ROBERT J. PELLATT
COMMISSION SECRETARY
Commission.Secretary@bcuc.com
web site: http://www.bcuc.com

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

Log No. 12027

VIA E-MAIL
info@SeaBreezePower.com

October 17, 2005

SEA BREEZE_VIC CPCN Exhibit A-2

Mr. Brian Chernak
President & CEO
Sea Breeze Pacific Regional Transmission System, Inc.
Lobby Box 91
#1400 – 601 West Hastings Street
Vancouver, B.C. V6B 5A6

Dear Mr. Chernak:

Re: Sea Breeze Pacific Transmission System, Inc. ("Sea Breeze")
Certificate of Public Convenience and Necessity Application
Vancouver Island Cable Project
Commission Information Request No. 1

Attached please find Commission Information Request No. 1 to Sea Breeze. Please provide a hard copy and an e-mail file in response. Please include a fully functional Excel spreadsheet wherever there is a request for a numerical calculation.

In accordance with Commission Order No. G-97-05, Sea Breeze is to respond by Monday, November 7, 2005.

Yours truly,

Original signed by:

Robert J. Pellatt

JBW/rt
Attachment
cc: Mr. James Griffiths, Project Manager
Sea Breeze Pacific Regional Transmission System, Inc.
Email: JamesGriffiths@SeaBreezePower.com

BCTC_VITR Intervenors

Mr. Marcel Reghelini, Director, Regulatory Affairs
British Columbia Transmission Corporation

Sea Breeze VIC Intervenors

Sea Breeze Pacific Regional Transmission System, Inc. ("Sea Breeze")
Certificate of Public Convenience and Necessity ("CPCN") Application
Vancouver Island Cable Project ("VIC")

1.0 Reference: VIC Application dated September 30, 2005, pp. 35-7

1.1 The VIC Application states that Sea Breeze is a 50/50 Joint Venture between Sea Breeze Power Corp. and Boundless Energy, LLC. Please provide a copy of the most recent Annual Reports and audited financial statement of each of the organizations.

1.2 Please provide an organization chart of Sea Breeze management, and for each individual identify the affiliation with Sea Breeze Power Corp., Boundless Energy, LLC or otherwise.

1.3 Further to Figure 2.1 showing the VIC Project Team, for each position please identify the affiliation with Sea Breeze Power Corp., Boundless Energy, LLC or otherwise. Where the incumbent is not affiliated with either of the joint venture partners, please identify if Sea Breeze has a firm contractual commitment from the party to provide services to VIC.

1.4 Please outline the owner's project management reporting structure that Sea Breeze intends to implement during the procurement/construction phase in order to manage project quality and cost.

1.5 Under the terms of the Sea Breeze joint venture, please identify the extent to which each joint venture partner is obliged to contribute funding, and the extent to which each partner is responsible for any and all financial obligations of Sea Breeze.

1.6 For each joint venture partner and other sources such as Energy Investors Fund, please identify the amount of funding that has been provided to Sea Breeze to date, and the amount of future funding that each has committed, without qualification, to provide.

2.0 Reference: VIC Application, pp. 35-6

2.1 The VIC Application states that Sea Breeze management is confident that, if a CPCN is granted for VIC, there will be no major difficulty in obtaining funding. Please explain whether Sea Breeze believes that a CPCN under Section 45 of the Utilities Commission Act ("UCA") is the unique significant condition precedent for arranging funding for VIC, and if so why it holds this view. If a CPCN is not the unique significant condition precedent, what others are there?

2.2 A CPCN under Section 45 would grant the proponent approval to construct and operate a public utility plant or system. Please explain whether Sea Breeze considers that approval of a CPCN for VIC provides it with any assurances with regard to the recovery of costs related to the project and, if it does, the basis for holding this view.

2.3 In the event that the Commission grants Sea Breeze a CPCN for VIC, what other Orders, if any, will Sea Breeze be seeking from the Commission with respect to requiring any party to use the VIC facility or denying approval of potentially competing transmission projects and enhancements [e.g. the Vancouver Island Transmission Reinforcement ("VITR") project]? Please explain why Sea Breeze believes that the Commission has the jurisdiction to make any such ancillary Order requiring parties to use the VIC facility.

3.0 Reference: VIC Application, pp. 40-2, 51-4, 70, 163-6, 170

3.1 On pages 40 and 41, Sea Breeze states that it "will be retaining" several consultants to do environmental assessments. For each of the Canadian and U.S. portions of the project, please provide the estimated cost of assessments and other work to obtain the necessary environmental approvals and the estimated cost of mitigation measures that are expected to be required.

3.2 Further to the brief discussion on page 170, please clarify whether mitigation costs are explicitly included in the project cost estimate, or simply have been assumed to be covered by the preliminary cost estimates for the Project.

3.3 Please explain why, considering that the consultants to do this work have not yet been retained, the Commission can have confidence in the related cost estimates in the VIC Application.

3.4 For environmental assessments, permitting and mitigation, please provide a P90 cost estimate (i.e. a cost estimate that has a 90 percent probability that the actual cost will not exceed it).

3.5 For each of Properties and First Nations, please provide the estimated costs that have been included in the project cost estimate, and explain how the estimated costs were arrived at. If the estimated costs are not P90 estimates, please provide the corresponding P90 estimates.

3.6 Where the VIC proposed route would be in lanes, streets or other municipal property, does Sea Breeze anticipate that it will be expected to pay fees under franchise or operating agreements with the municipalities through which it will pass? Why or why not? Please outline the discussions regarding franchise or operating fees that Sea Breeze has had to date with municipalities.

3.7 What amount of municipal franchise or operating fees has Sea Breeze included in the capital or annual cost of its project? How were these amount calculated?

3.8 The VIC application at pages 54 and 70 indicates that Sea Breeze plans to secure underground rights from private property owners to install (bury) cables within the Right of Way ("ROW"). Please provide the number of private property owners from which Sea Breeze will need to secure underground rights on existing ROWs.

3.9 Please provide the number of private property owners who do not currently have a transmission line ROW on their property, from which Sea Breeze will need to secure underground rights.

3.10 Please describe the consultation process that Sea Breeze has undertaken to date with the affected property owners.

3.11 In the event that Sea Breeze is unable to negotiate access for the routing of its project, will it expropriate access to the properties. If expropriation is necessary, what legislation would it proceed under, what conditions precedent would be necessary and how long would the process take?

3.12 Where Sea Breeze proposes to use an existing British Columbia Transmission Corporation ("BCTC")/British Columbia Hydro and Power Authority ("BC Hydro") right of way, please confirm that BCTC/BC Hydro holds the right to install additional circuits, and to install the circuits underground.

3.13 On pages 51 and 52, Sea Breeze proposes a route that utilizes existing BC Hydro, BCTC and municipal rights of way. Please describe the steps that Sea Breeze will need to take in order to gain rights to utilize those rights of way. Is there a risk that Sea Breeze will not be permitted to use any of the rights of way?

