

**From:** James Griffiths [JamesGriffiths@SeaBreezePower.com]  
**Sent:** February 22, 2006 6:46 PM  
**To:** Commission Secretary BCUC:EX  
**Cc:** XT:Adams, Linda Islands Trust EAO:IN; bandadmin@pacificcoast.net; caddis@uniserve.com; jarvay@arvayfinlay.com; natchison001@shaw.ca; daustin@securitieslaw.bc.ca; lorrainedesign2@hotmail.com; cbazzard@saltspring.com; hberks@dccnet.com; d.broadfoot@dccnet.com; jackbulloch@telus.net; arthurcaldicott@sqwalk.com; Brad\_Campbell@telus.net; jancampfens@SeaBreezePower.com; scarpenter@cgf.fasken.com; scarpenter@cgf.fasken.com; brian@trmc.com; johncross@dccnet.com; cecdunn@telus.net; trahvol@telus.net; zak@ze.com; jarvay@arvayfinlay.com; dennis.fitzgerald@catalystpaper.com; gfulton@boughton.ca; support@bcpiac.com; lguenther@novuscom.net; pjham@surrey.ca; bharper@econalysis.ca; gharvie@corp.delta.bc.ca; jherbert@davis.ca; tanya\_higgins@transcanada.com; directorssi@crd.bc.ca; kholmsen@telus.net; kathleenj@hulquminum.bc.ca; hkarow@shaw.ca; keoughl@bennettjones.ca; john\_landry@davis.ca; emccusker@town.viewroyal.bc.ca; mairimcl2006@shaw.ca; XT:McRau, Grant FIN:IN; pmiller@boughton.ca; ejt@trmc.com; mikewise@SeaBreezePower.com; moniquestevenson@SeaBreezePower.com; jamesgriffiths@SeaBreezePower.com; ester.montgomery@bctc.com; smorrison@pristinepower.ca; namlaser@yahoo.com; gnettleton@osler.com; dnewlands@telus.net; npaget@telus.net; ehpelkey@tsawout.ca; dave.perttula@terasengas.com; danpotts@shaw.ca; marcel.regheini@bctc.com; janice@metaformixis.com; Roddick, Valerie LASS:EX; alan\_ross@transcanada.com; jim.salminen@bctc.com; geetaschallig@sierrasystems.com; mwsharkey@dccnet.com; regulatory.group@bchydro.com; regulatory.affairs@terasengas.com; doja@uniserve.com; munderhill@ufbplaw.ca; rbw@bht.com; cweafer@owenbird.com; jgy@murdymcallister.com; zovi@telus.net; pamsutherland@dccnet.com; paulmanson@SeaBreezePower.com  
**Subject:** Response to BCUC IR No.4



Sea Breeze



BCUC IR

Response to BCUC IR4-155-1.xls (567 KB)

Sea Breeze VCC filed the attached with the Commission at the Hearing today, which was subsequently marked as Exhibit B2-64. This email also contains the Excel spreadsheet mentioned in the IR response.

Thank you.

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James Griffiths  
Project Manager, Permitting  
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~~~~~  
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February 22, 2006

**VIA: E-MAIL & COURIER**

Mr. Robert J. Pellatt  
Commission Secretary  
British Columbia Utilities Commission  
Sixth Floor, 900 Howe Street  
Box 250  
Vancouver, BC, V6Z 2N3

Dear Mr. Pellatt:

**Re: Sea Breeze Victoria Converter Corporation (“Sea Breeze VCC”)  
Application for Certificate of Public Convenience and Necessity (“CPCN”)  
for Vancouver Island Cable Project (“VIC”)**

*- Response to BCUC Information Request No. 4 – VIC*

This correspondence is in response to a request by the Commission which arose in dialogue during the Oral Hearing on February 6, 2006.

We apologize for the delay in submitting the enclosed information, but were precluded from acting in a more timely manner as a result of our prior compliance obligation to complete the report to FERC on the results of the Open Season held for capacity on the Juan de Fuca Cable.

Having discharged the requirement of holding such an Open Season, and filing the report thereon, Sea Breeze Pacific Juan de Fuca Cable, LP is now able to hold direct bi-lateral discussions with interested parties in respect to the remaining capacity on the proposed Juan de Fuca transmission line.<sup>1</sup>

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<sup>1</sup> Sea Breeze Victoria Converter Corporation is a wholly owned subsidiary of Sea Breeze Juan de Fuca Cable, LP. Olympic Converter, LP is another wholly owned subsidiary of Sea Breeze Juan de Fuca Cable, LP that operates only in the United States.

Accordingly, please find enclosed Sea Breeze VCC's response to the BC Utilities Commission's Information Request No. 4 regarding the Vancouver Island Cable Project application. As noted above, this Information Request did not originate in an order from the Commission, but rather in a dialogue during the Oral Hearing on February 6, 2006, as explained on the following pages. The associated spreadsheet file "BCUC IR 4-155-1.xls" is also being submitted by email.

Appended to this IR response, Sea Breeze VCC is attaching a revised Gantt chart for the Juan de Fuca Project. This submission satisfies the commitment made by Sea Breeze VCC in Exhibit B2-50, item No. 16. This Gantt chart is based on the assumption that the BCUC will grant an Order in this proceeding as described in Sea Breeze VCC's response to BCUC IR 2.95.1 (VIC), including, in particular, the terms and conditions set out in paragraphs 3 and 4 of that response.

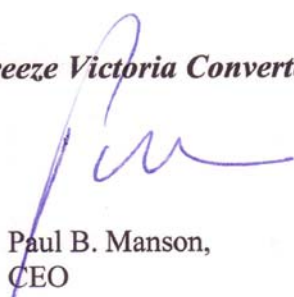
Sea Breeze VCC is also attaching all WECC correspondence with Sea Breeze VCC and its affiliates regarding the JdF Project that Sea Breeze has been able to locate. This submission satisfies the commitment made by Sea Breeze VCC in Exhibit B2-50, Item No. 2.

Finally, appended to this IR response are the two reports to the Federal Energy Regulatory Commission (FERC). The first is the "Preliminary Open Season Report of Sea Breeze Pacific Juan de Fuca Cable, LP" dated January 3, 2006. The second is the "Supplemental Open Season Report of Sea Breeze Pacific Juan de Fuca Cable, LP", which was filed with FERC on February 17, 2006. These submissions satisfy the commitment made by Sea Breeze VCC in response to BCUC IR 2.147.1 (VIC).

Unless the context requires otherwise, the term "Sea Breeze" in the attached document refers to Sea Breeze VCC.

Sincerely,

***Sea Breeze Victoria Converter Corporation***

per:  Paul B. Manson,  
CEO

**4.155.0 Reference: Exhibit B1-39, Table 1, p. 4**

**This Information Request arose out of the following dialogue on pages 1000 to 1002 of the Public Hearing Transcript, Volume 8:**

*MR. LANDRY: Mr. Chairman, I wonder, do you have a copy of the transcript before you? I'm just wanting a point of clarification on something that came out of the opening statements last week, to make sure that we're all on the same page. It's a question you asked of me and I think I made the mistake of assuming something and I wanted to make sure it was clarified on the record.*

*THE CHAIRPERSON: Can you tell me which –*

*MR. LANDRY: It's Volume 6.*

*THE CHAIRPERSON: Thank you. Page number?*

*MR. LANDRY: It's page number 801, sir.*

*THE CHAIRPERSON: Please proceed.*

*MR. LANDRY: Mr. Chairman, at the bottom of that page, you'll recall a conversation that you and I had regarding a question in fact that arose from you in relation to IR 3.180.1, and it related to the Juan de Fuca project and system benefits. It went on further, if you go to 802, you were looking for some information and on 802 at about line 5 you say: "And I think the best way to leave this conversation is for me to ask that you address this issue, and we have invited you to do that, as you probably have already noted in Exhibit A-59." Which effectively I agreed. I thought that we had been asked to do that. And it turns out we weren't in the sense that Sea Breeze was not asked about 3.180. They were asked about 3.179.*

*So when I finally figured this out last night, what I've spoken to Mr. Williston and what we will do, what Sea Breeze will do is they will do effectively an equivalent -- they will assume they've been asked an equivalent question like 3.180, which is followed up by the Commission Staff in I think 205. I can't remember whether it's IR No. 4 or IR No. 5, and we will provide the Commission with effectively Sea Breeze's view of that information, so that you have it, which will effectively answer your question, is what I'm trying to say.*

*THE CHAIRPERSON: Okay.*

*MR. LANDRY: Okay.*

**Further to the above dialogue the IR in question – BCUC IR to BCTC 3.180.1 (VITR) – reads:**

*3.180.0 Reference: Exhibit B1-39, p. 4, Table 1*

*3.180.1 Further to Table 1, please provide year-by-year schedules for at least the period to 2027/[28] that show the annual cost of service (revenue requirement) in nominal dollars and discounted to 2008/09 at 8 percent per year nominal (6 percent real) for the VITR as a BCTC utility facility, the VIC as a Sea Breeze project and the Juan de Fuca project as a provider of transmission capacity to BCTC. Please show the capitalization and cost of service components is at least the following level of detail:*

- Plant in Service
- Accumulated Depreciation
- Working Capital and other
- Total Utility Rate Base
- Mid Year Rate Base
- Equity Component
- Debt Component
- Annual Equity cost
- Annual interest cost
- Annual depreciation
- Annual OM&A
- Annual other taxes and grants
- Annual income taxes
- Total Annual Cost of Service
- Total BCTC Annual Revenue Requirement
- BCTC Transmission Rate Impact %
- BC Hydro Annual Revenue Requirement
- Impact on BC Hydro Rates, %
- Annual Cost of Service discounted at 8 percent/year
- BCTC Annual Revenue Requirement discounted at 8 percent/year
- BC Hydro Annual Revenue Requirement discounted at 8 percent/year

~~*For the VIC, please assume the project is financed using 40.7 percent equity (similar to that established by Order in Council No. 752 dated October 19, 2005) and that this equity percentage is maintained as the facility is depreciated.*~~

Not applicable to VIC as a Sea Breeze project.

~~*For the Juan de Fuca project, unless BCTC prefers to use some other approach, the annual cost of service may be assumed to be 90 percent of the corresponding cost of service for VITR (Reference Exhibit B2-1, p. 206).*~~

*Please identify the sources of all data used to generate the table, and any adjustments that were made to the numbers in the reference material. Please identify all other assumptions and factors used in the calculation.*

#### **4.155.1 - RESPONSE:** <sup>2</sup>

In responding to this information request, Sea Breeze has endeavoured to provide a response to the question posed which makes clear that a great opportunity exists to satisfy the need for increased electrical transmission to Vancouver Island in a manner that is guaranteed to have a lower impact on the BC ratepayers than the VITR alternative.

#### ***Opportunity for Negotiation***

In response to BCUC IR 1.76.1 (VIC) Sea Breeze explained that the appropriate venue for negotiation of a contract for South to North transmission on the JdF Project (at the time of writing) was through the ongoing Open Season process, whereby BCTC, BC Hydro, or Powerex could make a bid for reliable transmission capacity. The Open Season process having come to a close, Sea Breeze is now in a position to discuss directly with BCTC contractual terms for reliable South to North transmission. Sea Breeze strongly believes that, given the valuation concepts presented in this IR, a contract based within the framework presented would be in the best interest of both Sea Breeze and BC ratepayers.

In compliance with FERC Order dated September 15, 2005, the results of the Open Season for the JdF Project have been reported to FERC. The Preliminary Report (attached as Appendix 4.155.1A) and the Supplemental Report (attached as Appendix 4.155.1-B) describe the execution of the Open Season process as being independently managed, with the object of providing fair, transparent, and non-discriminatory access to all market participants. Discussions both with FERC Commissioner Nora Brownell and with FERC staff were held to discuss the results of the Open Season, prior to the drafting of the Supplemental Report. Having discharged the requirement of holding an Open Season for capacity on the Juan de Fuca Cable, Sea Breeze Pacific Juan de Fuca Cable, LP is now able to hold open bi-lateral discussions with interested parties in respect to the remaining capacity on the proposed transmission line.

#### ***Financial Analyses***

Sea Breeze is willing to be compensated for allocating the full south to north capacity of the JdF project to BCTC following the spirit and intent of the underlying principles established in the OATT Decision. Specifically Sea Breeze is proposing to be compensated at 75% of the “before” (with the VITR Project) and “after” (with JdF replacing VITR) benefits arising from the JdF project.

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<sup>2</sup> The following should be read in conjunction with a submitted spreadsheet entitled “BCUC IR 4-155-1.xls”.

A number of potential payment options are presented for the JdF Project so that the Commission is in a better position to evaluate the various types of arrangements that can be entered into with BCTC. Financial analyses of the rate impact of these options are included in the tables that follow, along with analyses of the VIC and VITR projects, in a manner similar to BCUC's IR to BCTC 3.180.1. The proposed options are based on two distinct approaches:

- a) A payment for JdF based on 75% of the annual cost of service for the VITR Project, including allowance for indirect costs – whatever value the Commission rules that to be – with the other 25% being a benefit to the BC ratepayer.
- b) A payment for JdF based on 75% of the present value of the direct and indirect VITR capital costs – whatever value the Commission rules that to be – with the other 25% being a benefit to the BC ratepayer. Within this scenario, further options are presented assuming either a lump sum payment of this cost in 2008, or an annual allocation over a 20-year or a 40-year period. In the annual allocation variants, payments would be determined by converting 75% of PV of VITR capital cost (direct + indirect) into an annuity of 20 or 40 years, and the outstanding part of Juan de Fuca project costs should earn interest that is comparable BCTC's proposed weighted average cost of capital.

