, BC Hydro requested an extension for filing of responses to Round 2 Information requests and a proposed rescheduling of a Procedural Conference. On August 24, 2012, the Commission Panel approved the requested extensions in order to allow BC Hydro sufficient time to liaise with interveners on the need for a Procedural Conference. On September 20, 2012, BC Hydro advised the Commission that it had liaised with Intervener Ratepayer Groups and concluded that a Procedural Conference was not required. On October 2, 2012, the Commission issued Order G-138-12 establishing the final Regulatory Timetable. The milestone dates are summarized below:

ACTION	DATE
Filing of Application	Friday, May 25, 2012
Intervener/Interested Party Registration	Tuesday, June 5, 2012
Commission Information Request No. 1	Wednesday, June 20, 2012
Intervener Information Requests No. 1	Wednesday, June 27, 2012
Participant Assistance/Cost Award Budget Submissions	Friday, July 6, 2012
BC Hydro Response to Information Requests No. 1	Monday, July 23, 2012
Commission and Intervener Information Requests No. 2	Friday, August 10, 2012
BC Hydro Request for Extension for Information Request 2 Response	Thursday, August 16, 2012
Commission Allows Requested Extension	Friday, August 24, 2012
BC Hydro Responses to Information Requests No. 2	Thursday, September 13, 2012
BC Hydro Final Submissions	Thursday, October 11, 2012
Intervener Final Submissions	Thursday, November 1, 2012
BC Hydro Reply Submissions	Thursday, November 22, 2012

LIST OF ACRONYMS

ABP	Adjusted Bid Price
AMPC	Association of Major Power Customers of British Columbia
Application	Application for Certificate of Public Convenience and Necessity for the John Hart Generating Station Replacement Project
BC	British Columbia
BC Hydro	British Columbia Hydro and Power Authority
BCPSO, BCOAPO	British Columbia Pensioners' and Seniors' Organization, previously the British Columbia Old Age Pensioners Organization
BCRUCA	British Columbia Residential Utility Customers Association
BCSEA	BC Sustainable Energy Association and Sierra Club British Columbia
BCUC, Commission	British Columbia Utilities Commission
Burrard	Burrard Thermal Generating Station
CDA Guidelines	Canadian Dam Association's Dam Safety Guidelines
CEA	Clean Energy Act
CEAA	Canadian Environmental Assessment Act
CEABC	Clean Energy Association of British Columbia
CEC	Commercial Energy Consumers Association of British Columbia
City	City of Campbell River
COH	Capital Overhead
CPCN	Certificate of Public Convenience and Necessity
CRIB	Campbell River First Nation (Wei Wai Kum)
Dam	John Hart Reservoir
DB	Design-Build
DBB	Design-Bid-Build
DBFO	Design-Build-Finance- Operate
DBFR	Design-Build-Finance-Rehabilitate
DFO	Fisheries and Oceans Canada
DSM	Demand Side Management
EA Report	Environmental Assessment Report
EHR	Equipment Health Ratings
EPA	Electricity Purchase Agreement

EV	electric vehicle
F2006 Call	F2006 Open Call for Power
GHG	greenhouse gas
IBA	Impact Benefit Agreement
IDC	interest during construction
ILM	Interior to Lower Mainland Transmission Reinforcement Project
IPP	Independent Power Producers
IRs	Information Requests
ISD	In Service Date
LNG	liquefied natural gas
LRB	Load/Resource Balances
MoE	B.C. Ministry of Environment
MWH	MWH Americas, Inc.
NBCC	National Building Code of Canada
NPV	Net Present Value
P50	Project cost Expected Amount
PMF	Probable Maximum Flood
Project	John Hart Generating Station Project
RFP	Request for Proposals
RFQ	Request for Quotations
ROR	Resource Options Report
the Facility	John Hart Facility
UCA	Utilities Commission Act
UEC	Unit Energy Cost
WWK	Cape Mudge First Nation (We Wai Kai)

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

and

British Columbia Hydro and Power Authority
John Hart Generating Station Replacement Project
Application for a Certificate of Public Convenience and Necessity (CPCN)