3.14 Please provide a copy of any documents from municipalities and the Ministry of Transport and Highways confirming that VIC lines can be placed in existing road rights of way.

4.0 Reference: VIC Application, pp. 57, 113, 114, 117

4.1 The VIC Application at page 57 states that the VIC cables could be installed by horizontal directional drilling ("HDD") from the north side of the Serpentine River to the south side of the Nikomel River. What installation cost was included in the VIC cost estimate for this section of the project, and what would be the impact on the project cost estimate if HDD were used for this section?

4.2 Please provide a summary of the soils investigation that Sea Breeze has undertaken for the Serpentine/Nikomel HDD crossing, and the results which confirm that the expected conditions are feasible for HDD.

4.3 Further to the very brief discussion on page 117, of the VIC Application, please repeat the foregoing question for the HDD at White Rock into Semiahmoo Bay.

4.4 What cost estimate and contingency for the White Rock HDD has Sea Breeze included in the VIC project cost estimate?

4.5 Sea Breeze anticipates reviewing geotechnical issues at the White Rock landfall site. Please provide a drawing showing the proposed landfall area and the transition from terrestrial to marine cable.

5.0 Reference: VIC Application, pp. 171-7

5.1 How did Sea Breeze estimate the 15 month construction schedule identified on page 171?

5.2 What is the status of the Terms of Reference under the BCEAO process for the VIC? When does Sea Breeze expect the draft Terms of Reference will be released, relative to the mid-October date shown on Figure 3.7.1?

6.0 Reference: VIC Application, pp. 178-181, 204

6.1 On page 178, Sea Breeze states it agrees with the position of BCTC, that there is a clear need for new transmission facilities providing additional reliable transmission capacity from the Mainland to Southern Vancouver Island. Please confirm that in Sea Breeze's view, the power supply deficiency lies on Vancouver Island and the primary requirement of the new transmission facilities is to carry power to the Island.

6.2 The VIC Application states that the Juan de Fuca Cable Project is well advanced and is scheduled to be operational as much as one year prior to VITR. On page 180, Sea Breeze states that either VIC or the Juan de Fuca Project will avoid the need for the VITR project until 2016. On page 178 of the VIC Application, Sea Breeze submits that the Vancouver Island transmission need is best served "by one or both of (Sea Breeze's) proposed projects. If the Juan de Fuca Cable Project is "well advanced" and is sufficient to meet the transmission need, why is Sea Breeze proposing VIC?

6.3 Please expand on how "well advanced" the Juan de Fuca Cable Project is, and when all necessary project approvals are expected.

6.4 The discussion on page 160 indicates that the VIC and Juan de Fuca projects are redundant until 2016, when they would become complementary. Please explain how Sea Breeze believes the Commission should deal with the VIC Application at this time, when Sea Breeze appears to be also actively pursuing the more-advanced Juan de Fuca Project.

6.5 Reports in the trade press have referred to the approval of the Juan de Fuca Project by the Federal Energy Regulatory Commission ("FERC") as a "merchant" transmission line. Please identify any significant conditions or sunset dates that are associated with the FERC approval.

6.6 Please provide a description of what is meant by a "merchant" transmission line, and explain how terms and conditions of service (including rates) are set for such a facility.

6.7 Please discuss whether FERC approval of the Juan de Fuca Project is likely to preclude FERC approval for a facility that could offer comparable, competing transmission service.

6.8 Reports have indicated that FERC evaluates merchant proposals on the basis of 10 criteria. Please identify these criteria.

6.9 Please clarify the statement on page 204 that "…when energized this project (Juan de Fuca) would come under the jurisdiction of the BCUC pursuant to the Province's legal definition of a 'utility'." Does Sea Breeze expect that the Commission will approve rates for the Juan de Fuca cable?

6.10 Please discuss whether Sea Breeze intends to hold an Open Season for VIC transmission rights. Why or why not?

6.11 Please discuss whether Sea Breeze is requesting Commission approval of a CPCN for the VIC Project on the basis that it will be a merchant transmission facility. Why or why not?

7.0 Reference: VIC Application, pp. 52-3, 73

7.1 On page 52, the VIC Application states "Four potential sites were considered for the converter station." Please supply a diagram showing the four potential sites at Ingledow Substation.

7.2 Further to the VIC Application, please clarify whether Sea Breeze is requested approval of Site A for the Ingledow converter. If the site selection for this converter is uncertain at this time, when will Sea Breeze advise of the selected site?

7.3 What is the estimated cost of the Ingledow converter site and the converter facilities?

7.4 Please provide the estimated interconnection costs to the Ingledow Substation, and confirm that these were provided by BCTC via an Interconnection Study. Otherwise, please outline the status of a BCTC Interconnection Study at Ingledow, and explain how the interconnection cost was estimated.

7.5 Further to the VIC Application at page 73, please clarify whether Sea Breeze is requested approval of Site B for the Pike converter. If the site selection for this converter is uncertain at this time, when will Sea Breeze advise of the selected site?

7.6 What is the estimated cost of the Pike converter site and the converter facilities?

7.7 Please provide the estimated interconnection costs to the Pike Substation, and confirm that these were provided by BCTC via an Interconnection Study. Otherwise, please outline the status of a BCTC Interconnection Study at Pike, and explain how the interconnection cost was estimated.

8.0 Reference: VIC Application, pp. 38, 45, 192, 199-207

8.1 The VIC Application at page 38 refers to ABB Inc. ("ABB") as the transmission and substation provider. Please identify the party that would be responsible for engineering design, procurement, and construction ("EPC") for each project component set out on page 45.

8.2 The VIC Application at page 199 estimates the EPC cost of VIC at $302 million, based on a turnkey project estimate from ABB. Please provide a copy of the information with regard to cost and schedule that Sea Breeze received from ABB.

8.3 To what extent was the ABB estimate based on VIC project-specific conditions? How did ABB obtain this information?

8.4 Please outline the process that would be used to turn the estimate into a fixed bid price for VIC with a fixed schedule and with penalties and liquidated damages, as described on page 192.

8.5 What range of cost estimate has ABB assured Sea Breeze that the fixed price would fall within, and when does the EPC contract need to be finalized to secure this bid price?

8.6 Is Sea Breeze prepared to take the risk on project costs above $302 million when setting customer rates? If not, what capital cost would Sea Breeze be prepared to accept as a basis for determining non-recoverable cost over-runs.

9.0 Reference: VIC Application, pp. 171-7, 182-196, 199-207, 230

9.1 Further to the cost estimate of $302 million for VIC on page 199, please identify the average cost per kilometer for underground cables and for submarine cables, compare these average costs to those in the VITR Application and explain why Sea Breeze believes its cost estimates are reasonable relative to those of BCTC.

9.2 Further to Table 4.3.1, if customers are expected to be responsible for the $22.6 million of Project Definition, and the $21.3 million of Additional Costs, please discuss whether the full estimated cost of VIC as applied for, is $345.9 million.

9.3 Please explain the basis of the $10 million contingency estimate, and why Sea Breeze believes this is an adequate contingency considering the current state of development of the project.