Table 1 below summarises the results of the JdF financial analysis. In rows, a number of scenarios are presented which differ in their inclusion of benefits for the JdF Project - expressed as Indirect Costs of VITR. Scenarios 1 to 6 show the effect on payments to JdF by varying the inclusion of different VITR Indirect Costs. Scenario 1 corresponds to 75% of VITR Direct Costs, without inclusion of any Indirect Costs (it shows the cost to BC ratepayers for contracting for the south to north capacity on JdF instead of building VITR, but assumes that no benefits are credited to JdF for any system reinforcements). In the other extreme, Scenario 6 includes all claimed benefits as Indirect Costs of VITR.<sup>3</sup> Scenario 0 corresponds to 100% of VITR Direct Costs, without inclusion of any Indirect Costs, and is provided in this table for comparison purposes (it shows the cost to ratepayers for undertaking the VITR project and assumes that no additional system reinforcements, aka Indirect Costs, are needed).

Column D shows the total cost of the Juan de Fuca Project to ratepayers under different scenarios of Indirect Costs inclusion. The amount is shown in real 2005 dollars. Columns E to G show the annual payment that should be earned by the Juan de Fuca Project under different variants of payment allocation. These columns are shown in nominal dollars, because a nominal payment is constant over time, while a payment in real dollars decreases. The lump-sum payment in column E is different from the amount in column D because D is shown in real 2005 dollars, while E is shown in nominal dollars paid in 2008.

Columns H to J show the equivalent Levelized Revenue Requirement Increase. The Increase calculation is based on the assumption that the net present value of Levelized RR Increases, discounted at real 6% over 40 years, should be the same as net present value of payments received by Juan de Fuca project over one

<sup>3</sup> Note that the benefits internal to BC are different from systems benefits accruing to JdF in the US or cross-border path rating increases.



year, twenty years, or forty years, according to the selected payment allocation variant. Columns K to P show Levelized RR Increase as a percentage of F2006 BCTC Revenue Requirements and F2006 BC Hydro Revenue Requirements.

### ***Guaranteed Savings***

Sea Breeze's proposal is for the Commission to determine which VITR route options would have been constructed in the absence of Sea Breeze's participation in this proceeding, and at what cost. After a 25% reduction (assuming one of the payment options above, or another similar option) a price would be determined by the Commission as a basis for negotiation between Sea Breeze and BCTC. Sea Breeze proposes that the Commission direct BCTC to enter into these negotiations in good faith, in the manner described in response to BCUC IR 2.95.1 (VIC).

It should be noted that either of the above two options is guaranteed to have a substantially lower impact to the ratepayers of British Columbia. If no benefits were credited to Sea Breeze, because the Commission were to rule that they were unfounded, then assuming the VITR estimate is accurate the capital cost to the BC ratepayers to acquire South to North service on the JdF Project would be approximately \$196 million, resulting in a savings of approximately \$65 million to the ratepayer. In the other extreme, if the Commission rules that all of the benefits claimed for the JdF project (as noted in response to BCUC IR 1.76.1, p.3) apply, then the savings for the ratepayers are even greater. This would result in a cost of approximately \$306 million, with a savings of approximately \$102 million over the VITR alternative. The numbers given above, and in Table 1, are based on the more detailed analyses presented in the attached "BCUC IR 4-155-1.xls" file.

Tables 2, 3, and 4 present analyses of the annual revenue requirement for the VIC and VITR Projects, as requested.

### ***Moving Forward to Find a Solution***

As noted above, the results of the Open Season having now been determined, Sea Breeze is in a position to make better-informed statements regarding business strategy for the JdF Project. Taking into account the market interest indicated in the results of the Open Season, Sea Breeze is willing to undertake the project based on a contract with BCTC for 550 MW of South to North capacity according to the methods set out above, on the basis that the cost for the VITR is the sum of BCTC's direct and verifiable and quantifiable indirect costs. This South to North capacity would be made available for BCTC's exclusive use, while additional North to South capacity would be marketed by Sea Breeze to other customers; including BCTC.

Sea Breeze will do everything in its power to deliver Juan de Fuca into service in time to meet the



identified need for increased capacity on Vancouver Island in October of 2008. This is the position of Sea Breeze as well as its EPC partner ABB and financial partners EIF and Société Générale.

A revised Gantt Chart is attached as Appendix 4.155.1C, which presents a conditional schedule based on the series of events described above and in response to BCUC IR 2.95.1 (VIC). Note that this Gantt chart allows many months of room for any unforeseen delays that may occur in the development of a transmission project (by Sea Breeze or by BCTC).

Finally, correspondence with WECC is included in Appendix 4.155.1D, as per Sea Breeze commitment in Exhibit B2-50, Item No. 2.

**Table 1**

| Comparison of Juan de Fuca and VITR projects under different Indirect Costs scenarios, 6% discount rate analysis. All \$ amounts in \$ million. |                                                                                                                                     |                                                             |                                                        |                                                                                        |                                                                               |          |          |                                                                              |          |          |                                             |          |          |                                                 |          |          |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------|----------|------------------------------------------------------------------------------|----------|----------|---------------------------------------------|----------|----------|-------------------------------------------------|----------|----------|
| A                                                                                                                                               | B                                                                                                                                   | C                                                           | D                                                      | E                                                                                      | F                                                                             | G        | H        | I                                                                            | J        | K        | L                                           | M        | N        | O                                               | P        |          |
| Scenario N                                                                                                                                      |                                                                                                                                     | Cost of VITR project without Indirect Costs, Real 2005 \$\$ | Sum of Indirect Costs Included in VITR, Real \$\$ 2005 | 75% of Total VITR + Indirect Costs Included = amount due to Sea Breeze, Real 2005 \$\$ | Annual Payment Received by Sea Breeze over allocation period of, nominal \$\$ |          |          | Equivalent Level Payment (ELP) over 40-year term, \$ million, real 2005 \$\$ |          |          | Levelized RR Increase as % of F2006 BCTC RR |          |          | Levelized RR Increase as % of F2006 BC Hydro RR |          |          |
|                                                                                                                                                 |                                                                                                                                     |                                                             |                                                        |                                                                                        | Lump-Sum                                                                      | 20-years | 40-years | Lump-Sum                                                                     | 20-years | 40-years | Lump-Sum                                    | 20-years | 40-years | Lump-Sum                                        | 20-years | 40-years |
| 0                                                                                                                                               | VITR Project w/out Indirect Costs                                                                                                   | 261.0                                                       |                                                        |                                                                                        |                                                                               |          |          |                                                                              |          | 21.6     |                                             |          | 3.81%    |                                                 |          | 0.83%    |
|                                                                                                                                                 | JdF Project: Inclusion of Indirect Costs                                                                                            |                                                             |                                                        |                                                                                        |                                                                               |          |          |                                                                              |          |          |                                             |          |          |                                                 |          |          |
| 1                                                                                                                                               | VITR Project Only (No Indirect Costs)                                                                                               |                                                             | 0.0                                                    | 196.2                                                                                  | 209.3                                                                         | 22.3     | 18.7     | 13.0                                                                         | 14.5     | 14.6     | 2.30%                                       | 2.56%    | 2.59%    | 0.50%                                           | 0.56%    | 0.57%    |
| 2                                                                                                                                               | + Synchronous Condensers / SVC only                                                                                                 |                                                             | 37.6                                                   | 224.4                                                                                  | 239.3                                                                         | 25.5     | 21.4     | 14.9                                                                         | 16.6     | 16.7     | 2.64%                                       | 2.93%    | 2.96%    | 0.58%                                           | 0.64%    | 0.65%    |
| 3                                                                                                                                               | + O&M of Existing HVDC only                                                                                                         |                                                             | 30.5                                                   | 219.1                                                                                  | 233.6                                                                         | 24.9     | 20.9     | 14.6                                                                         | 16.2     | 16.3     | 2.57%                                       | 2.86%    | 2.89%    | 0.56%                                           | 0.62%    | 0.63%    |
| 4                                                                                                                                               | + Synchronous Condensers / SVC and O&M of Existing HVDC only                                                                        |                                                             | 68.0                                                   | 247.3                                                                                  | 263.7                                                                         | 28.1     | 23.6     | 16.4                                                                         | 18.2     | 18.4     | 2.90%                                       | 3.22%    | 3.26%    | 0.63%                                           | 0.70%    | 0.71%    |
| 5                                                                                                                                               | + Synchronous Condensers / SVC and O&M of Existing HVDC and Removal of Constraint on Cutplane D only                                |                                                             | 117.0                                                  | 284.0                                                                                  | 302.8                                                                         | 32.3     | 27.1     | 18.9                                                                         | 21.0     | 21.2     | 3.34%                                       | 3.70%    | 3.74%    | 0.73%                                           | 0.81%    | 0.82%    |
| 6                                                                                                                                               | + Synchronous Condensers / SVC and O&M of Existing HVDC and Removal of Constraint on Cutplane D and Seismic Strengthening of Arnott |                                                             | 147.0                                                  | 306.5                                                                                  | 326.8                                                                         | 34.9     | 29.3     | 20.4                                                                         | 22.6     | 22.9     | 3.60%                                       | 4.00%    | 4.04%    | 0.79%                                           | 0.87%    | 0.88%    |

**Note:** The results presented in this table are derived from the interactive spreadsheet attached as “BCUC IR 4-155-1.xls”. Other desired scenarios can be modelled by toggling the switches provided throughout the spreadsheet – these switches are coloured like so:

|   |   |     |   |
|---|---|-----|---|
| N | Y | SEK | Y |
|---|---|-----|---|

### Notes on Financial Spreadsheets:

1. In the Excel file check "ON" Iterations option under tools/options/calculations.
2. Please note that General and Administrative expenses are not part of any of the below calculations. The following tables provide only for direct O&M costs. This treatment is consistent with Sea Breeze's response to BCUC IR # 3.153.1 where the Commission had only asked for the present value of direct O&M.
3. The following tables do not include a provision for income tax. Since the approved and allowed equity returns to the project will be before tax, the amount of tax paid by the project will not have an impact on the rate base. This holds true for both the VITR and VIC projects.
4. Since the prior response to 3.153.1 Sea Breeze has updated its phase one cost estimates and corrected a minor error in PV of the annual O&M. The aggregate of these changes increased the PV of the VIC Project by approximately \$3 million for all of the percentiles.
5. For the purposes of calculating the rate impact of Juan de Fuca the following methodologies were used.
  - a. Percentage of the VITR annual revenue requirement – this methodology looks at the annual cost of service of the VITR project (both direct and indirect capital cost are used in this calculation) and uses 75% as the annual cost of service of Juan de Fuca.
  - b. Percentage of the present value of direct and indirect VITR capital cost – under this methodology Juan de Fuca would receive 75% of PV of VITR direct and indirect costs. The following four sub scenarios present different payment options to Juan de Fuca. They are 1) Lump sum payment, 2) 10-year allocation, 3) 20-year allocation and 4) 40-year allocation. The lump sum payment scenario assumes that Juan de Fuca receives 75% of the VITR capital cost in the first year of its operation. The allocation scenarios assume that 75% of the VITR capital cost will be turned into an annuity carrying 8.67% interest rate (BCTC proposed Weighted Average Cost of Capital) and assuming 10, 20 or 40 life.
6. All of the tables below show the levelized rate impact.

More information is included in the "Notes" tab in the attached spreadsheet.

[illegible][illegible]

[illegible]

**Table 4: VITR Annual Revenue Requirement – Direct and Indirect Costs**

| <b>VITR project: Direct + Indirect Costs, nominal \$\$</b> |              |             | 2007  | 2008  | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|------------------------------------------------------------|--------------|-------------|-------|-------|------|------|------|------|------|------|------|------|------|
| Total Indirect Costs                                       |              |             |       | 116.2 | 6.2  | 6.4  | 6.5  | 6.6  | 6.8  | 6.9  | 7.1  | 7.2  | 51.2 |
| Total RR Increase, nominal \$\$, Direct+Indirect Costs     |              |             |       | 116.2 | 38.1 | 38.0 | 37.9 | 37.8 | 37.7 | 37.6 | 37.5 | 37.5 | 81.2 |
| <b>Real 2005 \$\$ calculations</b>                         | NPV, High DR | NPV, Low DR |       |       |      |      |      |      |      |      |      |      |      |
| Total RR Increase, real 2005 \$\$, Direct+Indirect Costs   | 436.2        | 501.5       | 109.0 | 35.0  | 34.1 | 33.3 | 32.5 | 31.8 | 31.0 | 30.3 | 29.6 | 62.8 |      |
| Levelized RR Increase ==>                                  | 36.6         | 33.3        |       |       |      |      |      |      |      |      |      |      |      |
| Levelized RR Increase as % of Transmiss.RR ==>             | 6.46%        | 5.89%       |       |       |      |      |      |      |      |      |      |      |      |
| Levelized RR Increase as % of BC Hydro RR ==>              | 1.41%        | 1.29%       |       |       |      |      |      |      |      |      |      |      |      |

| VITR project: Direct + Indirect Costs, nominal \$\$      |              |             | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|----------------------------------------------------------|--------------|-------------|------|------|------|------|------|------|------|------|------|------|
| Total Indirect Costs                                     |              |             | 1.1  | 1.1  | 1.2  | 1.2  | 1.2  | 1.2  | 1.3  | 1.3  | 1.3  | 1.3  |
| Total RR Increase, nominal \$\$, Direct+Indirect Costs   |              |             | 30.7 | 30.5 | 30.4 | 30.2 | 30.1 | 29.9 | 29.8 | 29.6 | 29.5 | 29.4 |
| Real 2005 \$\$ calculations                              | NPV, High DR | NPV, Low DR |      |      |      |      |      |      |      |      |      |      |
| Total RR Increase, real 2005 \$\$, Direct+Indirect Costs | 436.2        | 501.5       | 22.8 | 22.2 | 21.6 | 21.0 | 20.5 | 19.9 | 19.4 | 18.9 | 18.4 | 18.0 |
| Levelized RR Increase ==>                                | 36.6         | 33.3        |      |      |      |      |      |      |      |      |      |      |
| Levelized RR Increase as % of Transmiss.RR ==>           | 6.46%        | 5.89%       |      |      |      |      |      |      |      |      |      |      |
| Levelized RR Increase as % of BC Hydro RR ==>            | 1.41%        | 1.29%       |      |      |      |      |      |      |      |      |      |      |

4.155.2 *Please provide a table using the level of detail as set out in the foregoing question that compares the total cost of service to BCTC and its ratepayers of the VITR, VIC and Juan de Fuca projects over the study period.*

**RESPONSE:**

Please refer to the “Revenue (VIC/VITR)” and “JdeF Rate Impact” tabs of the submitted spreadsheet entitled “BCUC IR 4-155-1.xls” for an answer to this IR.