EXHIBIT LIST

Exhibit No.	Description
<i>COMMISSION DOCUMENTS</i>	
A-1	Letter dated May 28, 20 12 – Appointment of Commission Panel
A-2	Letter dated May 28, 2012 – Order G-68-12 Establishing Written Public Hearing and Regulatory Timetable
A-3	Letter dated June 20, 2012 - Issuing Commission Information Request No. 1 to BC Hydro
A-4	Letter dated August 13, 2012 - Issuing Commission Information Request No. 2 to BC Hydro
A-5	Letter dated August 13, 2012 - Issuing CONFIDENTIAL Commission Information Request No. 1 to BC Hydro
A-6	Letter dated August 24, 2012 – Granting a deadline extension for BC Hydro’s responses to the second round of Information Requests
A-7	Letter dated September 21, 2012 – Procedural Conference Cancelled
A-8	Letter dated October 2, 2012 – Order G-138-12 Issuing Regulatory Timetable
<i>COMMISSION STAFF DOCUMENTS</i>	
A2-1	Letter dated June 13, 2012 - Commission Staff filing Order in Council No. 036 dated February 2, 2012 Amendment to Electricity Self-Sufficiency Regulation, BC Regulation 315/2010

EXHIBIT NO.	DESCRIPTION
A2-2	Letter dated June 13, 2012 - Commission Staff filing Order in Council No. 035 dated February 2, 2012 Amendment to Special Direction No. 10 to the British Columbia Utilities Commission, BC Regulation 245/2007
A2-3	Letter dated August 13, 2012 – Commission Staff filing PMO Status Report Procedure and Guidelines
A2-4	Letter dated August 13, 2012 – Commission Staff filing PMO Project Status Report

APPLICANT DOCUMENTS

B-1	BRITISH COLUMBIA HYDRO AND POWER AUTHORITY (BCH) Letter dated May 25, 2012 - John Hart Generating Station Replacement Project Application for a Certificate of Public Convenience and Necessity (CPCN)
B-1-1	CONFIDENTIAL Letter dated May 25, 2012 - John Hart Generating Station Replacement Project Confidential Application for a Certificate of Public Convenience and Necessity (CPCN)
B-1-2	Letter dated July 24, 2012 – BCH Submitting Errata to the Application
B-2	Letter dated June 19, 2012 – BCH Submitting confirmation of compliance with Directives 2, 3 and 4 of BCUC Order No. G-68-12 (Exhibit A-2)
B-3	Letter dated July 9, 2012 – BCH Submission regarding an Impact Benefit Agreement with We Wai Kai Nation and Campbell River Indian Band
B-4	Letter dated July 23, 2012 – BCH Responses to BCUC Information Request No. 1
B-4-1	CONFIDENTIAL Letter dated July 23, 2012 – BCH CONFIDENTIAL Responses to BCUC Information Request No. 1
B-4-2	Letter dated July 23, 2012 – BCH Responses to Interveners Information Request No. 1
B-5	Letter dated August 16, 2012 – BCH Submission regarding filing date for Round 2 Information Responses and confidential IRs issued by BCUC as Exhibit A-5
B-6	Letter dated September 13, 2012 – BCH Responses to BCUC IR No. 2 (Exhibit A-4)

EXHIBIT NO.	DESCRIPTION
B-6-1	CONFIDENTIAL Letter dated September 13, 2012 – BCH CONFIDENTIAL Responses to BCUC IR No. 2 (Exhibit A-4)
B-7	Letter dated September 13, 2012 – BCH Responses to BCUC Confidential IR No. 2 Public Version (Exhibit A-5)
B-7-1	CONFIDENTIAL Letter dated September 13, 2012 – BCH CONFIDENTIAL Responses to BCUC Confidential IR No. 2 (Exhibit A-5)
B-8	Letter dated September 13, 2012 – BCH Responses to Interveners Information Request No. 2
B-8-1	CONFIDENTIAL Letter dated September 13, 2012 – BCH CONFIDENTIAL Responses to Interveners Information Request No. 2
B-8-2	Letter dated October 2, 2012 – BCH Supplemental Response to CEA IR 2.3.1
B-9	Letter dated September 21, 2012 – BCH Comments Regarding Need for Procedural Conference

INTERVENER DOCUMENTS

C1-1	AIKMAN, CHRIS (CA) Letter dated May 30, 2012 Via Email– Request for Intervener Status by Chris Aikman
C1-2	Letter Dated June 26, 2012 – CA Submitting Information Request No. 1
C2-1	B.C. SUSTAINABLE ENERGY ASSOCIATION (BCSEA) Letter dated June 4, 2012 Via Web – Request for Intervener Status by William J. Andrews
C2-2	Letter dated June 27, 2012 – BCSEA Submitting Information Request No. 1 to BCH
C2-3	Letter Dated August 11, 2012 – BCSEA Submitting Information Request No. 2
C3-1	CAPE MUDGE AND CAMPBELL RIVER FIRST NATIONS (CMCRFN) Letter dated June 4, 2012 and Online Registration – Request for Intervener Status by Hana Boye, Lou Villahermosa and Murray Browne
C3-2	Letter dated June 25, 2012 – Withdrawal of CMCRFN Intervention – Request by Hana Boye, Donovan and Company
C3-3	Letter dated June 25, 2012 – CRIB Submitting Letter of Support