9.4 Page 45 of the VIC Application refers to a fiber optic cable as optional. Please identify the estimated cost of the fiber optic cable and clarify whether this cost is in the estimate on pages 199 and 201. Is the fiber optic cable included in the project for which the VIC Application seeks CPCN approval?

9.5 Please provide a schedule and graph showing actual and forecast monthly expenditures for the completion of VIC.

9.6 The VIC Application states at page 230 that Sea Breeze "expects to refine the proposed route in the coming months as a result of consultation and the environment assessment." Given the early state of consultation and route refinement, what probability does Sea Breeze assign to its project cost estimate?

9.7 Further to the VIC project cost estimate on page 201, please provide a P90 estimate and contingency amount that has 90 percent probability that the actual cost will not exceed this estimate.

9.8 Please describe why all seismic upgrades at Arnott Substation would be avoided.

9.9 Please describe the timing and the savings associated with the elimination of the synchronous condenser on Vancouver Island.

9.10 Please describe the timing and the savings associated with the Burrard Reactive Requirement.

9.11 Where a comparison of alternatives includes forecast benefits that are somewhat speculative, should such forecasts be more heavily discounted (similar to the practice whereby "probable" oil and gas reserves are discounted by 50 percent, in comparison to "proven" reserves)?

9.12 Sea Breeze notes on page 44 of the VIC Application that the VIC will bypass the Gulf Islands. What (if any) are the differences between the VITR and the VIC with respect to providing transmission service to the Gulf Islands?

9.13 As discussed on page 183, both the VITR and VIC Applications anticipate replacement of the aging 138 kV circuits to serve Salt Spring and Galiano Islands. Please provide a comparison of the NPV costs under the VIC and VITR options to provide reliable service to these Islands.

10.0 Reference: VIC Application, p. 201

10.1 Please identify the source in the VITR Application and related materials of each component of the "230 kV AC" costs shown on page 201, and reconcile the two cost estimates, explaining any differences.

10.2 Please identify the source of the estimate of $23.76 million for Project Definition for the 230 kV project. In the view of Sea Breeze, what portion of this amount is BCTC likely to request recovery of from its ratepayers whether the VITR project goes ahead or not?

10.3 Further to Table 4.3.1, please provide a schedule/spreadsheet for each of the 230 kV AC and 550 HVDC projects that show the year by year expenditure in the current dollars for each of the major project components and the discounted total expenditure for each year. The spreadsheets should show at least 20 years.

11.0 Reference: VIC Application, pp. 202, 206

11.1 Further to Table 4.3.2 showing Projected Rate Impacts, why did Sea Breeze exclude 230 kV AC expenditures such as Interest During Construction from the calculation?

11.2 Please provide a similar calculation to Table 4.3.2, but on the basis that the "Costs/(Benefits)" are shown as a cost to the VITR project (rather than a cost reduction for VIC).

11.3 If the Commission were to conclude that HVDC Light® technology as set out in the VIC Application and/or the VIC route is the preferred option, is there any reason why it should not direct BCTC to adopt this option?

11.4 Please provide a year-by-year schedule for the life of the VIC facility, which shows the annual cost of service of the VIC facility as a Sea Breeze utility facility, the VIC facility as a BCTC utility facility and the VITR project as a BCTC utility facility. Please show the cost of service in at least the level of detail in Table 4.3.2, and explain all assumptions used in the calculation.

11.5 Page 192 states that the equipment supplier will provide performance guarantees for the life of VIC and page 82 indicates that the annual cost of the warranty (after 3 years) is 1 to 2 percent of the purchase price. If the response to the foregoing question does not include the warranty cost in the VIC cost of service, please explain why not.

11.6 Please use the annual total cost of service numbers for each of the three scenarios from the response to the foregoing questions, to generate a schedule that also shows for each scenario the discounted annual cost of service (using a discount rate of 6 percent real), the approximate Transmission rate impact, and the approximate impact on BC Hydro rates. Please also provide the total discounted cost of service over the study period for each option.

11.7 Further to the statement on page 206 regarding the Juan de Fuca line, would Sea Breeze offer BCTC a firm rate for service on the VIC line that is based on a discount to BCTC's revenue requirement for the VITR Project? If it would, what annual firm rate (in dollars per year) would Sea Breeze propose to charge BCTC?

11.8 Please explain how the "additional credit for system benefit" would be calculated, and provide the annual dollar amount that Sea Breeze would propose to charge to BCTC.

12.0 Reference: VIC Application, p. 44

12.1 The VIC Application at page 44 states that the VIC project line will be operated exclusively by BCTC. Does this mean that BCTC will be the only customer of Sea Breeze? What other customers would Sea Breeze intend to serve using the VIC line?

12.2 Under the business and operational public utility model that Sea Breeze envisions for the VIC line, please file for Commission approval pursuant to Section 61 of the UCA, the proposed tariff for utility service including the General Terms and Conditions and rate schedules. Please provide a schedule showing how the rates were calculated.

12.3 Further to the foregoing question, please file for Commission approval pursuant to Section 61 of the UCA a copy of all executed service agreements and service commitments that Sea Breeze has signed with BCTC and other potential customers. Please provide a schedule showing how the rates in the service agreements were calculated.

12.4 If Sea Breeze has not yet completed a long term service agreement with BCTC or other customers, please file a pro forma service agreement that defines the relationship between the parties and sets out the terms and conditions of service and the rates for service. Please provide a schedule showing how the rates were calculated.

13.0 Reference: VIC Application, p. 203, Appendix 13

13.1 Alternative 2 on pages 3 and 4 of Appendix 13 describe a 570 MW HVDC Light® option from Arnott to VIT. What does Sea Breeze estimate this alternative would cost?

14.0 Reference: VIC Application, pp. 3, 133, 194

14.1 The VIC Application at page 3 states that VIC is "along a proposed route that avoids significant seismic risk areas." Page 194 states that the VIC route in the Lower Mainland lies in areas of low or moderate seismic instability risk, except for the Serpentine/Nicomel flood plains in Surrey. Please provide a copy of the geotechnical studies regarding the portion of the VIC route between Ingledow Substation and where the VIC route intersects with the Georgia Strait Crossing Pipeline route, that confirms this portion of the route is suitable for VIC.

14.2 For the portion of the VIC route referred to in the proceeding question, please provide a map showing the location of all test holes that have been drilled or dug to test soil conditions.

14.3 In the VIC Application at page 58, Sea Breeze notes that soil investigations will be required to verify seismic parameters for design depth of the cable and HDD sites. What are the parameters to be measured, and what are the design and cost implications of each?

14.4 What are the seismic withstand capabilities of the HVDC Light® converter stations and cables, and how do they compare to those of the ac system proposed by BCTC?

14.5 With reference to Exhibit B-6, BCUC IR 56.4 in the VITR proceeding, please provide a comparison of the seismic risk of VIC to VITR Options 1 and 2, in terms of the ability to withstand seismic events that have a return period of once every X years.