4.155.3 *Please repeat the foregoing question in terms of the annualized or average cost of service over the study period.*

**RESPONSE:**

See Sea Breeze’s response to BCUC IR 4.155.1 (VIC).



## **LIST OF APPENDICES**

- 4.155.1-A: Preliminary Open Season Report of Sea Breeze Pacific Juan de Fuca Cable, LP dated January 3, 2006.
- 4.155.1-B: Supplemental Open Season Report of Sea Breeze Pacific Juan de Fuca Cable, LP dated February 17, 2006.
- 4.155.1-C: Revised Gantt Chart Showing Conditional Schedule for the Juan de Fuca Project.
- 4.155.1-D: Correspondence with WECC regarding the Juan de Fuca Project.

**4.155.1-A:**

**PRELIMINARY OPEN SEASON REPORT  
OF SEA BREEZE PACIFIC JUAN DE FUCA CABLE, LP  
DATED JANUARY 3, 2006.**

**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

**Sea Breeze Pacific Juan de Fuca Cable, LP            )            Docket No. ER05-1228-000**

**PRELIMINARY OPEN SEASON REPORT OF  
SEA BREEZE PACIFIC JUAN DE FUCA CABLE, LP**

Sea Breeze Pacific Juan de Fuca Cable, LP (“JdF”) hereby submits this preliminary report on the Open Season that it conducted as proposed to the Commission in this docket and as authorized by order dated September 15, 2005,<sup>1</sup> with the intention of submitting a supplemental report at a later date.

On July 20, 2005, Sea Breeze filed an application for authority to sell transmission rights at negotiated rates for the proposed Juan de Fuca Project that would run underneath the Strait of Juan de Fuca that lies between Washington State and the Province of British Columbia, Canada. In its application, JdF explained how it intended to conduct an initial Open Season during the fall of 2005 for the purpose of selling long-term point-to-point transmission service (or “scheduling”) rights (“TSRs”) and potentially other ancillary products (*e.g.*, VARS and black start) that derive from the Juan de Fuca Project.

The Commission’s September 15 Order authorized JdF’s proposal on substantially the terms proposed in the application. The September 15 Order directed that JdF report on the results of the Open Season within 30 days following the close of the open season. As the Open Season closed on December 2, 2005, this report is in compliance with that directive. However, because the results from the Open Season are still being analyzed and discussed with bidders,

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<sup>1</sup> 112 FERC ¶ 61,295.

JdF cannot provide details from the Open Season at this time, but provides this preliminary report which will be supplemented when more details are available.

JdF hired an independent consultant, Société Générale, to conduct its Open Season, and such an Open Season was conducted using a fair and transparent process. JdF issued a press release on August 24, 2005 publicly announcing the Open Season, which advised that two bidder conferences would be held on September 14 and 15, 2005. The press release directed readers to a web site for more information on the conferences. The JdF web site provided details about the times and locations of the bidder conferences. The web site also invited interested parties to register for access to a secure Intralinks website<sup>2</sup> where all the detailed bidding information was posted. The Intralinks site contained, among other things, the PowerPoint presentation made at the bidder conferences that explains the Project and the bidding process, Bidding Guidelines, a Master Bid Form, a Pathway Bid Form, and a Pathway Product Purchase Agreement.

Bidder conferences were held as announced on September 14, 2005 in Vancouver, B.C., and on September 15, 2005 in Portland, Oregon. The original bidding deadline was October 25, 2005, but, at the request of a number of Independent Power Producers, it was extended until December 2, 2005. An additional bidder conference was held on November 22, 2005, in Vancouver.

The Open Season closed on December 2, 2005. As mentioned, JdF is still in the process of discussing and analyzing the results of the Open Season, so it cannot at this time provide a final assessment of the results. JdF would welcome the opportunity to meet with Commission

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<sup>2</sup> Intralinks is a specialized website established so that businesses can set up secure, password-protected areas where information can be exchanged.

staff to discuss the status of the post-Open Season process, and will file a more detailed supplemental report as the analysis of the results is finalized.

Respectfully submitted,

/s/ Brian R. Gish

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Attorneys for Sea Breeze Pacific Juan de Fuca  
Cable, LP

January 3, 2006

**CERTIFICATE OF SERVICE**

I hereby certify that the foregoing document has been served upon each person listed on the official service list in this proceeding.

Dated at Washington, D.C., this 3<sup>rd</sup> day of January, 2006.

/s/ Brian R. Gish

Brian R. Gish

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202-508-6689

**4.155.1-B:**

**SUPPLEMENTAL OPEN SEASON REPORT  
OF SEA BREEZE PACIFIC JUAN DE FUCA CABLE, LP  
DATED FEBRUARY 17, 2006.**



**UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION**

**Sea Breeze Pacific Juan de Fuca Cable, LP        )        Docket No. ER05-1228-000**

**SUPPLEMENTAL OPEN SEASON REPORT OF  
SEA BREEZE PACIFIC JUAN DE FUCA CABLE, LP**

Sea Breeze Pacific Juan de Fuca Cable, LP (“JdF”) submits this Supplemental Report on the Open Season that it conducted as proposed to the Commission in this docket and as authorized by order dated September 15, 2005.<sup>1</sup>

On July 20, 2005, JdF filed an application for authority to sell transmission rights at negotiated rates for the proposed 22 mile long 540 MW direct current (“DC”) power transmission line and converter stations (the “Juan de Fuca Project”) that would run underneath the Strait of Juan de Fuca that lies between Washington State and the Province of British Columbia, Canada.<sup>2</sup> The Project would connect on the south end to a Bonneville Power Administration (“BPA”) 230kV substation in Port Angeles, Washington, and on the north end to a 230kV substation owned by the British Columbia Hydro and Power Authority (“BC Hydro”) and operated by British Columbia Transmission Corporation (“BCTC”) in the vicinity of Victoria, B.C. As mentioned in JdF’s application, JdF is also considering a second DC transmission line that could, if sufficient demand were present, increase the combined transfer capacity to approximately 1100 MW.

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<sup>1</sup> 112 FERC ¶ 61,295.

<sup>2</sup> JdF notes for the record that it recently noticed that the description of JdF’s corporate composition in the September 15 Order at footnote 13 is somewhat incorrect. JdF is a U.S. Limited Partnership between SBJF Holding Corp., Boundless Energy NW, Inc., and Juan de Fuca Cable Management, Inc. United States Power Fund, LP owns 50% of Juan de Fuca Cable Management, Inc. JdF operates through its Canadian subsidiary, Sea Breeze Victoria Converter Corporation (a Nova Scotia Corporation), and its U.S.-based partnership, Sea Breeze Olympic Converter, LP (a Delaware Partnership).

In its application, JdF explained how it intended to conduct an initial Open Season during the fall of 2005 for the purpose of selling long-term point-to-point transmission service (or “scheduling”) rights (“TSRs”) and potentially other ancillary products (*e.g.*, VARS and black start) that derive from the Juan de Fuca Project. The intention of the Open Season was to provide a fair, nondiscriminatory, and transparent process for awarding all of the long-term TSRs and other services from the Project.

The Commission’s September 15 Order authorized JdF’s proposal on substantially the terms proposed in the application, and the Commissioners made positive public statements about the JdF Project at its open meeting. The Commission found that the JdF proposal satisfied the ten criteria the Commission had previously used to evaluate merchant transmission line proposals, even though under the circumstances of this case, it was not necessary to satisfy all of them.<sup>3</sup> The September 15 Order directed that JdF report on the results of the Open Season within 30 days following the close of the open season.

JdF filed a Preliminary Open Season Report on January 3, 2006, informing the Commission that the Open Season had occurred and that the results were being discussed and analyzed. JdF committed to submitting a supplemental Open Season Report containing more details as they became available, which this report represents.

### **DESCRIPTION OF OPEN SEASON**

JdF hired an independent consultant, Société Générale, a major corporate and investment banking company, to serve as the Project’s financial advisor and conduct its Open Season. The proposed JdF Project and the Open Season were well publicized. Two press releases were issued in August 2005 about the Project. The first, on August 17, 2005, announced the results of a

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<sup>3</sup> September 15 Order at P 17. Specifically, the Commission found that although the application meets the market monitoring and operational control criteria, it did not need to do so.

Transmission Interconnection System Impact Study commissioned by BPA with respect to the Project. (See Attachment A). The second, on August 24, 2005 announced the Open Season, which advised that two bidder conferences would be held on September 14 and 15, 2005. This press release directed readers to a web site for more information on the conferences. (See Attachment B). The press releases were sent to relevant news organizations, and news about the Open Season was published in various trade publications, including, for example, Platt's Electric Power Daily and Business Wire. (See Attachment C). In addition, both press releases were e-mailed directly to targeted audiences that were considered to possibly have an interest in the Project. For example, one e-mail list contained the names of over 120 people at more than 40 different utilities and energy companies in the U.S. and Canada who were determined by Société Générale to have a possible interest. Another e-mail list contained the names of all entities that attended a conference concerning a request for proposals for energy and capacity by Puget Sound Energy. In addition, the Commission itself issued a press release when it issued the September 15 Order approving of the proposal in the present docket and the remarks of the Commissioners were widely published in the trade press in numerous publications. (See Attachment D).

The JdF web site provided details about the times and locations of the bidder conferences. The web site also invited interested parties to register for access to a secure Intralinks website<sup>4</sup> where all the detailed bidding information would be posted. Five entities registered for access to the Intralinks site. The Intralinks site contained, among other things, the PowerPoint presentation made at the bidder conferences that explains the Project and the bidding

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<sup>4</sup> Intralinks is a specialized website established so that businesses can set up secure, password-protected areas where information can be exchanged.

process, Bidding Guidelines, a Master Bid Form, a Pathway Bid Form, and a Pathway Product Purchase Agreement.

Bidder conferences were held as announced on September 14, 2005 in Vancouver, B.C., and on September 15, 2005 in Portland, Oregon. The original bidding deadline was October 25, 2005, but, at the request of a number of Independent Power Producers, and to allow market participants to absorb the ramifications of a possible new transmission line proposed to link the San Francisco and Portland areas, it was extended until December 2, 2005. There was a press release issued about this proposed line, which attracted much press attention, and which was placed on the JdF Intralinks web site. (See Attachment E). An additional bidder conference was held on November 22, 2005 in Vancouver. Also, as the Project sponsors are members of the Western Electricity Coordinating Council (“WECC”), the Northwest Power Pool (as a Transmission Entity), and other regional organizations, project updates were made at regional planning meetings over the last year.

The attached excerpts from the bidder conference PowerPoint presentation (Attachment F) and the Bidders Guidelines (Attachment G) provide the details of the products offered in the Open Season and the evaluation criteria. In sum, JdF solicited interest for the two pathways (north and south) for the transmission line location described in JdF’s July 20 Application to the Commission that would run between Port Angeles and the Pike Substation in Victoria. In addition, JdF solicited interest for two alternate routes for a possible Phase II of the Project, one of which would run between Fairmount, Washington and the Pike Substation, and the other between Fairmount, Washington, and Ingledow substation near Vancouver, B.C. The two directions on each of these three possible lines provided six pathways to bid upon. For each

pathway, JdF solicited interest for four products: firm "TSRs" in blocks of 25 MW or more; reactive power, blackstart capability, and voltage stability.

The Open Season closed on December 2, 2005. One bid was received from Sea Breeze Energy, Inc., which is an affiliate of one of the Project sponsors, for 125 MW of firm TSRs for a term of 21 years on the north to south pathway.<sup>5</sup> In subsequent discussions, Sea Breeze Energy increased the quantity of its bid to 275 MW for the same pathway. Société Générale is having discussions with Sea Breeze Energy about its bid. Assuming successful negotiations with this bidder, additional capacity will remain available on the proposed line for other possible shippers desiring to use the Project. JdF is advised that Sea Breeze Energy is in the process of seeking to aggregate the output of other independent power producers to utilize North to South transmission. JdF will need additional TSR commitments (S to N or N to S) or firm revenue sources from system benefits, in addition to the capacity bid by Sea Breeze Energy, in order to secure financing for the Project. JdF is confident that additional commitments can be obtained assuming it has the flexibility it needs to pursue such commitments.

Although not a formal bid, the Independent Power Producers Association of British Columbia submitted a letter of support for the Project, which indicated strong interest by British Columbia IPPs for additional transmission capacity to the U.S. The letter noted that the IPPs were unable to bid at the present time because of an ongoing solicitation of capacity by B.C. Hydro that was currently occupying the IPPs' attention. (Attachment H).