EXHIBIT NO.	DESCRIPTION
C3-4	Letter dated June 27, 2012 – WWKN Submitting Letter of Support
C4-1	CITY OF CAMPBELL RIVER (CCR) Letter received June 4, 2012 and Online Registration – Request for Intervener Status by Ron Neufeld
C5-1	BRITISH COLUMBIA PENSIONERS’ AND SENIORS’ ORGANIZATION (BCPSO ET AL) (previously BC Old Age Pensioner Organization et al) Letter dated June 5, 2012 via Email – Request for Intervener Status by Leigha Worth, Eugene Kung and Bill Harper
C5-2	Letter dated June 27, 2012 – BCOAPO Submitting Information Request No. 1 to BCH
C5-3	Letter dated July 23, 2012 – BCOAPO Submitting notice of Name Change to British Columbia Pensioners’ and Seniors’ Organization (BCPSO)
C5-4	Letter Dated August 10, 2012 – BCPSO Submitting Information Request No. 2
C6-1	COMMERCIAL ENERGY CONSUMERS ASSOCIATION OF BRITISH COLUMBIA (CEC) Letter Dated June 5, 2012 – Request for Intervener Status by Christopher Weafer
C6-2	Letter dated June 27, 2012 – CEC Submitting Information Request No. 1 to BCH
C6-3	Letter Dated August 13, 2012 – CEC Submitting Information Request No. 2
C7-1	BC RESIDENTIAL UTILITY CUSTOMERS ASSOCIATION (BCRUCA) Letter Dated June 5, 2012 – Request for Intervener Status by Mike Carr
C7-2	Letter Dated June 26, 2012 – BCRUCA Submitting Information Request No. 1
C7-3	Letter Dated August 10, 2012 – BCRUCA Submitting Information Request No. 2
C8-1	WAIT, ALAN (AW) Online Registration Dated June 6, 2012 and Letter – Request for Intervener Status by Alan Wait
C8-2	Letter dated June 27, 2012 – AW Submitting Information Request No. 1 to BCH
C8-3	Letter Dated August 10, 2012 – AW Submitting Information Request No. 2
C9-1	ASSOCIATION OF MAJOR POWER CUSTOMERS (AMPC) Letter Dated June 7, 2012 – Request for Intervener Status by Brian Wallace, Matthew Keen, Richard Stout and Lloyd Guenther
C10-1	CLEAN ENERGY ASSOCIATION OF BC (CEA) Letter Dated June 14, 2012 – Request for Late Intervener Status by David Austin, Clark Wilson and Jim Weimer

EXHIBIT NO.	DESCRIPTION
C10-2	Letter dated June 27, 2012 – CEA Submitting Information Request No. 1 to BCH
C10-3	Letter Dated August 10, 2012 – CEA Submitting Information Request No. 2

INTERESTED PARTY DOCUMENTS

D-1	JOHN HART PROJECT PARTNERS (JHPP) Letter dated June 5, 2012 via Email – Request for Interested Party Status by Fernando Rodriguez-Lluesma and Lorne Sivertson
D-2	CAMPBELL, JAMES (JC) Letter dated June 3, 2012 via Facsimile – Request for Interested Party Status by Jim Campbell
D-3	GREENWAYS LAND TRUST (GLT) Online Registration and Letter dated June 20, 2012 – Request for Interested Party Status by Sandra Milligan

LETTERS OF COMMENT

E-1	Greenways Land Trust – Letter of Comment June 20, 2012
E-2	North Island College– Letter of Comment June 25, 2012
E-3	Vancouver Island Construction Association – Letter of Comment July 9, 2012
E-4	Vancouver Island Economic Alliance (VIEA) – Letter of Comment July 11, 2012
E-5	Campbell River Economic Development Corporation – Letter of Comment August 27, 2012
E-6	Rotary Club of Campbell River - Letter of Comment September 6, 2012
E-7	K'ómoks First Nation - Letter of Comment September 6, 2012
E-8	BC Parks - Letter of Comment October 2, 2012