15.0 Reference: VIC Application, pp. 44, 94

15.1 Further to the statement that HVDC Light® systems are in commercial operation around the world, please provide a summary of all comparable HVDC Light® systems that are in service, stating the length of the cables, the transmission capacity and commercial in-service date of each.

15.2 For each of the foregoing HVDC Light® systems, please provide the year by year availability performance statistics, including Forced Energy Unavailability and Scheduled Energy Unavailability.

16.0 Reference: VIC Application, Chapter 5

16.1 Sea Breeze describes the consultation process that occurred during September 2005. Please provide an update on the consultation that has occurred since the filing of the VIC Application.

16.2 In particular, please provide the results of the meeting with Surrey residents referenced on page 217.

16.3 Further to the VIC Application at page 208, please describe consultations that have occurred with BCTC.

17.0 Reference: VIC Application, Exhibit B1, page 8

> "The VIC Project eliminates or defers for many years the need to upgrade the Island's AC grid to relieve constraints on Cut-Plane D (between Dunsmuir and Pike substations) because it will serve the major load on Vancouver Island below the existing bottleneck. BCTC has estimated that it would cost $49 million to alleviate such north to south transmission constraint."

Reference: VIC Application, Exhibit B1, p. 188

> "Our studies indicate that the transmission capability problem can be related to any of the transmission sections between Dunsmuir and Pike Lake, hence the additional infeed at VIT alone does not provide an adequate solution."

17.1 Please supply the studies referenced on page 188.

17.2 Please supply the load and resource assumptions for south of Cut-Plane D that have been made for the studies referenced on page 188.

17.3 Please describe the transfer limit capabilities of the VITR project as included in the studies referenced on page 188.

17.4 Please describe in more detail the technical justification and timing of the avoided investments for Cut-Plane D reinforcements under the VIC project scenario.

18.0 Reference: VIC Application, Exhibit B1, p. 8

> "The VIC Project reduces or eliminates the need for mechanical voltage control in the Lower Mainland because HVDC Light® performs this function as a by-product of its operation, removing the need to maintain Burrard Thermal Station for the sake of VAR production, so that the decision about whether to maintain Burrard in the future can be made based solely on economic considerations."

Reference: VIC Application, Exhibit B1, p. 18

> "Vancouver Island VAR Support: The HVDC VSC system will be able to provide additional system voltage/var support if not loaded to its full MW capacity. For example, if the VSC system is delivering only 500 MW of real power at Pike Lake, it can provide reactive power within +160/-250 MVAr operating range to support the AC system."

18.1 Please provide the power input to and describe the limitations on the characteristics of the HVDC VSC system at the Ingledow Substation when the delivery at Pike Lake is 500MW at both +160 MVAr and –250 MVAr.

19.0 Reference : VIC Application, Exhibit B1, p. 76

"The marine cable will be installed in one long continuous line, from a single ship."

19.1 Please describe the details of submarine splices for this cable technology, and describe the repair procedure for submarine cable faults while in service.

20.0 Reference: VIC Application, Exhibit B1, p. 82

"The HVDC Light® installation would be delivered by ABB as a turn-key system and carries a three year warrantee as part of the initial purchase price."

Reference: VIC Application, Exhibit B1, p. 94

"A typical guaranteed Energy availability figure is 98%, i.e. 2% of aggregated Forced Energy Unavailability (FEU) and Scheduled Energy Unavailability (SEU), calculated according to CIGRE Protocol 14-97 (WG 04) – 21 "Protocol for reporting the operational performance of HVDC transmission systems."

20.1 Please describe the details of the ABB guarantee in terms of damages for performance below 98% availability of full output for the three years following the full output "Commercial Operation Date" ("COD").

21.0 Reference: VIC Application, Exhibit B1, p. 88, Table 3.3.6

21.1 Please verify the Capacitive Reactive Production at 440 MW.

22.0 Reference: VIC Application, Exhibit B1, p. 100, Section 3.4.1.6, Utility Crossings

22.1 Please provide a table showing the number and location of utility and road crossings.

23.0 Reference: VIC Application, Exhibit B1, p. 103, Section 3.4.2.2, Burial Criteria

23.1 Please describe a "Trenchless/ Open Cut Crossing."

24.0 Reference: VIC Application, Exhibit B1, p. 180

"The VIC and Juan de Fuca Projects are congruent proposals, either one of which would fulfill the present need for reinforcement of the transmission system on southern Vancouver Island, and satisfy forecast demand on the Island until 2016, thereby avoiding the need for the VITR Project proposed by BCTC."

"The VIC and Juan de Fuca Projects are also complementary, in the sense that, if both lines are built, it will avoid the need not only for the 230 kV AC line proposed by BCTC in its VITR Project proposal, but also for the second 230 kV AC line possibly contemplated by BCTC to be brought on line in 2017."

24.1 Please provide in tabular format the available excess transfer capabilities of both the VIC and combined VIC and Juan de Fuca Projects to 2021.

25.0 Reference: VIC Application, Exhibit B1, p. 183

"Since the HVDC VSC termination will be closer to the Victoria load center, regional losses to supply the same load will be lower than for the proposed 230 kV ac line terminated at VIT."

25.1 Please provide any evaluations that have been performed regarding the comparison of losses with a 230 kV ac line terminated at VIT.

26.0 Reference: VIC Application, Exhibit B1, p. 185

"Export of energy off island via VITR by an IPP, BC Hydro, or Powerex, to a customer in the Lower Mainland or U.S. would be problematic."

26.1 What level of on-island generation would be required before a power flow in the VI to Lower Mainland direction could be reasonably expected on either the VIC or VITR projects?

26.2 Is Sea Breeze aware of any VI to Lower Mainland scheduling path constraints?

27.0 Reference: VIC Application, Exhibit B1, p. 91

"IPP's on Vancouver Island to serve load in other parts of the Lower Mainland without having to absorb the cost of upgrades."

27.1 Please describe how the VIC project will enable IPP's to serve load in other parts of the Lower Mainland without having to absorb the cost of upgrades, as compared to the VITR project.

28.0 Reference: Application, Section 3, p. 44

ABB offers a warranty on its HVDC Light® system installation, as well as a maintenance contract at fixed cost.

28.1 Please elaborate on the form of the warranty, describing the duration and extent of coverage on each of the system components.

28.2 What is the fixed maintenance cost?

29.0 Reference: Application, Section 3, p. 44

Sea Breeze notes that the VIC would become part of the BC electricity grid and would be operated exclusively by BCTC.

29.1 Does Sea Breeze expect to continue to own the VIC?

29.2 Please describe in detail the mechanism(s) by which construction would be financed, Sea Breeze would recover its investment, and capital and ongoing maintenance costs would be incorporated into BCTC's revenue requirement. Please describe the roles of the Commission, Sea Breeze, and BCTC in such mechanism(s).