Also, although it did not submit a bid in the Open Season, it is interesting to note that during the Open Season, Powerex Corporation (the power marketing subsidiary of BC Hydro)

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<sup>5</sup> The Commission has approved of affiliates participating in open seasons as long as an independent consultant is hired to evaluate the results. *See Neptune Regional Transmission System*, 103 FERC ¶ 61,213 at P 21 (2003). Here, JdF's independent consultant, Société Générale, conducted the open season and evaluated the results.

submitted two bulk transmission service requests to BPA for delivery of 500 MWs to the JdF terminus in Port Angeles, even though Port Angeles has a native load less than 50 MWs. These requests have subsequently been withdrawn. (See Attachment I).<sup>6</sup>

Finally, JdF is advocating the JdF Project as an alternative to a proposal by BCTC brought before the British Columbia Utilities Commission (“BCUC”) to build a new transmission line to Vancouver Island for reliability and reserve power. (See BCUC issues list at Attachment J). The BCUC began public hearings on the alternative projects on February 6, 2006, which will likely continue for at least several weeks. If the BCUC believes that the JdF Project is an alternative, then there is the possibility that BCTC may acquire the service from South to North over the Project at rates negotiated between JdF and BCTC guided by principles established in BCUC’s recent decision approving BCTC’s Open Access Transmission Tariff application, with subsequent approval by the BCUC.

Based on the strong support received so far, the Project sponsors are confident that adequate demand and interest is available for the Project. The Open Season provided an excellent market analysis and sufficient market information to gauge that further development is possible. It was recognized from the start of the Project that the development of a functional open market for TSRs in this region would take time. The Open Season was expected to, and did, accomplish the objective of initiating the process and providing a fair and open opportunity for market participants to show their early interest and to reserve rights.

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<sup>6</sup> The Powerex reservations would have required BPA to conduct a system impact study. The results of the study would have enabled JdF to quantify some of the system benefits that JdF believes are the result of the JdF Project, and would have evaluated another possible return path for the Canadian Entitlement that may have been found to be more “user friendly.” Unfortunately, because JdF does not qualify as an eligible customer under BPA’s Tariff, JdF itself cannot make the reservations that would require BPA to conduct such system impact studies. However, JdF intends to perform its own studies as part of Phase 3 of the WECC Path rating process. At the present time JdF is completing Phase 1 of the process and moving into Phase 2.

## FUTURE COURSE

The limited formal response to the Open Season was not entirely unexpected. As JdF stated in its July 20, 2005 Application in this docket:

[D]ue to the unique nature of the benefits created by the Juan de Fuca Project, it is unlikely that an open season will result in bids that will reflect full compensation for the benefits created by the project. The two largest potential beneficiaries, BPA and BCTC, are likely not permitted by their enabling regulations to bid into an open season to purchase TSRs, and even if they were, it is questionable whether such bids for TSR capacity would reflect the totality of the reliability and other system benefits they would receive by virtue of the line being in service. There are currently studies underway to quantify the system benefits that would be produced by the Juan de Fuca Project, and both BPA and BCTC have proceedings underway to examine the best potential alternatives to solve their capacity deficiencies. It is not likely that these studies and proceedings will be completed in time for the open season JdF intends to conduct to sell initial TSRs in the Project. JdF will most likely be required to conduct individual negotiations with BPA and BCTC in order to receive compensation for many of the Project benefits. In order to achieve the maximum mutual benefits for the parties and the region, it may be desirable or required by one of the parties that certain project uses be made available to them as part of an integrated package of terms that permits the most seamless functioning of the Project with the two existing grid operators. JdF asks the Commission to grant it the flexibility, which it has previously granted in similar circumstances [fn], to conduct such individual negotiations and receive whatever compensation can be negotiated from BPA and BCTC for Project benefits.

[fn] *See Neptune, supra*, 96 FERC at 61,634.

Now that JdF has complied with the Commission's requirement to hold a transparent open season that provided all potentially interested customers the equal opportunity to subscribe for service on the basis of bids, JdF must attempt to sign up additional customers on the basis of individual discussions with the various entities in this region that is unique with its complex grid responsibility structure.



JdF continues to believe that its Project can provide substantial benefits for transmission customers and for the reliability of the region, but the Project is a novelty in a region dominated by two large government-owned transmission systems, BPA and BCTC, and where there have been unsuccessful, yet continuing, efforts to form some sort of regional transmission entity. It is difficult for a potential customer to make an early economic commitment to the Project in the absence of knowledge about pricing and availability of adjacent transmission paths.

In the *Neptune* case cited in the quotation above, the Commission stated that the merchant transmission applicant there was “free to negotiate with the various grid operators to obtain financial support for the project.” In a subsequent *Neptune* order, the Commission stated that it was willing to reconsider the requirement that open seasons be used for the initial allocation of TSRs.<sup>7</sup> Finally, in yet another *Neptune* order, the Commission approved as consistent with an open season a process whereby the merchant line bid its capacity into an RFP conducted by the ultimate purchaser of all the TSRs on the line.<sup>8</sup>

Given the unique circumstances surrounding JdF’s Project, in addition to open seasons, it will likely be necessary for JdF to engage in alternative approaches in order to obtain value for the products that its Project can offer. As long as these alternate approaches are fair and non-discriminatory, the customers are not captive, and JdF assumes the financial risk, they should not cause regulatory concern. For example, as mentioned above, JdF has submitted its proposed Project to the BCUC as an alternative to a proposal by BCTC to build a new transmission line to Vancouver Island for reliability and reserve power, which is currently under consideration. This BCUC process demonstrates the special circumstances that exist in the Northwest that make it impractical to place sole reliance on an open season to sell TSRs.

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<sup>7</sup> *Neptune Regional Transmission System*, 103 FERC ¶ 61,213 at P 18 (2003).

<sup>8</sup> See Letter Order, Docket No. ER01-2099-003 (December 23, 2004).

Regional studies are underway that will better quantify the system benefits the JdF Project can provide. JdF has completed Interconnection studies with BPA, and BPA is now performing the Facilities studies required for an Interconnection Agreement as JdF has agreed to pay the interconnection costs and the subsequently identified network upgrades associated with the Project to improve the system on the entire Olympic Peninsula as far south as the Paul substation. BCTC is working on the Interconnection Facilities Study for the interconnection to Canada, and a WECC Regional Path Rating Review group has been formed and regional studies are underway.

JdF has given all potential customers in the region a full and fair opportunity to participate in an open season to apportion the TSRs from the Project in a transparent and competitive setting, and therefore has satisfied the obligation of the Commission's September 15 Order to conduct an open season. Because this open season approach, at this time, has not fully satisfied the Project's needs, JdF needs to pursue alternative approaches (which may include individual negotiations or future open seasons) to obtain full value for its products. Of course, JdF recognizes that it ultimately will have to demonstrate to the Commission that any jurisdictional rates proposed to be charged for use of the Project are just and reasonable and not unduly discriminatory.

## CONCLUSION

In conclusion, JdF asks that the Commission issue an order accepting this Open Season Report as fully satisfying JdF's Open Season obligations under the September 15 Order.

Respectfully submitted,

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February 17, 2006

***Sea Breeze Power Corp.***

Page 1 of 2

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**NEWS RELEASE**

August 17, 2005

TSX-VENTURE: SBX

**Strait of Juan de Fuca Transmission Lines  
Bonneville Power Administration – Transmission Interconnection System Impact Study**

***Results Indicate BPA System Upgrades Could Increase Olympic Peninsula Corridor to 1100 MW***

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Sea Breeze Power Corp. is pleased to announce that the results of a Transmission Interconnection System Impact Study commissioned by Bonneville Power Administration ("BPA"), have been posted on the BPA website at: [www.transmission.bpa.gov/planproj/netplanning.cfm](http://www.transmission.bpa.gov/planproj/netplanning.cfm)

The study was designed to analyze the impact on BPA's Olympic Peninsula transmission network, of the importing and exporting of electric energy made possible by two high-voltage, direct current ("HVDC Light™") submarine transmission cables proposed to be built across the Strait of Juan de Fuca, by Sea Breeze Pacific Juan de Fuca Cable, LP ("Sea Breeze Pacific JDF").

Results of the study indicate that, subject to certain upgrades of the BPA system on and south of the Olympic Peninsula, a transmission corridor of up to 1100 MW (bi-directional) stretching from the Olympia Substation (located near Olympia, Washington) to the proposed submarine cable terminals at Port Angeles and Fairmont Substations on the north end of the Olympic Peninsula, could be achieved by the construction of the two Juan de Fuca cable projects presently under development by Sea Breeze Pacific JDF.

The new submarine cables would cross the international border beneath the Strait of Juan de Fuca, linking Vancouver Island, British Columbia, with the Olympic Peninsula in Washington State.

John Tompkins, Chief Operating Officer of Sea Breeze Pacific JDF, noted that

"As each of the two proposed HVDC Light™ Strait of Juan de Fuca transmission interconnections ("JDF") are fully controllable and have a rated capacity in excess of 500 MW, the power corridor would extend north to the JDF interconnection points in British Columbia. Additionally, we believe that BPA's Olympic Peninsula reinforcements noted in the report can be easily further enhanced to extend the corridor south from Olympia to the Allston Substation, located approximately 40 miles north of Portland Oregon at the Oregon/Washington border. These enhancements will be analyzed and cost determined in our currently ongoing Inter-regional Study."

Mr. Tompkins further noted "Beyond easing existing transmission constraints within Washington State, the Juan de Fuca cables have also been designed to provide additional transmission reliability to Vancouver Island, which is facing a reliability shortfall after 2007 as a result of the planned de-rating for old submarine cables presently serving Vancouver Island from the Lower Mainland of British Columbia."

The Electrical Systems Consulting Group of ABB Inc., in Raleigh, North Carolina, under contract and direction of BPA, conducted BPA's Transmission Interconnection System Impact Study, as well as the earlier completed Transmission Interconnection Feasibility Study.

Within British Columbia, a feasibility study of the impacts on the British Columbia grid system to interconnect, and the reinforcements needed to move power to and from Victoria, British Columbia from other points within the province, is currently in progress. ABB Inc.'s Electrical Systems Consulting Group was also contracted by BC Transmission Corporation to conduct this feasibility study.

An auction for transmission scheduling rights on the proposed cables, managed by the New York based project finance department of Société Générale's Corporate Investment Bank, is scheduled to be held this fall.

ON BEHALF OF THE BOARD OF DIRECTORS

"Paul B. Manson"

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PAUL B. MANSON, President

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*The TSX Venture Exchange has not reviewed and does not accept responsibility for the adequacy or accuracy of the contents herein.*



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**NEWS RELEASE**

August 24, 2005

**Strait of Juan de Fuca Transmission Cables  
September 14-15, 2005 Launch of "Open Season"**

**Auction for 1100 MWs of Capacity on Proposed New International HVDC Light™  
Transmission Lines between Washington State and British Columbia**

Sea Breeze Pacific Juan de Fuca Cable, LP is pleased to announce that an "Open Season" for 550 MW each of transmission capacity and ancillary services made available via two new proposed submarine cables across the Strait of Juan de Fuca, is scheduled to commence on September 14, 2005. Two conferences for potential bidders will be held to kickoff the Open Season, one in Vancouver, BC on September 14, 2005, followed by a second meeting to take place September 15, 2005 in Portland, Oregon. The details regarding time and location are posted at [www.jdfcable.com](http://www.jdfcable.com).

Société Générale will manage the Open Season process, and subsequent negotiations with the selected parties.

The routing for the cables calls for one line to run between Port Angeles on Washington State's Olympic Peninsula and Victoria on Vancouver Island, British Columbia, with a second line to run between Fairmount on Washington State's Olympic Peninsula and a terminus located in the Vancouver metropolitan area. Permitting on the first line is well underway with application submissions expected before the end of this year. The target in-service date for the first cable would allow it to be on-line for the winter peak loads in 2007 with the second as soon as 2008. Both lines would provide for bi-direction power flow. When built these two cables are expected to significantly enhance inter-regional power flows and significantly augment the regional transmission systems.

The interconnecting utilities will be Bonneville Power Administration ("BPA") in Washington State, and British Columbia Transmission Corporation ("BCTC") in British Columbia. The project has been under development since October 2003, with the first interconnection filings made with BPA and BCTC in June 2004. An application for a Presidential Permit was filed in February 2005, and BPA's "Transmission Interconnection System Impact Study" was completed August 15, 2005.

The project would utilize HVDC Light™ cable and converter systems - leading-edge technologies characterized by low line losses, capability to provide high levels of voltage stability, and minimal impact on marine environments.

The project has received equity financing from US Power Fund, L.P., a subsidiary of Energy Investors Funds ("EIF"). Following completion of project development, planned for September 2006, EIF has an option to provide the balance of the equity required for the project. Société Générale will advise on arranging project debt.

Capital Access, LLC, of Seattle, Washington has acted as placement agent for the US Power Fund, L.P. transaction, and in concert with Société Générale, has been appointed financial advisor to the project.

Sea Breeze Pacific Juan de Fuca Cable, LP, a special purpose entity, is equally owned by Sea Breeze Power Corp. based in Vancouver, British Columbia, and Boundless Energy NW, Inc, of York Harbor, Maine (an affiliate of Boundless Energy, LLC).

A positive response to an application filed with the Federal Energy Regulatory Commission (FERC) for authority to conduct the Open Season is expected shortly.

***About Sea Breeze Power Corp.***

Sea Breeze Power Corp. is a leading developer of renewable energy in British Columbia. Its proposed Knob Hill Wind Farm received environmental approvals in September 2004, and is believed to be the largest single onshore wind farm in the world to receive planning approval. The Knob Hill Wind Farm is being designed for a nameplate capacity of 450 megawatts – capable of generating enough electricity to power approximately 135,000 homes. Sea Breeze Power Corp. trades on the TSX Venture Exchange under the symbol "SBX". For more information about Sea Breeze Power Corp., please visit [www.seabreezepower.com](http://www.seabreezepower.com).

***About Boundless Energy, LLC***

Based in York Harbor, Maine, Boundless Energy, LLC was the founder and original transmission engineering principal of the Project Neptune Undersea Cable consortium, whose contract with Long Island Power Authority resulted in Energy Investors Funds providing equity funding for the installation of a 67-mile, 660-megawatt HVDC submarine transmission cable from northern New Jersey to central Long Island, New York. The Neptune Project cable is presently under construction with a target completion date of 2007.

***About Energy Investors Funds***

Energy Investors Funds is 100% management owned and was founded in 1987 as the first investment manager to raise, close, invest, recapitalize, and liquidate the assets of a private equity power fund, and is the only private equity power fund manager with an established track record of long-term success.

This is the second undersea cable that Energy Investors Funds has financed in the past twelve months. In July 2005, EIF financed the Neptune Undersea Cable project and were also part of the team that funded the land-based Path 15 transmission line upgrade in central and southern California, which went live in December 2004.



Energy Investors Funds has mobilized over \$1.5 billion in capital, and currently manages five private equity funds from its offices in Boston, New York, and San Francisco. These funds have made over 65 diversified investments, with a combined underlying asset value exceeding \$5 billion. For more information visit please [www.eifgroup.com](http://www.eifgroup.com).

The United States Power Fund, L.P., which closed in December 2003, raised total commitments of \$250 million from endowments and foundations, pension plans, fund-of-funds, high net worth individuals, banks and insurance companies, and utilities. The Fund principally targets investments in generation, transmission and energy service assets in the U.S. The United States Power Fund II, L.P., which had its first closing in June 2005, has commitments from the same network of investors and is pursuing a similar investment strategy.

***Sea Breeze Pacific Juan de Fuca Cable, LP***

By it's General Partner  
***Juan de Fuca Cable Management, Inc.***

"Paul B. Manson"

---

per: Paul B. Manson,  
Director

For further information on the Open Season bidding process or to register to attend the Open Season meetings, please contact:

**Société Générale Corporate and Investment Bank**  
**Att: Mr. Chris Moscardelli - Vice President, Project Finance**  
**Tel: (212) 278-5752**  
**Fax: (212) 278-6136**  
**Email: [Chris.Moscardelli@sgcib.com](mailto:Chris.Moscardelli@sgcib.com)**

*"This news release may contain forward-looking statements. Actual events or results may differ materially from those described in the forward-looking statements due to a number of risks and uncertainties. Forward-looking statements are based on management's estimates, beliefs and opinions. The Company assumes no obligation to update forward-looking statements."*

**Attachment C**

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*Open season set for Northwest merchant lines Electric Power Daily August 26, 2005 Friday*

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***Electric Power Daily***

Electric Power Daily

**August 26, 2005 Friday**

**SECTION:** Pg. 5

**LENGTH:** 367 words

**HEADLINE:** Open season set for Northwest merchant lines

**BODY:**

Developers of two proposed 500-MW international merchant undersea transmission lines between British Columbia and Washington state plan to attract shippers with an Open Season solicitation starting Sept. 14, officials said Thursday.

**Sea Breeze** Power Corp. of Vancouver and Boundless Energy NW Inc. of York Harbor, Maine, are developing the projects. One \$200 million line is in the permitting process. It would stretch 22 miles across the Strait of **Juan de Fuca** between Victoria on Vancouver Island, B.C., and Port Angeles, Wash., near the Pacific Ocean and be energized in the winter of 2007.

The line would relieve a bottleneck for moving power in and out of British Columbia. "There is undeveloped potential for renewable resources in [British Columbia]. This line would represent an opportunity for developers," Paul Manson, **Sea Breeze** Power's president and director of **Sea Breeze** Pacific **Juan de Fuca** Cable, LP, said Thursday in an interview.

The Dept. of Energy is considering issuing a presidential permit to enable the project to interconnect at the U.S. border in Port Angeles. DOE plans to release environmental reports and a Record of Decision next summer.

But a connection to the grid of Washington state is not guaranteed. The Bonneville Power Administration's lines near Port Angeles are at capacity. "Additional transmission would need to be built and we have no plans to build a line there," said a BPA spokesman. Developers have not filed yet with BPA an interconnection application listing delivery points or amount of power to deliver.

The second undersea cable would originate in British Columbia near the Washington border and extend 80 miles southwest through the strait to Port Angeles. The line would go into service in summer 2008 if developers receive permits and a transmission pathway in Washington.

Societe Generale of New York will handle the Open Season process. "We will work with potential bidders to set a final schedule for receiving bids. Our intent is to complete the open season this year," Roger Bredder, managing director of Societe Generale, said Thursday.

U.S. Power Fund LP, a unit of Energy Investors Funds of San Francisco, Calif., holds an option to provide financing.

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*Sea Breeze Power Corp.: Strait of Juan de Fuca Transmission Cables; September 14-15, 2005 Launch of 'Open Season' Business Wire August 24, 2005 Wednesday*

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Business Wire

**August 24, 2005 Wednesday 12:27 AM GMT**

**DISTRIBUTION:** News Editors

**LENGTH:** 1133 words

**HEADLINE:** Sea Breeze Power Corp.: Strait of **Juan de Fuca** Transmission Cables; September 14-15, 2005 Launch of 'Open Season'

**DATELINE:** VANCOUVER, British Columbia Aug. 24, 2005

**BODY:**

**Sea Breeze** Power Corp. (TSX VENTURE:SBX) -

Auction for 1100 MWs of Capacity on Proposed New International HVDC Light(TM) Transmission Lines between Washington State and British Columbia

**Sea Breeze** Power Corp., on behalf of **Sea Breeze** Pacific **Juan de Fuca** Cable, LP is pleased to announce that an "Open Season" for 550 MW each of transmission capacity and ancillary services made available via two new proposed submarine cables across the Strait of **Juan de Fuca**, is scheduled to commence on September 14, 2005. Two conferences for potential bidders will be held to kickoff the Open Season, one in Vancouver, BC on September 14, 2005, followed by a second meeting to take place September 15, 2005 in Portland, Oregon. Further details on the time and location of the meetings will be posted on [www.jdfcable.com](http://www.jdfcable.com).

Societe Generale will manage the Open Season process, and subsequent negotiations with the selected parties.

The routing for the cables calls for one line to run between Port Angeles on Washington State's Olympic Peninsula and Victoria on Vancouver Island, British Columbia, with a second line to run between Fairmount on Washington State's Olympic Peninsula and a terminus located in the Vancouver metropolitan area. Permitting on the first line is well underway with application submissions expected before the end of the year. The target in-service date for the first cable would allow it to be on-line for the winter peak loads in 2007 with the second line to follow as soon as 2008. Both lines would provide for bi-direction power flow. When built these two cables are expected to significantly enhance inter-regional power flows and significantly augment the regional transmission systems.

The interconnecting utilities will be Bonneville Power Administration ("BPA") in Washington State, and British Columbia Transmission Corporation ("BCTC") in British Columbia. The

project has been under development since October 2003, with the first interconnection filings made with BPA and BCTC in June 2004. An application for a Presidential Permit was filed in February 2005, and BPA's "Transmission Interconnection System Impact Study" was completed August 15, 2005.

The project would utilize HVDC Light(TM) cable and converter systems - leading-edge technologies characterized by low line losses, capability to provide high levels of voltage stability, and minimal impact on marine environments.

The project has received equity financing from US Power Fund, L.P., a subsidiary of Energy Investors Funds ("EIF"). Following completion of project development, planned for September 2006, EIF has an option to provide the balance of the equity required for the project. Societe Generale will advise on arranging project debt.

Capital Access, LLC, of Seattle, Washington has acted as placement agent for the US Power Fund, L.P. transaction, and in concert with Societe Generale, has been appointed financial advisor to the project.

**Sea Breeze Pacific Juan de Fuca Cable, LP**, a special purpose entity, is equally owned by **Sea Breeze Power Corp.** based in Vancouver, British Columbia, and Boundless Energy NW, Inc, of York Harbor, Maine (an affiliate of Boundless Energy, LLC).

A positive response to an application filed with the Federal Energy Regulatory Commission (FERC) for authority to conduct the Open Season is expected shortly.

About **Sea Breeze Power Corp.**

**Sea Breeze Power Corp.** is a leading developer of renewable energy in British Columbia. Its proposed Knob Hill Wind Farm received environmental approvals in September 2004, and is believed to be the largest single onshore wind farm in the world to receive planning approval. The Knob Hill Wind Farm is being designed for a nameplate capacity of 450 megawatts - capable of generating enough electricity to power approximately 135,000 homes. **Sea Breeze Power Corp.** trades on the TSX Venture Exchange under the symbol "SBX". For more information about **Sea Breeze Power Corp.**, please visit [www.seabreezepower.com](http://www.seabreezepower.com).

About Boundless Energy, LLC

Based in York Harbor, Maine, Boundless Energy, LLC was the founder and original transmission engineering principal of the Project Neptune Undersea Cable consortium, whose contract with Long Island Power Authority resulted in Energy Investors Funds providing equity funding for the installation of a 67-mile, 660-megawatt HVDC submarine transmission cable from northern New Jersey to central Long Island, New York. The Neptune Project cable is presently under construction with a target completion date of 2007.

About Energy Investors Funds

Energy Investors Funds is 100% management owned and was founded in 1987 as the first investment manager to raise, close, invest, recapitalize, and liquidate the assets of a private equity power fund, and is the only private equity power fund manager with an established track record of long-term success.

This is the second undersea cable that Energy Investors Funds has financed in the past twelve months. In July 2005, EIF financed the Neptune Undersea Cable project and were also part of the team that funded the land-based Path 15 transmission line upgrade in central and southern California, which went live in December 2004.

Energy Investors Funds has mobilized over \$1.5 billion in capital, and currently manages five private equity funds from its offices in Boston, New York, and San Francisco. These funds have made over 65 diversified investments, with a combined underlying asset value exceeding \$5 billion. For more information visit please [www.eifgroup.com](http://www.eifgroup.com).

The United States Power Fund, L.P., which closed in December 2003, raised total commitments of \$250 million from endowments and foundations, pension plans, fund-of-funds, high net worth individuals, banks and insurance companies, and utilities. The Fund principally targets investments in generation, transmission and energy service assets in the U.S. The United States Power Fund II, L.P., which had its first closing in June 2005, has commitments from the same network of investors and is pursuing a similar investment strategy.

ON BEHALF OF THE BOARD OF DIRECTORS,

Paul B. Manson, President

"This news release may contain forward-looking statements. Actual events or results may differ materially from those described in the forward-looking statements due to a number of risks and uncertainties. Forward-looking statements are based on management's estimates, beliefs and opinions. The Company assumes no obligation to update forward-looking statements."

The TSX Venture Exchange has not reviewed and does not accept responsibility for the adequacy or accuracy of the contents herein.

**Sea Breeze** Power Corp. (TSX VENTURE:SBX)

CONTACT: **Sea Breeze** Power Corp. Mr. Remy Quinter (604) 689-2991 ext.257 or Toll Free: 1-866-387-1240 ext.257 Fax: (604) 689-2990 [investor@SeaBreezePower.com](mailto:investor@SeaBreezePower.com)  
[www.SeaBreezePower.com](http://www.SeaBreezePower.com)

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# FEDERAL ENERGY REGULATORY COMMISSION

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WASHINGTON, D.C. 20426

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## NEWS RELEASE

### NEWS MEDIA CONTACT

Barbara A. Connors  
(202) 502-8680

### FOR IMMEDIATE RELEASE

September 15, 2005  
Docket No. ER05-1228-000

### COMMISSION APPROVES PACIFIC NW TRANSMISSION PROPOSAL, SIGNALS RECONSIDERATION OF MERCHANT LINE CRITERIA

The Federal Energy Regulatory Commission today signaled it is reconsidering the 10 criteria it uses to evaluate merchant transmission line proposals in an order approving a rate proposal for a planned 540-megawatt high-voltage, direct-current transmission line beneath the Strait of Juan de Fuca. The proposed 22-mile line would provide a new link between power grids in Washington State and British Columbia.

Sea Breeze Pacific Juan de Fuca Cable LLP plans to sell transmission rights at negotiated rates for the transmission line scheduled to begin operation in December 2007. The project is expected to bolster regional power grid reliability by connecting federal Bonneville Power Administration facilities with a substation owned by the British Columbia Hydro and Power Authority.

"U.S. investment in transmission infrastructure has seriously lagged electricity demand growth for years. Merchant transmission projects, in which the project developers and not ratepayers assume the investment risk, can play a useful role in expanding competitive options and improving grid reliability," noted Commission Chairman Joseph T. Kelliher.

The Commission evaluates proposals to charge negotiated rates for transmission rights on new transmission facilities based on 10 criteria. They are: (1) the merchant facility assumes full market risk; (2) that service is provided under the open-access transmission tariff of an Independent System Operator or Regional Transmission Organization; (3) the project should create tradable firm secondary transmission rights; (4) an open season process is used to initially allocate transmission rights; (5) the results of the open season should be posted on an open-access same-time information system; (6) affiliate concerns are adequately addressed; (7) the merchant transmission facility does not preclude access to essential facilities by competitors; (8) the facility is subject to market monitoring; (9) the physical energy flows on the facility should be coordinated with, and be subject to, reliability requirements; and (10) the facility should not impair pre-existing property rights to use transmission grids of interconnected RTOs or utilities.