30.0 Reference: Application, Section 3, p. 44; Appendix 12, p. 1

Sea Breeze states that HVDC Light® uses underground and submarine cables that are lighter, easier to install, and less prone to electrical failure than ac cables (page 44). Further, state-of-the-art offshore wind farm installations use solid dielectric cables in part because of improved operational reliability (Appendix 12, p. 1).

30.1 Please provide any historical data that substantiate the claim that the dc cables are less prone to failure than ac cables. Should historical data be limited, please provide copies of one or more peer-reviewed technical papers that support such claims.

31.0 Reference: Application, Section 3, p. 46

The maximum cable operating temperature is 70 degrees C.

31.1 Under what ambient and loading conditions might the maximum core temperature be exceeded?

31.2 How often might such conditions arise, and what restrictions on the operation of the HVDC Light® system would be required as a result?

32.0 Reference: Application, Section 3, p. 47

The map shows the cable passing to the south of South Pender Island, then turning northwest to pass to the north of Moresby Island, and then turning southwest again to make landfall at the north end of the Saanich Peninsula.

32.1 Please describe the rationale for this portion of the cable route. In particular, why was landfall not made closer to Pike Substation to avoid the complexity of the peninsular route, and why was a marine route to the east or west of the peninsula not chosen?

33.0 Reference: Application, Section 3, pp. 54, 57, 58

Several construction types (e.g., horizontal directional drilling ["HDD"], shallow burial with concrete encasements) are being considered for portions of the terrestrial segment of the VIC.

33.1 What assumptions were made for the purposes of the cost estimates that have been provided with the Application?

33.2 What is the total length of the segments for which HDD is being considered, and what is its cost relative to open excavation?

33.3 Soil investigations are required to verify seismic parameters for the design depth of the cable and HDD sites. What is the cost sensitivity associated with changes to the seismic parameters?

33.4 How sensitive are the cost estimates to the construction types ultimately selected?

34.0 Reference: Application, Section 3, p. 54

It is proposed that the cable generally follow the existing BCTC right-of-way.

34.1 Is single-pole operation with ground return possible for the HVDC Light® system? If so, under what conditions would such operation be expected?

34.2 If single-pole operation with ground return is expected, what are the implications for corrosion and/or communication interference of using an existing ROW?

34.3 What are the implications of ground return currents for marine life?

35.0 Reference: Application, Section 3, p. 55

Sea Breeze notes that underground rights will have to be secured from property owners.

35.1 Is this situation analogous to that faced by the VITR through Tsawwassen? If not, why not?

35.2 How many properties are affected?

35.3 Does Sea Breeze's approach to acquiring the necessary ROW differ from BCTC's? If so, how?

36.0 Reference: Application, Section 3, p. 70

Cable installation in the District of Highlands may require blasting.

36.1 Please provide a map showing the areas where blasting may be required anywhere along the entire proposed cable route.

36.2 What is the expected cost, in dollars per kilometre, for sections where blasting is required?

36.3 Have those costs already been included in the cost estimates?

36.4 What mitigation measures may be necessary to protect adjacent properties?

37.0 Reference: Application, Section 3, pp. 76, 77

Sea Breeze states that HVDC cable exhibits less aging and has a longer lifetime than ac cable. The cable is designed to operate with a dc voltage without breakdown "for at least several decades."

37.1 Please provide the statistics and/or peer-reviewed technical papers supporting this claim.

37.2 What does the phrase "for at least several decades" imply about expected cable life?

38.0 Reference: Application, Section 3, p. 79

Sea Breeze notes that special construction and installation techniques will be employed in terrestrial situations where direct burial is impractical.

38.1 Please provide a map showing the locations along the proposed route where special construction techniques are likely to be required, and summarize those techniques.

39.0 Reference: Application, Section 3, pp. 79, 80

If the maximum current-carrying capability is desired, the terrestrial cables must be separated by about 50 cm to limit their influence on each other. This separation can be reduced if slightly lower current is used, especially in soils that dissipate heat rapidly.

39.1 What is the proposed cable separation?

39.2 What thermal characteristics have been assumed for the soils that will be encountered along the route (both marine and terrestrial)?

39.3 What thermal characteristics have been assumed for the soils in deriving Figures 3.3.4 and 3.3.5, and how do the assumptions fit with the characteristics actually encountered along the cable route?

40.0 Reference: Application, Section 3, p. 81

A conventional mono-polar HVDC cable scheme with a current of 1915 amperes gives a magnetic field of about 13 μT at a distance of 31 m. The HVDC Light® system produces a magnetic field of less than 0.2 μT, presumably at that distance.

40.1 What is the significance of 31 m?

40.2 How does that distance compare to the typical separation between the cable and residences along residential portions of the proposed route?

41.0 Reference: Application, Section 3, p. 84

The noise level design requirement is an average noise level of 40 dB at the nearest residence.

41.1 How does 40 dB compare to the noise level from typical ac stations?

41.2 Please provide, for reference purposes, the noise levels associated with typical everyday sounds.

42.0 Reference: Application, Section 3, p. 84

The heat produced in the IGBT valves and power transformers is transported through a cooling water/oil system to the ambient air via heat exchangers located outside the building.

42.1 Are special containment systems required for the cooling fluid? Please elaborate.

42.2 Will there be significant amounts of steam generated by the heat exchangers and, if so, will there be a visual impact for nearby residents?

43.0 Reference: Application, Section 3, pp. 86, 182; Appendix 7, p. 1

Sea Breeze states that the combination of active and independent dynamic reactive power at each terminal gives HVDC Light® the attributes of a virtual generator at each point of interconnection, thereby reducing the investment that would otherwise be required for local voltage support. In addition, there is no need for shunt reactors to absorb excess cable charging current as there is with ac cables, and the automatic reactive power capability of the converters can be used to support the sudden increase in reactive power demand due to incremental loading of ac transmission in response to contingencies.

43.1 Please describe the consequences of using HVDC Light® technology in parallel with the existing 500 kV ac lines to Vancouver Island. Please address steady state, transient, and dynamic operating conditions in your response, and indicate how the technology will "improve the dynamic stability in the whole ac network" (Appendix 7, p.1).

43.2 Please describe in detail the response of the HVDC Light® system to the following contingencies:

A three-phase fault on the Interior to Lower Mainland transmission path that reduces the transfer capability on that path;

A fault on one of the 500 kV lines connecting Vancouver Island to the mainland;

A simultaneous outage on both 500 kV lines connecting Vancouver Island to the mainland;

A sudden loss of load on Vancouver Island.

In responding, the results of stability studies on the BC transmission system (or a simplified representation thereof) are preferred. In the absence of such studies, peer-reviewed technical papers describing the response of HVDC Light® systems to contingencies should be provided.

43.3 Is the response of the system as a whole to the loss of the HVDC Light® system any different than it would be to the loss of the proposed 230 kV ac link? If yes, please explain.

43.4 What are Sea Breeze's assumptions with respect to the loading of the HVDC Light® system, and how do those assumptions translate into estimates of the typical availability of reactive power from the HVDC Light® system?

43.5 Under what loading conditions does Sea Breeze expect that VAr support beyond that provided by the HVDC Light® system will be required? How frequently are those conditions likely to exist?

43.6 Sea Breeze states (p. 182) that the HVdc voltage-source converter system will allow the deferral of significant costs that BCTC will incur if the VITR proposal proceeds. Please summarize those cost reductions and, with reference to the answers to the previous parts of this question (or other materials if necessary), provide a justification for those reductions.

44.0 Reference: Application, Section 3, p. 86

If it is anticipated that maximum power and reactive capability may be required concurrently, the HVDC Light® converter could be used to smoothly transition the necessary capacitor banks on-line.

44.1 What is the estimated cost of such capacitor banks, and has that cost been included in the estimates provided by Sea Breeze?

45.0 Reference: Application, Section 3, p. 91

Active and standby control systems are used to enhance the overall reliability of the HVDC Light® system.

45.1 What are the reliability statistics (e.g., mean time to failure, mean time to repair) for the existing HVDC Light® installations, and how do those values compare to ac systems?

46.0 Reference: Application, Section 3, p. 95

Environmental issues and considerations associated with the interconnection inside the BCTC substations will be left as the sole responsibility of BCTC.

46.1 Have the costs of BCTC's responsibilities been included in Sea Breeze's project cost estimate?

46.2 If not, what are the expected costs?

47.0 Reference: Application, Section 3, p. 95

Fibre optic cables are used in the HVDC Light® system for transferring data between converter stations for control and protection of the system. The terrestrial portion of the fibre line will be buried at the same depth as the power cables and separated from them by between 10 and 30 cm.

47.1 The installation of the fibre optic cable is optional (p. 45). What are the implications of not installing it for system protection and control?

47.2 What determines the required separation between the fibre optic and power cables? If the larger separation is required, will the cost of cable installation increase beyond that provided in the cost estimate?

48.0 Reference: Application, Section 3, p. 97

In areas where detailed marine information is not available, marine geophysical surveys would be carried out to determine a suitable corridor.

48.1 For which portions of the proposed route (both marine and terrestrial) is geotechnical information not detailed enough for cable installation?

48.2 What is the expected cost of obtaining sufficient information, and has that cost been included in the cost estimate already?

48.3 What, if any, are the major differences between ac and dc cable installations in both marine and terrestrial environments?

49.0 Reference: Application, Section 3, p. 97

The cables will transition to the marine environment from horizontally drilled exit holes. They will be pulled up boreholes, and transition joints to connect land and marine cables will be installed near the exit holes.

49.1 Please provide a diagram of the proposed marine/terrestrial cable transitions, indicating approximate dimensions.

50.0 Reference: Application, Section 3, p. 100

The marine cable could cross other utilities within the marine environment.

50.1 What are the implications of a crossing on the ability of the other utility cables to be lifted for repairs?

50.2 How many cable crossings are possible along the proposed route, and have the other utilities been contacted about the possible overlays?

51.0 Reference: Application, Section 3, p. 108

The terrestrial cable comes in approximately 400 m or 800 m lengths requiring prefabricated joints.

51.1 Is the limitation to 800 m due to the capability of the cable-laying equipment? Please explain.

51.2 What is the reliability experience with the cable joints? Please provide statistics from existing HVDC Light® projects where possible.

52.0 Reference: Application, Section 3, p. 119

If severe damage is experienced during cable pull-back, the damaged portion would be pulled from the hole and a new section would be spliced as needed.

52.1 How is it determined whether a cable has been damaged during pullback?

52.2 Is it conceivable that pullback damage could be below the detection threshold but sufficient to shorten the expected lifetime of the cable? Please explain.

52.3 Are all HDD segments expected to be shorter than the cable lengths (400 to 800 m), so that no splices are required within the pullback lengths?

53.0 Reference: Application, Section 3, pp. 130-131

The VIC would be located within Seismic Zones 4 and 5 according to the National Building Code of Canada (1995). The risk of liquefaction in parts of Delta and the Serpentine/Nicomekl River valleys is moderate to high.

53.1 Have the relevant portions of the code been updated since 1995 and, if so, have the new requirements for ground acceleration been met?

54.0 Reference: Application, Section 3, p. 172

Some design for construction, along with socio-economic and environmental studies, would be undertaken prior to any decision from the BCUC.

54.1 Are these studies to be funded in the same way as the overall CPCN application?

54.2 Please confirm that proceeding with these studies in advance of a decision is entirely at the risk of Sea Breeze.

55.0 Reference: Application, Section 4, pp. 178-181

Sea Breeze suggests that one or both of the VIC and the Juan de Fuca Cable Project could meet the need for new transmission facilities to Vancouver Island.

55.1 Is there sufficient transmission capacity at the Washington end of the Juan de Fuca cable to support the required energy transfers to Vancouver Island? Please provide any relevant studies.

55.2 The construction of transmission facilities alone is not sufficient to ensure an adequate supply of energy to Vancouver Island customers. Please provide Sea Breeze's proposals with respect to the acquisition of energy. In the response, please address potential energy sources, the responsibilities of the various parties (including BCTC and BC Hydro), the mechanism(s) for accessing transmission capacity on the Juan de Fuca link, the implications for BC Hydro's IEP and REAP, and the consequence of BC Hydro not acquiring capacity on that link.

55.3 Assuming the VIC and the Juan de Fuca Cable Project could independently meet the energy requirements of Vancouver Island customers for the next ten years, what are the relative merits of the proposals in terms of cost to consumers, implementation risk, energy price risk, and operational risk?

55.4 If both the VIC and the Juan de Fuca Cable Project proceed, will BC consumers end up paying more than necessary for transmission infrastructure? Please explain.

55.5 Are there "additional, significant system benefits which would not arise with the VITR Project" (page 180) other than enhanced export capacity and the provision of additional VAr capacity at Ingledow, Pike Lake, and Port Angeles? Please elaborate.

56.0 Reference: Application, Section 4, p. 181

Sea Breeze does not agree with BCTC's assessment of HVDC Light® technology in its CPCN application for the VITR Project.

56.1 From Sea Breeze's perspective, what are the errors or misconceptions in BCTC's review of HVDC Light®? Please support the list of errors with relevant statistics, system studies, or technical papers, and include BCTC's Appendices P, Q, and R in the review.

57.0 Reference: Application, Section 4, p. 183

Sea Breeze states that, by controlling the grid voltage level and by terminating the HVDC voltage-source converter ("VSC") closer to the Victoria load centre, losses in the connected grid can be optimized.

57.1 Please provide any system studies that demonstrate the effect of the HVDC Light® proposal on losses. In the absence of such studies, please provide any peer-reviewed technical papers that discuss loss optimization in other networks through the use of VSCs.

58.0 Reference: Application, Section 4, p. 185

Sea Breeze states that VITR requires a substantial level of staffing to operate and maintain the control and stability devices needed to operate its ac cable connection.

58.1 Please identify the staff resources and job functions that Sea Breeze assumes will be required to maintain VITR control and stability devices and compare them to the resources and functions needed for the HVDC Light® system.