After taking into account the circumstances in which the facts of this case are different from those of previous merchant transmission proposals, the Commission found that Sea Breeze's proposal satisfies the Commission's criteria and approved its plan to hold an open season in the fall of 2005 to accept bids for transmission rights.

The Commission found that Sea Breeze's application meets the market monitoring and operational control criteria, but also concluded that under the specific circumstances of this case it does not need to do so. The Commission indicated that it is open to reconsidering the remaining criteria for these kinds of projects in a future proceeding.

The Department of Energy delegates authority to the Commission to take actions to implement and enforce non-discriminatory open access transmission service over the U.S. portion of international electric transmission lines. The Commission's action is subject to the delegation of authority by the Secretary of Energy to review Sea Breeze's application for a Presidential Permit for the project and the Commission's authority pursuant to section 205 of the Federal Power Act.

(30)

R-05-58





## Pacific Gas and Electric Company and Sea Breeze Pacific to Explore Major New Electric Transmission Project

*SAN FRANCISCO, Nov 01, 2005 /PRNewswire-FirstCall*

Pacific Gas and Electric Company and Sea Breeze Pacific West Coast Cable, LP, have agreed to study the possible development of an undersea electric transmission line that would enhance power supplies in northern California by connecting the region with sources of low-cost and renewable electricity in the Pacific Northwest.

Under the terms of a newly signed Memorandum of Understanding, the companies will work together to evaluate the possible development, design, construction, operation and ownership of the project, which would be the world's longest undersea high-voltage direct current cable. If built, the 1,600-megawatt cable would stretch 650 miles from a substation near Portland, Oregon, to the San Francisco Bay Area.

California requires the state's investor-owned utilities to acquire 20 percent of their purchased or generated energy from eligible renewable generation sources by 2010. The line would likely provide PG&E's California utility customers more direct access to existing hydroelectric power from the Pacific Northwest, as well as future access to the vast, but as yet largely undeveloped, renewable wind energy resources of the Pacific Northwest and Western Canada.

"This project is an example of the innovative options PG&E is exploring today to serve customers better by strengthening infrastructure, creating savings through access to lower cost energy supplies, ensuring adequate power supplies, and minimizing environmental impacts," said Stewart Ramsay, PG&E's vice president of electric transmission.

"We are excited to be working with PG&E on creative infrastructure solutions utilizing state-of-the-art technology" said Brian Chernack, CEO of Sea Breeze Pacific.

"Creating a new, highly efficient transmission corridor along the West Coast will greatly facilitate rapid growth of clean energy generation in a region which has abundant renewable resources, but which are presently 'stranded' for lack of transmission," noted John Tompkins, COO of Sea Breeze Pacific.

Sea Breeze Pacific West Coast Cable LP is a joint venture between Sea Breeze Power Corp. of Vancouver (TSXv: SBX) and Boundless Energy NW, Inc., of York Harbor, Maine. The two companies are also jointly developing two other 550-megawatt HVDC submarine cable projects, the Juan de Fuca Cable and the Vancouver Island Cable. The Vancouver Island Cable is proposed to operate between Greater Vancouver on the mainland of British Columbia and Greater Victoria, on the southern tip of Vancouver Island. The Juan de Fuca Cable would run between Greater Victoria and Port Angeles, Washington.

Sea Breeze Power Corp. is a leading developer of renewable energy in British Columbia. Its proposed

Knob Hill Wind Farm received environmental approvals in September 2004, and is believed to be the largest single onshore wind farm in the world to receive planning approval. The Knob Hill Wind Farm is being designed for a nameplate capacity of 450 megawatts - capable of generating enough electricity to power approximately 135,000 homes. For more information about Sea Breeze Power Corp., please visit [www.seabreezepower.com](http://www.seabreezepower.com).

Boundless Energy NW, Inc. is an affiliate of York Harbor, Maine based Boundless Energy LLC. Boundless Energy LLC is the partner, founder and original transmission engineering principal of the Project Neptune undersea cable consortium, whose contract with Long Island Power Authority resulted in Energy Investors Funds providing equity funding for the installation of a 67- mile, 660-megawatt HVDC submarine transmission cable from northern New Jersey to central Long Island, New York. Debt for the project was arranged by Societe Generale. The Neptune Project cable is presently under construction with a target completion date of 2007.

Pacific Gas and Electric Company is one of the largest combination natural gas and electric utilities in the United States. The company, a subsidiary of PG&E Corporation, serves approximately 15 million people throughout a 70,000- square-mile service area in northern and central California.

SOURCE Pacific Gas and Electric Company

News Provided By





# **Sea Breeze Pacific Juan de Fuca Cable, LP Open Season**

**Attachment F**

**Excerpts from Bidding  
Conference  
PowerPoint Presentation**

**Page 1 of 11**

**September 2005**

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# Overview Of Open Season/Bidding Process

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# Open Season Schedule

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|                       |                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------|
| September 14, 2005    | <ul style="list-style-type: none"><li>• Open season initiated</li><li>• Intralinks web site operational</li></ul> |
| September 14-15, 2005 | <ul style="list-style-type: none"><li>• Open season bidders conferences</li></ul>                                 |
| October 25, 2005      | <ul style="list-style-type: none"><li>• Firm bids due</li></ul>                                                   |
| October 31, 2005      | <ul style="list-style-type: none"><li>• Bid clarifications requested</li></ul>                                    |
| November 7, 2005      | <ul style="list-style-type: none"><li>• Preliminary winners notified<sup>(a)</sup></li></ul>                      |
| December 12, 2005     | <ul style="list-style-type: none"><li>• TSR and other Product Agreements signed</li></ul>                         |

(a) All bid results will remain confidential. Only the name of the winning bidder and the type and amount of products purchased will be made public.

# Overview of Open Season

---

## Offering:

- Long Term Transmission Scheduling Rights (“TSRs”)
- VARs
- Blackstart
- Voltage Stability
- Frequency Stability

## Bid Package:

### Open Season Bidding Guidelines

#### Master Bid Form

#### Pathway Bid Form

#### Pathway Product Purchase Agreement

## Alternate Bids:

Bidders may submit multiple bids. The Company is also willing to consider alternate approaches such as leasing a Project

## Bid Selection:

- NPV @ 10% on 25 year term
- Contract revisions
- Creditworthiness of counterparty

# What is a Juan de Fuca Cable TSR?

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- The right to use the capacity of the Juan de Fuca Cable Project from one specific receipt point to a specific delivery point
- One TSR = the right to transmit one MW of electricity. The duration of a TSR can range from one hour to over 20 years or can be for a distinct period of time (i.e. peak, non-peak)
- TSRs can be bought and re-sold subject to the continuing obligation of the successful bidder to pay the Company the contract price of the TSR
- The TSR holder is responsible for:
  - Paying all charges related to get power to the receipt point and from the delivery point
  - Entering a Transmission Service Agreement with BPA or BCTC as system operator

# Pathway Product Purchase Agreement – Key Terms

---

Buyer: Selected bidder(s) executing Pathway Product Purchase Agreement(s)

Buyer Credit Quality: BBB/Baa2/BBB (S&P/Moody's/Fitch) or other satisfactory credit

Term: Company will be most favorably disposed to bidders providing long-term agreements

Target Commercial Operations Date ("Target COD"): Ingledow/Fairmount: 12/31/2008  
Pike/Port Angeles: 12/31/2007  
Pike/Fairmount: 7/31/2008

Availability Factor: TSR price will be adjusted to compensate Buyer for availability being less than agreed levels



# Pathway Product Purchase Agreement – Key Terms

---

Payment:

Upon COD, payment monthly

Transferability:

TSRs tradeable in secondary market however no release from Buyer performance

Assignability:

To be subject to collateral assignment to seller's lenders as security

Use or lose provision:

Unused TSRs revert to the Company for sale in hour-ahead market (FERC requirement)

# Bidder Registration Form

*Any Bidder who wishes to access the Project's Intralinks site must fill in a registration form and leave it today or fax to Société Générale as shown on the form*

## Juan de Fuca Cable Project Bidder Registration Form

|                                    |  |
|------------------------------------|--|
| <b>FIRM NAME</b>                   |  |
| <b>CREDIT RATING<sup>(a)</sup></b> |  |
| <b>FIRM CONTACT</b>                |  |
| <b>ADDRESS</b>                     |  |
| <b>PHONE NUMBER</b>                |  |
| <b>EMAIL ADDRESS</b>               |  |

Please fax to the attention of:

Chris Moscardelli  
Fax #: 1 212 278-6136

(a) If no credit rating exists, provide additional information to evaluate your firm's creditworthiness.



# Intralinks Access

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*The Project's internet site through Intralinks will serve as the forum for communication of all information between the Company and the Bidders.*

- Intralinks provides a means of distributing all pertinent Project information as it becomes available
- Creditworthy firms who have completed and submitted the bidding registration form will receive access to a secure Intralinks site
- The Intralinks System ([www.intralinks.com](http://www.intralinks.com)) will allow interested and authorized parties confidential access to the bidding information
- Questions should be submitted by e-mail to: **chris.moscardelli@sgcib.com**
- Frequently asked questions will be posted without attribution, along with the Company's response for all Bidders to review
- Whenever new information is posted on Intralinks, all registered Bidders will receive an e-mail notification

# Master Bid Form

*The Master Bid Form provides a summary of all 6 potential pathways available to Bidders*

## Juan de Fuca Cable Project - Open Season Master Bid Form

| Path No. | Receiving Station Information |                  | Delivery Station Information |                  |            |  | Estimated On-line Date <sup>(a)</sup> |
|----------|-------------------------------|------------------|------------------------------|------------------|------------|--|---------------------------------------|
|          | Receipt Substation            | Landfall Utility | Delivery Substation          | Landfall Utility | Pathway MW |  |                                       |
| 1        | Port Angeles                  | BPA              | Pike                         | BCTC             | 550        |  | 12/31/2007                            |
| 2        | Fairmount                     | BPA              | Ingladown                    | BCTC             | 550        |  | 12/31/2008                            |
| 3        | Fairmount                     | BPA              | Pike                         | BCTC             | 550        |  | 7/31/2008                             |
| 4        | Pike                          | BCTC             | Port Angeles                 | BPA              | 550        |  | 12/31/2007                            |
| 5        | Ingladown                     | BCTC             | Fairmount                    | BPA              | 550        |  | 12/31/2008                            |
| 6        | Pike                          | BCTC             | Fairmount                    | BPA              | 550        |  | 7/31/2008                             |

(a) On-line dates are estimated and subject to change

**Note:** Only two lines (1100 MW) of transmission will be constructed

# Pathway Bid Form

Sea Breeze Pacific Juan de Fuca Cable Project

Pathway # [xx]

Expected Online Date: 12/31/2007

| Contract Year | TSRs<br>(\$/Mwh) | VARs<br>(\$/MVAR-<br>mo) | Blackstart<br>(\$/Mo) | Voltage<br>Stability<br>(\$/Mo) | Frequency<br>Stability<br>(\$/Mo) |
|---------------|------------------|--------------------------|-----------------------|---------------------------------|-----------------------------------|
|---------------|------------------|--------------------------|-----------------------|---------------------------------|-----------------------------------|

1  
2  
3  
.  
.  
.

- Please include 1 additional year to your proposed contract length to allow for unanticipated delay in COD.
- Each product will be treated as a discrete offer irrespective of other product offers.
- Minimum Bid size for TSRs = 25 MW



**OPEN SEASON**

**BIDDING GUIDELINES**

**Sea Breeze Pacific Juan de Fuca Cable, LP**

September 2005



**Open Season Bidding Guidelines  
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  - 3.6. Bid Selection
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- A.3. Regulation and Permitting
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## **NOTICE TO RECIPIENTS**

This Confidential Open Season Bidding Guidelines Memorandum (the “Memorandum”) has been prepared by Sea Breeze Pacific Juan de Fuca Cable, LP (the “Company”) for use by qualified bidders to whom the Company is offering an opportunity to bid for transmission scheduling rights (the “TSRs”) or other Open Season products, as described herein.

Included in this document is certain information which is “forward looking information” as defined by the Private Securities Litigation Reform Act of 1995. Examples include expectations, beliefs, plans, goals, objectives and future financial and other assumptions. This information, by its nature, involves estimates, projections, forecasts and uncertainties and actual results or outcomes may differ substantially from those expressed.

Many factors that are difficult to predict, involve uncertainties that may materially affect actual results, are beyond our ability to control, and may influence our business and its outcomes.



## 2. THE OPEN SEASON PRODUCTS

The Company is offering to provide the following four products from the Projects:

- Firm Transmission Scheduling Rights
- VARs
- Blackstart
- Voltage Stability

### 2.1 Transmission Capacity (Transmission Scheduling Rights Offerings)

#### 2.1.1 Firm Capacity

Rights to use the Project will be sold as firm Transmission Scheduling Rights ("TSRs"). Firm TSRs will entitle their holders to schedule transactions on the Project between a specified Receipt Point and a specified Delivery Point in a single direction (i.e. a TSR does not entitle the holder to transmit power from the Delivery Point to the Receipt Point). Each TSR will provide the owner of the TSR the right to schedule one MW of transmission service. TSRs will be sold separately in each direction up to the rated capacity of that path. Beyond the rated capacity, counterflow TSRs will be sold in subsequent open seasons on a non-firm basis depending on the actual flows of the system. A TSR purchased on one pathway may not be transferred to another pathway.

The Company intends to allocate TSRs exclusively through open seasons. The Company intends initially to sell 100% of its nameplate capacity on a long-term basis, pursuant to Pathway Product Purchase Agreements. This capacity will be allocated pursuant to the open season process described in this Memorandum.

Any capacity not sold under long term TSRs in this initial open season as well as any non-firm counterflows will be available for sale in subsequent open seasons. In order to provide the products that the market wants, the Company will offer to sell all of the TSRs not sold in the long-term open season on a monthly, weekly, daily, or hourly basis. The timing and amount of TSRs subject to the monthly, weekly, daily, and hourly open seasons will be provided in notices posted on the Project's web site, [www.jdfcable.com](http://www.jdfcable.com).

TSRs which are not scheduled by the hour before the hour ahead market are lost by the holder for that hour. The TSRs lost as a consequence of not being scheduled will be sold by the Company and revenue from the open season for these lapsed TSRs will accrue to the Company and not the TSR holder. This "use it or lose it" feature is intended not only to eliminate potential market power withholding, but also is designed to provide an incentive for TSR holders to participate in the secondary market where they will retain the revenues from the sale of their TSRs.

### 2.1.2 Secondary Market Sales

Parties holding TSRs will be free to remarket them and subdivide these rights in order to maximize the utility of the service.

## **2.2 VARs**

The HVDC Light<sup>®</sup> facility produces dynamic VARs on a real-time basis. The facility will be operated at about 90% to 95% of full load and the dynamic VAR capability of the facility will be used with banks of capacitors to provide any level of VARs requested on a continuous real-time basis dynamically.

VARs will be sold on a \$/MVAR basis by auction.

## **2.3 Blackstart**

The HVDC Light<sup>®</sup> system is designed to have full black start capability. After a system collapse, the HVDC Light<sup>®</sup> system can be re-started rapidly, even when no AC power is available at the receiving end (either end), and it can be immediately available to start restoring the network which collapsed. The capability is fully bi-directional. Therefore black start capability will exist at any of the four terminals unless all systems are down.

Also, black start system restoration or restoration of load after any curtailments is considerably easier with an HVDC facility in the network due to its very fast time response. As loads are returned to service there can be significant variations in power, voltage and frequency which can be smoothed out by the fast operation of the HVDC Light<sup>®</sup> converters.

Additionally the HVDC Light<sup>®</sup> Terminals can be used to sustain an area during an emergency by islanding the Municipal and or BPA loads on the northern Olympic peninsula or the southern portion of Vancouver Island to keep critical Victoria loads on-line.

Bids will be accepted in \$/kw-Mo from any entities desiring blackstart capability.

## **2.4 Voltage Stability**

The HVDC Light<sup>®</sup> Terminals are able to provide voltage and system stability by the use of RAS – Remedial Action schemes. This stability service will be provided on a \$/kw-mo basis in addition to the cost of any equipment needed to provide the service.

### 3. OPEN SEASON PROCESS

#### 3.1 Confidentiality Undertakings and Registration

In order to participate in the Open Season for products potential bidders are required to complete a Bidder Registration Form. Once the Bidder Registration Form is completed, the Company will review and evaluate the Registration Form. Potential bidders with a confirmed acceptable credit rating (at least BBB (S&P), Baa2 (Moody's), or BBB (Fitch)) who have filed a completed Bidder Registration Form and executed a Confidentiality Agreement with the Company will be granted access to the Project's Intralinks site. Potential bidders without a confirmed investment grade rating must submit sufficient additional information for the Company to evaluate such a potential bidder's credit-worthiness for participation in the bidding process only. Notwithstanding approval as a potential bidder, please note that credit-worthiness is a key criterion in the selection process for winning bids and additional information may be requested for bid evaluation purposes. Potential Bidders will be granted access to the Company's Intralinks site. All information with respect to the Projects and the auction process will be available on the Intralinks site.

In order to enter the Intralinks site, each potential bidder will be required to acknowledge their confidentiality undertakings with respect to the Company. Potential bidders may share the information accessed to give its employees and advisors access to the Intralinks site subject to the above-referenced confidentiality requirement.

If a bidder wishes to submit a question about the Projects or this bidding process in confidentiality, it may do so by requesting that the question be kept confidential. A confidential response will be issued to the bidder directly. If the Company receives several requests regarding the same or similar question, the Company reserves the right to post the question without attribution along with its response on the Intralinks web site.

#### 3.2 Tender Timetable

The timetable for implementing the Open Season process is shown in the following table.

|                       |                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------|
| September 14, 2005    | <ul style="list-style-type: none"> <li>▪ Open season initiated</li> <li>▪ Intralinks web site operational</li> </ul> |
| September 14-15, 2005 | <ul style="list-style-type: none"> <li>▪ Open season bidder conferences</li> </ul>                                   |
| October 25, 2005      | <ul style="list-style-type: none"> <li>▪ Firm bids due</li> </ul>                                                    |
| October 31, 2005      | <ul style="list-style-type: none"> <li>▪ Bid clarifications requested</li> </ul>                                     |
| November 7, 2005      | <ul style="list-style-type: none"> <li>▪ Preliminary winners notified<sup>(a)</sup></li> </ul>                       |
| December 12, 2005     | <ul style="list-style-type: none"> <li>▪ Pathway Product Purchase Agreements signed</li> </ul>                       |

- (a) – All bid results will remain confidential. Only the name of the winning bidders for particular services and the amount of TSRs purchased will be made public.

### 3.3 Tender Process

The documents to be provided to the bidders will include:

- A) Pathway Product Purchase Agreement
- B) FERC Application
- C) FERC's Order
- D) Open Season Bidding Guidelines
- E) Bid Form – This is a Microsoft Excel spreadsheet that includes the Master Bid Form, as well as the bid forms for each pathway. A Bidder must fill-in a pathway bid form for each pathway on which it wishes to purchase TSRs. The bid form will also provide for bids for the other products being offered.
- F) Facilities Studies
- G) Interconnection Studies

In the Open Season process, a bidder should reference the Master Bid Form to determine: (i) the available contract paths, (ii) the maximum base load transmission capacity for each pathway and (iii) the anticipated commercial operation date of that path. Commercial operation dates are estimated and subject to revision. If a Bidder elects to bid for a certain pathway, it must fill in the appropriate pathway bid form. To provide an eligible bid, the bidder must provide all of the requested information on the bid form.

### 3.4 Pathway Bid Form

Bidders are not limited in the number of pathways they can bid. Bidders may bid different prices each year for one quantity of MWs reserved on the same Pathway Bid Form. If a bidder wishes to bid separate prices for differing quantities of MW reserved in the same year, separate pathway bid forms must be submitted. Please indicate which, if any, pathway bid is jointly dependent on winning another bid and which, if any, would be not accepted if another particular bid is accepted.

Please indicate any special conditions of or conditions precedent to your bid.

Please indicate any proposed changes to the Pathway Product Purchase Agreement upon which your bid is conditioned.

The required information on the Pathway Bid Form includes the following:

**Bidder -** Please provide the legal entity providing the bid.

**Term -** The Contract term shall commence on the Commercial Operation Date (as defined in the Pathway Product Purchase Agreement) and end on the date indicated on the bid form. Note that the Bidder should complete the \$Bid/MWh list for a period one year beyond their anticipated term to provide for potential delay in the term commencement date. The Company will evaluate bids based on the NPV @ 10% of each proposal over a 25 year term. To the extent that the bid is for a period less than 25 years the Company will use its own merchant assumptions for comparative purposes. It is in the bidders' interest to propose as long a term as possible in order to be viewed in the most favorable light.

**Firm Capacity**

**MW Reserved -** This is the number of TSRs the Bidder wishes to purchase. One TSR equates to one MW. All bids must be for an amount not less than 25 MW and cannot exceed the maximum contract path capacity.

**Minimum MW**

**Accepted -** This is the minimum number of TSRs the Bidder will accept on a particular Pathway which may be equal to or less than the requested MW Reserved. The Company may but is not obligated to request Minimum MW Accepted waivers.

**\$ Bid/MWh -** This is the tariff to be paid by the Buyer to the Company per MWh.

**Monthly**

**Payment -** Hours in Month \* \$Bid/MWh \* MW Reserved

**Other Products**

**VARs** VARs will be sold on a \$/MVAR basis

**Blackstart** Bids will be accepted in \$/kw-Mo from any entities desiring blackstart capability

**Voltage Stability** Bids will be accepted in \$/kw-Mo from any entities desiring voltage stability

**3.5 Alternate Bid(s)**

Bidders may submit multiple bids or non-conforming bids for consideration. The Company is open to consider any arrangement that maximizes the utility of the system while still preserving the ability to finance the Project's construction in compliance with regulatory requirements.

As an alternative to bidding for particular services, the Company would also be willing to consider proposals to lease one or more of the Projects. In this event the lessee would have the ability to market the services and capture the system benefits that the Projects create.

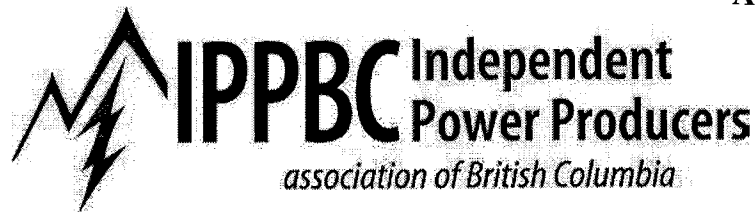
In addition, the Company would also entertain proposals to purchase frequency support and stabilization. HVDC terminals have the ability to firmly control the frequency of the facility (at both ends) and can improve system operations elsewhere through the use of RAS sensors. If a party were interested in frequency support and stabilization, the Company would entertain proposals from prospective bidders.

### **3.6 Bid Selection**

The Company will accept bids from credit-worthy entities, taking into account (a) the price offered, (b) the duration of the contract, (c) the bid terms that maximize the Project's net present value ("NPV") utilizing a discount rate of 10%, and (d) other factors that allow the Company to secure long-term investment grade debt. The Company reserves the right to reject any bid of less than 20 years.

### **3.7 Pathway Product Purchase Agreement Execution**

Each of the winning bidders will have 30 business days from being notified a winner to execute an agreement with the Company. A failure to reach agreement by such date will provide the Company the opportunity to disqualify the bidder and may lead to the product being awarded to the next highest bidder. This new bidder will have 30 business days from notification of receiving the award to execute the Pathway Product Purchase Agreement.



December 2, 2005

Société Générale  
1221 Avenue of the Americas  
New York, N.Y.  
USA 10020

Attention: Mr. Roger Bredder and Mr. Chris Moscardelli

**Re: Juan de Fuca Cable: Open Season - IPPBC Members Survey**

Gentlemen:

Thank you for hosting the Information Meeting held on November 22, 2005 regarding the Open Season process for the proposed Juan de Fuca Cable (JDF).

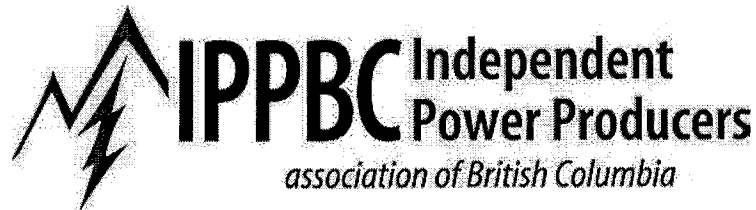
Following the JDF Information Meeting, IPPBC contacted 13 of the leading IPPBC developer members to discuss the project. All of them expressed strong support for the need to increase transmission capacity to the US.

Unfortunately, although all supported the concept of the JDF, they advised that they have been too pre-occupied with BC Hydro's recent Open Call for Tenders, to focus on JDF to give it their specific attention or fill out the Open Season Bid Forms. The conflicting timing of the Open Season and the BC Hydro Call was heightened since BC Hydro contracts have been the underpinning of all BC IPP projects built to date and IPPs have waited over 3 years since the last major Call.

It should be noted that British Columbia is richly endowed with an abundance of renewable energy resources. A recent report issued by the BC Sustainable Energy Association indicates that the potential for generally economic IPP projects within the province is 33,000 GWh/yr for renewables alone. The quantity from new gas, coal and large hydro power projects could double that amount but of course depends heavily on fuel prices, environmental permits and public receptivity.

That large amount is in stark contrast with the approximately 1000 GWh/yr that BC Hydro has acquired on average from IPPs in recent years. The difference represents a substantial supply overhang that is available for export.

BC Hydro's imminent Open Call for Tenders (OCFT) targets acquiring 2600 GWh. Our preliminary estimate of the total energy in all the IPP projects being actively developed is approximately 10,000 GWh.



For IPPs considering bidding on this OCFT (not all will since their projects may not fit the particular constraints of this Call) the following two dates are important:


- April, 2006 – Bids submitted to BC Hydro
- August, 2006 – BC Hydro awards Contracts

Those bidding developers' ability to focus on finding export buyers and to consider JDF will increase after those dates.

Even after BC Hydro acquires the 2600 GWh (presuming they fill their target) we forecast that there will still be projects with a total of over 7000 GWh that will look more closely at the opportunity to export their power and to consider acquiring capacity on the Juan de Fuca Cable, were the opportunity to bid still be available at that time.

Please keep us advised on the progress of the Juan de Fuca Project. We recognize it as representing a valuable option for many of the members of our organization.