59.0 Reference: Application, Section 4, pp. 187, 189

The "synchronous tie provided by [the existing HVdc] system has prevented total outages on Vancouver Island during critical contingencies. The same service will be provided by the new HVDC VSC system."

59.1 Please confirm that a dc tie is asynchronous and that an ac tie is synchronous. If not confirmed, please explain how a dc system provides a synchronous tie.

59.2 Please explain how the existing HVdc system prevented outages on Vancouver Island and why an ac tie could not do so.

59.3 In general, what does Sea Breeze believe are the benefits of a dc connection to Vancouver Island over an ac connection with respect to preventing outages?

59.4 Please elaborate on the "synchronous mode operation" of the HVdc VSC system and contrast the benefits with the benefits of an asynchronous connection.

60.0 Reference: Application, Section 4, p. 187

Sea Breeze notes that BCTC proposes to retain one pole of the existing HVdc system, which might be of some assistance in the event of failure of the VITR's phase shifter. The HVdc VSC does not require this, and decommissioning of the existing HVdc system will result in considerable savings in O&M costs.

60.1 Is it Sea Breeze's understanding that the failure of the phase shifter is the only contingency that the existing HVdc system would be maintained to cover? Please explain.

60.2 Please comment on the relative reliability of the dc solution and the ac solution with one pole of the existing HVdc system as backup.

60.3 Would Vancouver Island reliability be enhanced under the HVDC Light® option by retaining one pole of the existing HVdc system? Why or why not?

60.4 Is there anything in the HVDC Light® proposal that would prevent retention of one pole of the existing HVdc system for backup purposes?

61.0 Reference: Application, Section 4, p. 187

In the event of a blackout, the VSC system will disconnect itself instantaneously from the grid. The converter can then be connected to the blacked out section of the network, bringing the full power capability of the converter to the process of system restoration. This feature is not available from the proposed 230 kV ac tie.

61.1 Please elaborate on the process of restoration using a VSC, and explain the fundamental differences between the dc and ac ties in this regard.

62.0 Reference: Application, Section 4, pp. 188-189

Sea Breeze states that the HVdc VSC scheme as proposed, assuming a demand growth of 18 MW per year, will enable the deferral of the D-1 or D-2 transmission modifications in BCTC's plan by at least 10 years. This will result in a minimum saving of $24 million in the year 2008.

62.1 Please clarify whether the $24 million is an NPV value or an annual amount. If it is the latter, please explain how such a one-year saving arises.

63.0 Reference: Application, Section 4, p. 190

Sea Breeze notes that the HVdc VSC's contribution to fault levels on the Vancouver Island electrical system would be limited to its capacity, while the contribution of the VITR 230 kV line would be much larger and may require the replacement of some equipment at VIT.

63.1 What is the contribution of the VITR to Vancouver Island fault levels?

63.2 What equipment would have to be replaced if the 230 kV ac project proceeds?

64.0 Reference: Application, Appendix 2, p. 5

The restarting of the HVDC Light® system takes a relatively long time following a dc fault.

64.1 Please quantify "relatively long."

64.2 What is the start-up time under normal conditions and under blackstart conditions?

65.0 Reference: Application, Appendix 2, p. 5

Special cables with the two pole conductors within one cable have been developed for VSC application. These cables result in a cost saving in both cable cost and installation cost.

65.1 Why haven't such cables been proposed for the VIC project?

66.0 Reference: Application, Appendix 5, p. 4

The dc cable joints are designed to cope with both dc- and ac-type conditions such as surges.

66.1 Presumably, the converter stations contain devices (such as surge arrestors) that are designed to protect the station components from surges. What are the consequences for the converters and the dc cables should such protective devices fail?

67.0 Reference: Application, Appendix 6, p. 24

In the Cross Sound Cable system, there are 2916 IGBTs and their failure rate is 0.38 percent per year.

67.1 What is the mean time to repair a failed IGBT, and what is the associated cost?

67.2 What is the operational impact of a single failed IGBT?

68.0 Reference: Application, Appendix 6, p. 25

The air conditioning equipment for the Cross Sound Cable system was revised for more robust operation during winter and summer months.

68.1 Have the "more robust" air conditioning requirements for the Cross Sound Cable system been incorporated into the design and cost estimates for the VIC? If not, why not?

69.0 Reference: Application, Appendix 7, p. 2

It is noted that in the Gotland (Sweden) application of HVDC Light®, a very low short circuit power and asynchronous generation from wind turbines result in an extreme operating mode.

69.1 Please compare the handling of asynchronous generation from windmills by ac and dc systems.

69.2 In Sea Breeze's view, would the HVDC Light® system be of benefit in handling wind-driven generation on northern Vancouver Island given: (a) a network that is likely more robust than the Gotland network, and (b) the relatively long distance between the wind-driven generation and the HVdc system?

70.0 Reference: Application, Appendix 7, p. 3

The Gotland HVDC Light® system was found to generation radio frequency interference ("RFI") slightly in excess of specified limits in the frequency range from 270 MHz to 300 MHz.

70.1 Does the RFI produced by the HVDC Light® system have the potential to interfere with communications in the Lower Mainland or on Vancouver Island, particularly near the Victoria airport? Please explain.

71.0 Reference: Application, Appendix 7, p. 3

Due to higher losses in the Gotland HVDC Light® system than in the parallel ac line, an optimization of power flow between the two lines has been made to minimize the overall system losses. In this application, it is also very important to reduce the HVDC Light® losses in pure SVC mode and for low power transmission. An isolation-transformer tap changer that makes it possible to vary the dc voltage between 95 and 155 kV, as well as a load-dependent dc voltage function that sets the lowest possible dc voltage when active power is low, are use in loss minimization.

71.1 Have such loss minimization features been designed into the VIC? If not, why not?

71.2 Assuming the loss minimization features are included, have the associated costs been included in the cost estimate? If not, what is the expected cost?

71.3 Does dc loss minimization necessarily imply minimizing the flow through the HVDC Light® system? Please explain.

71.4 What are the operational impacts of loss minimization?

72.0 Reference: VIC Application, Section 4.1.2, p. 180

72.1 Sea Breeze outlines two alternatives to VITR –the VIC Project and the Juan de Fuca Cable Project - and submits that the need for transmission capacity to Vancouver Island is best served by one or both projects. Please confirm that only ONE of these projects is actually required to satisfy forecast transmission needs to Vancouver Island until 2017.

72.2 Assuming only one of these two projects (the VIC Project or the Juan de Fuca Cable Project) is required to satisfy forecast transmission needs to Vancouver Island until 2017, which does Sea Breeze believe is the preferred option for ratepayers to provide the next increment of required transmission capacity? Why?

72.3 Sea Breeze states that in combination, the two projects would significantly enhance export capacity from the British Columbia grid. Does Sea Breeze have any specific evidence of an unmet demand for significantly enhanced export capacity from the British Columbia grid at present time or in the foreseeable future given local generation costs, wheeling costs, and export prices?

73.0 Reference: VIC Application, Section 4.3, Table 4.3.1

73.1 Please specify the base year used for all dollar values reported in Table 4.3.1.

73.2 Please provide the details behind the calculations for each of the Costs / (Benefits) of the 550 HVDC starting with the "Seismic Strengthening of Arnott Substation" and ending with the "Elimination of "South Cut Plane D" (i.e., input assumptions, calculation method, etc.). Where savings are due to deferrals please provide details on how deferral benefits were calculated. Are the various costs and benefits calculated in real or nominal dollars? Is the 6 percent discount rate mentioned in the top of the table a real or nominal discount rate? Please justify the discount rate that Sea Breeze used.

73.3 Please provide a more detailed justification of the implicit cost of self-insurance by BCTC.

74.0 Reference: VIC Application, Section 4.3, Table 4.3.2

74.1 Table 4.3.2 assumes both projects (VITR and the VIC Project) are financed using the same capital structure and cost of capital. Please compare the projects based on the annual charges Sea Breeze would expect to recover in a fixed price EPC (as alluded to on Page 192 of the Application) for constructing and financing the project.

74.2 What discount rate was used to annualize impacts for BCTC and VIC?

75.0 Reference: VIC Application, Section 4.4.1.1, p. 204

75.1 On page 204 (Lines 8 – 11), Sea Breeze states that if "BCTC or BC Hydro were to purchase or lease transmission capacity over the proposed Juan de Fuca line from Port Angeles, Washington to Pike Substation on Vancouver Island, the Juan de Fuca Cable facility would satisfy the same supply and reliability requirements for southern Vancouver Island as would be supplied by the Sea Breeze RTS Ingledow to Pike HVDC Light® proposal." Would there not be additional costs and coordination issues associated with wheeling generation in B.C. from the BC/US Border to Port Angeles? Please provide an estimate of such additional costs.

75.2 Has Sea Breeze examined the capacity of the transmission system between the BC/US Border and Port Angeles? Please provide the results of any such studies.

76.0 Reference: VIC Application, Section 4.4.1.1, pp. 205 - 206

76.1 Sea Breeze has not included detailed financial information related to the Juan de Fuca Project because of confidentiality concerns. Please provide a revised version of Table 4.3.1 with a third column summarizing the costs and benefits that would likely be borne by BCTC if a comparable amount of capacity to the VITR or VIC projects was reserved on the Juan de Fuca Project (including expected credits as outlined on Page 206 of the Application). Where this involves commercially sensitive information, Sea Breeze Pacific RTS may choose to file this information in confidence with the Commission. If Sea Breeze chooses to file some detailed information on a confidential basis, it is to include a non-confidential summary of the information and justification why the detailed information should not be disclosed to all participants in the proceeding.

76.2 Further to Table 4.3.2, please provide a similar assessment of rate impacts for the Juan de Fuca alternative (again based on reserving a comparable amount of capacity as provided by the VITR and VIC projects). In determining rate impacts, please use the expected annual charge that would be expected from a facility built under a fixed price EPC contract.

77.0 Reference: VIC Application, Section 4.4.1.1, p. 205

77.1 Please provide details on the Open Season for the sale of bi-directional transmission capacity and ancillary services on the proposed Juan de Fuca line. When was it initiated? What is the current status of the Open Season? What level of interest has Sea Breeze Juan de Fuca, LP received for capacity?

77.2 Sea Breeze indicates the Juan de Fuca Project is scheduled to be in operation by the end of 2007. Under what minimum conditions will this project actually proceed to construction?

78.0 Reference: VIC Application, pp. 54-73

Sea Breeze describes various issues with respect to securing Rights of Way for the proposed route. A common issue for all sections of route is the securing of approvals from various government bodies and securing property rights from individual property owners. On page 172, Sea Breeze also notes that private property negotiations may extend the proposed timetable. The schedule shown directly after page 172 does not include required approval dates from local government or when the property rights must be acquired.

78.1 Please show, on the schedules, the length of time allotted and the required milestone dates for these activities.

78.2 What contingency plans would Sea Breeze employ if the above activities cannot be accomplished with in the required timeframe?

79.0 Reference: VIC Application, p. 171

79.1 Sea Breeze states that it has assumed that the CEAA and the NEPA/SEPA processes would run concurrently with the BCEAO process. On what basis does Sea Breeze make this assumption?

80.0 Reference: VIC Application, p. 180; VITR Exhibit B-6, BCUC IR 1.21.1

Sea Breeze states that the Juan de Fuca project would satisfy the needs for VI reinforcement until 2016. In response to BCUC IR 1.21.1 BCTC states that Sea breeze has not requested any studies to assess the adequacy, reliability and stability of this project to supply load on Vancouver Island.

80.1 Please provide any studies Sea Breeze has performed to assess the adequacy, reliability and stability of this project to supply load on Vancouver Island.

80.2 BCTC in response to BCUC IR 21.1 also states that they have not investigated the Juan de Fuca supply because it is the responsibility of BC Hydro to determine how it wishes its customers to be served. Has Sea Breeze discussed the possibility of supplying Vancouver Island from the Juan de Fuca line with BC Hydro? If so, what were the results of those discussions? If not, why not?

81.0 Reference: VIC Application, p. 187

81.1 Sea Breeze states that 230 kV proposal will not provide a synchronous tie since dependable capacity on the existing HVDC will be reduced to zero. Please explain.

82.0 Reference: VIC Application, p. 188

82.1 Sea Breeze states that its studies indicate that the transmission capability problem can be related to any of the Transmission sections between Dunsmuir and Pike Lake. Would these problems be avoided if VITR were to terminate in Pike Lake instead of VIT?

82.2 Does the termination of the Juan de Fuca and VIC projects at Pike Lake have any synergy? If so, please explain how and what cost savings are available from this synergy.

83.0 Reference: VIC Application, p. 199

Sea Breeze states that the capital cost estimate for the VIC project is $302 million based on a turnkey project estimate from ABB.

83.1 Please describe what is included in this turnkey estimate.

83.2 Please describe any caveats ABB has put on this estimate (for example what are the limits of this estimate and does it require further commitments for maintenance costs or any other business considerations).

83.3 Does Sea Breeze believe this estimate is exclusive to Sea Breeze? If so, why?

84.0 Reference: VIC Application, p. 206

Sea Breeze has stated that it would make an offer to BCTC for contracted capacity on the Juan de Fuca cable.

84.1 Please describe the cost of the additional credit for system benefits.

84.2 Please describe how Sea Breeze has determined that the proposed discount would be from 10 percent to 25 percent less than BCTC's proposed revenue requirement.

85.0 Reference: VIC Application, Section 1, p. 12

Sea Breeze submits that it is not necessary, nor would it be appropriate, for the Commission to carry out a detailed review of the potential environmental effects of the VIC Project.

85.1 Given that the relative environmental impact of the VIC and VITR projects has been cited by Sea Breeze as a factor in favour of the VIC project, why is it not appropriate that the Commission consider the environmental effects in its deliberations?