Sincerely,  
IPPBC



Steve Davis  
President

cc. Paul Manson, Sea Breeze Pacific Juan de Fuca Cable, LP

*IPPBC is the voice of the independent power community in BC.  
Our mandate is to develop a viable independent power industry in BC that serves the public interest by  
providing cost-effective electricity through the efficient and environmentally responsible development  
of some of the Province's energy resources.*

**Independent Power Producers association of BC**  
3064 St. Kilda Ave North Vancouver, BC, V7N 2A9  
Tel: (604) 980-3075 Fax: (604) 987-3073 email: [info@ippbc.com](mailto:info@ippbc.com)



**Request Number:** 1130

**Requester:** Powerex

**Type of service requested:** LT Firm PTP Transmission Service

**Requested commencement date of service:** January 01, 2007

**Requested termination date of service:** January 01, 2008

**Quantity:** 500 MW

**Price:** PTP Rate

**Point of receipt:** US Canadian Border (West) 500kV

**Point of delivery:** Port Angeles 230kV

**Place of the request in the queue:** October 27, 2005 at 14:42 hours

**Status of the request:** RETRACTED

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**Request Number:** 1129

**Requester:** Powerex

**Type of service requested:** LT Firm PTP Transmission Service

**Requested commencement date of service:** January 01, 2007

**Requested termination date of service:** January 01, 2012

**Quantity:** 500 MW

**Price:** PTP Rate

**Point of receipt:** US Canadian Border (West) 500kV

**Point of delivery:** Port Angeles 230kV

**Place of the request in the queue:** October 27, 2005 at 14:41 hours

**Status of the request:** RETRACTED

---



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

VIA E-MAIL

February 3, 2006

**BCTC\_VITR and Sea Breeze\_VIC**  
**Exhibit A-70**

TO: British Columbia Transmission Corporation  
Sea Breeze Victoria Converter Corporation  
Registered Intervenors (BCTC-VITR-RI)

Re: British Columbia Transmission Corporation ("BCTC")  
Certificate of Public Convenience and Necessity ("CPCN") Application  
Vancouver Island Transmission Reinforcement Project ("VITR")  
Sea Breeze Victoria Converter Corporation ("Sea Breeze")  
CPCN Application for Vancouver Island Cable Project ("VIC")  
Projects No. 3698395 and 3698405, Orders No. G-70-05 and G-97-05

Hearing Issues List

Please find attached the Hearing Issues List that will be followed at the Oral Public Hearing that commences at 9:00 a.m. on Monday, February 6, 2006 in the Commission's Homer Street Hearing Room, Second Floor, 855 Homer Street, Vancouver, BC.

Yours truly,

*Original signed by:*

Robert J. Pellatt

cms  
Enclosure

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

and

British Columbia Transmission Corporation  
Certificate of Public Convenience and Necessity Application for the  
Vancouver Island Transmission Reinforcement Project

and

Sea Breeze Victoria Converter Corporation  
Certificate of Public Convenience and Necessity Application for the  
Vancouver Island Cable Project

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**HEARING ISSUES LIST**

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**February 3, 2003**

**PART I**

**1.0 Reinforcement of Transmission System to Vancouver Island**

**1.1 Impact of delays to transmission reinforcement beyond mid-2008**

- 1.1.1 Detailed review of bridging measures developed by BCTC to bridge the 2007/08 winter peak.
- 1.1.2 Can bridging measures provide adequate capacity beyond October 2008 if the in-service date cannot be met?

**1.2 Timing and cost of subsequent reinforcement of transmission to Vancouver Island**

**PART II**

**2.0 VITR – Applicant**

**2.1 Technical capability**

What is BCTC's technical knowledge/understanding of AC and HVDC Light Alternatives (including static and dynamic VARs and voltage support; Charging of AC cables; EMFs; etc)?

**2.2 Terms of CPCN approval sought by BCTC**

Should approval of CPCN be conditional on, inter alia, BCTC first entering into discussions in good faith with Sea Breeze concerning the use of the Juan de Fuca project to provide transmission reinforcement to Vancouver Island?

## **2.3 Consultation with the public and First Nations**

- 2.3.1 Has BCTC adequately consulted the public?
- 2.3.2 Has BCTC provided accurate and reliable information to the public?
- 2.3.3 Has BCTC made appropriate modifications to its application in light of the public input received through the consultation process?
- 2.3.4 Has BCTC adequately consulted First Nations?
- 2.3.5 Do the First Nations concerns with route option 4 (Highway 17) prevent selection of this option?

## **2.4 Community contributions to offset cost of specific options and enhancements**

- 2.4.1 Should ratepayers pay any cost above the cost of the least cost option to address concerns of landowners whose properties are crossed by or adjacent to the right of way?
- 2.4.2 Should landowners whose properties are crossed by or adjacent to the right of way be required to pay contributions to advance the undergrounding of the second circuit, or to move to construction in city streets?
- 2.4.3 What are the specific cost estimates for the enhancements or changes requested in the Tsawwassen community?
- 2.4.4 Do the potential community contributions in Options 3 and 7 attract return on equity pursuant to Special Direction HC2?

## **3.0 VITR – Project Description**

### **3.1 Engineering design**

- 3.1.1 Implications of BCTC's selection of AC technology for VITR.
- 3.1.2 Cable selection (including extra armouring on the cable).
- 3.1.3 Pole structure selection: Will the taller structures impact a larger number of residents? Does the smaller footprint reduce/increase overall impacts?
- 3.1.4 What is the useful life expectancy for VITR?

### **3.2 Project schedule**

- 3.2.1 Is BCTC's project schedule achievable?
- 3.2.2 Impact on VITR project schedule relating to determination of cable specifications, and cable tendering process.

- 3.2.3 Impact on VITR project schedule relating to obtaining necessary rights of way or expropriation.
  - 3.2.3.1 Will nominal compensation to landowners in exchange for necessary rights of way satisfy landowner opposition to VITR?
  - 3.2.3.2 Impact on VITR project schedule of potential legal challenges/claims/appeals by affected local residents/landowners, municipalities, First Nations, etc.
- 3.2.4 Impact on VITR project schedule relating to permitting.
- 3.2.5 Status of BCTC consultation/permitting arrangements with US agencies regarding US component of VITR Project.
- 3.2.6 What is the risk that VITR will be unable to meet Fall 2008 in-service date and related consequences?

### **3.3 Project Alternatives and Routing Options**

- 3.3.1 Has BCTC conducted the necessary due diligence on the route and technology options, including consideration of;
  - (a) seismic and geotechnical
  - (b) submarine cable hazards,
  - (c) impacts on municipal operations and other utilities, and,
  - (d) non-natural hazards?
- 3.3.2 Should BCTC have consulted Sea Breeze and/or other customers or private sector entities concerning potential private sector/customer-provided solutions to Vancouver Island's transmission constraints?
  - 3.3.2.1 What has BCTC done to comply with the Commission's direction on this issue in the BCUC's September 23, 2005 decision of the BCTC System Capital Plan F2006 to F2015 Application?
- 3.3.3 Has BCTC used the appropriate criteria and appropriate weighting for assessing which route option is preferred?
- 3.3.4 Is the risk of route selection in the Roberts Bank area acceptable?
- 3.3.5 Is running transmission lines through residential backyards an appropriate practice today?
- 3.3.6 Has BCTC properly maintained and managed the ROW?
- 3.3.7 Does an exchange of overhead for underground rights truly reflect BCTC's proposal given one overhead 138 kV circuit will remain in place?
- 3.3.8 What other options and routes did BCTC consider as alternatives to VITR, and what analysis did BCTC do of such other options and routes?

- 3.3.9 What considerations did BCTC give to using HVDC Light technology to satisfy Vancouver Island's need for transmission reinforcement, including construction of HVDC Light transmission on different potential routings than those identified in the VITR Application?
- 3.3.10 What if any information was obtained from ABB (or other parties) in relation to BCTC's evaluation of the suitability of HVDC Light technology to satisfy Vancouver Island's need for transmission reinforcement?
- 3.3.11 Adequacy of BCTC's analysis of HVDC Light, and applicability of that analysis to alternative routing options, having regard in particular to the concerns identified in Sea Breeze's response to BCUC IR 1.56.1 (VIC).
- 3.3.12 What other options are available to reduce transmission system reliance on facilities unable to withstand major seismic events (e.g., Arnott Substation; transmission towers in Fraser Delta soils), or to upgrade those facilities to reduce seismic vulnerability?
- 3.3.13 In considering VITR route selection, what consideration did BCTC give to risks from non-natural hazards (e.g., damage from Anchors, fishing gear, tug tow lines, risk to overhead power Lines from accident, security risks)?
- 3.3.14 Should parties requesting and receiving the benefit of route changes be required to pay for the incremental cost of such changes?

**3.4 Advanced building of Stage 2 components, including double circuiting of the remaining 138 kV circuit**

- 3.4.1 To what extent are these costs justified before the Commission considers the best options for future system upgrades in 2017?
- 3.4.2 To what extent will advance building of stage 2 components practically constrain the Commission's ability to select the best option for future system upgrades?

**3.5 Supply to the Southern Gulf Islands**

- 3.5.1 Is supply of the Gulf Islands at distribution voltage and removal of the 138kV system from the lower mainland to the Gulf Islands a preferred supply solution?

**3.6 Cost estimates**

- 3.6.1 How firm are the cost estimates?
- 3.6.2 What is the confidence level of the project cost estimate of \$245 million?
- 3.6.3 Are the cost estimates for each option correct, complete and clearly identified?
  - 3.6.3.1 Questions arising from changes in BCTC cost estimates since the filing of its application.

- 3.6.4 Are the cost estimates for backyard restoration through Tsawwassen reasonable?
- 3.6.5 Have the cost estimates properly reflected construction cost inflation in British Columbia?
- 3.6.6 Do the cost estimates properly reflect any cost of acquiring the underground rights from Tsawwassen landowners given the opposition of landowners to the project?
- 3.6.7 Potential impact on VITR project cost estimates of delays in project in-service date.
- 3.6.8 Potential impact on VITR project cost estimates relating to the final determination of cable specifications, and the cable tendering process.
- 3.6.9 Potential impact on VITR project cost estimates of issues relating to obtaining necessary rights of way or expropriation.
- 3.6.10 Potential impact on VITR project cost estimates of legal challenges/claims/ appeals by affected local residents/landowners, municipalities, First Nations, etc.
- 3.6.11 Potential impact on VITR project cost estimates related to final project specifications.

### **3.7 Project management, including schedule and cost control**

- 3.7.1 Does BCTC have effective means of controlling costs and managing the project, including appropriate processes for tendering of VITR construction contract?
- 3.7.2 Should a CPCN be subject to a collar mechanism outside which cost variances would not affect rate payers?
  - 3.7.2.1 Which project cost estimate should be the target cost for any collar mechanism: best estimate, P50 or P90?
- 3.7.3 Should BCTC's plan of concurrent CPCN and EAC applications be accepted or should consideration of the CPCN await completion of the EAC application?
- 3.7.4 What process, and timing, are contemplated by BCTC for tendering of construction contract?
- 3.7.5 What is the status of BCTC consultation and permitting with US agencies regarding the US component of VITR?

## **4.0 VITR – Project Justification**

### **4.1 System impacts of each project option**

- 4.1.1 What project options and routes did BCTC consider in terms of system impact, and what specific analysis did BCTC do of the system impact of those options and routes?

- 4.1.2 What consideration did BCTC give to Sea Breeze's Juan de Fuca proposal in analyzing system impacts of VITR project options?
- 4.1.3 VITR impact/contribution to system reliability.
- 4.1.4 Does VITR adequately plan for contingencies?

**4.2 Socioeconomic impacts of project options, including safety, reliability, health, aesthetic, recreation, habitat, First Nations and construction impacts (Effect on property value may be a way of measuring some of these impacts)**

- 4.2.1 To what degree should socio-economic impacts be considered by the Commission?
- 4.2.2 What is the impact of the existing 138 kV circuits on the value of properties along and adjacent to the ROW?
- 4.2.3 What is the impact of the proposed VITR project on the value of properties along and adjacent to the ROW?
- 4.2.4 Do any tax implications to Municipalities from the property value impacts of the proposed project warrant consideration in the comparison of options?
- 4.2.5 What is the risk of oil leaks from the proposed fluid filled cables and do those risks warrant rejection of fluid filled cables?
- 4.2.6 How should the preservation of the environment of the Gulf Islands as embodied in the objectives of the Islands Trust influence the alternative selection process?
- 4.2.7 Does the proposed project pose any unacceptable safety hazards?
- 4.2.8 What would a multiple accounts analysis of the attributes of the options indicate as to the preferred option?
- 4.2.9 What is the scientific consensus on the health effects of EMF and is it changing?
- 4.2.10 Are EMF exposure levels from the proposed circuits a health risk that should be considered by the Commission?
- 4.2.11 What decision-making principle(s) should the Commission adopt with respect to EMFs? (e.g., precautionary principle; principle of prudent avoidance.)
  - 4.2.11.1 Does that approach suggest the need to alter the proposed project?
- 4.2.12 Should previous decisions by the Commission with respect to allowable EMF exposures from transmission projects still be followed?
- 4.2.13 What are the impacts on stress in the community of the project and how should they be considered?



- 4.2.14 Are there impacts on businesses from the proposed lines that need to be considered in assessing socio-economic impacts?
- 4.2.15 Can BCTC restore the backyards in Tsawwassen to an acceptable level?
- 4.2.16 Should BCTC pay for restoration of, or compensation for, non-conforming improvements on the ROW?
- 4.2.17 Do archeological concerns affect the ranking of the options?

#### **4.3 Cost of service and rate impacts for each project option**

- 4.3.1 Evaluation of BCTC's analysis of capital and O&M costs.
- 4.3.2 Resulting rate impacts.
- 4.3.3 Uncertainty of BCTC's forecast rate impacts for VITR.

#### **4.4 Overall comparison of VITR project options**

### **PART III**

#### **5.0 VIC – Applicant**

##### **5.1 Financial and technical capability**

- 5.1.1 System planning and technical expertise of Sea Breeze team.
- 5.1.2 Financial backing provided by EIF and Soc Gen.
- 5.1.3 Involvement of ABB.
- 5.1.4 Capacity of Sea Breeze to complete VIC Project in a timely manner with respect to track record and requirements of financial backers.

##### **5.2 Contemplated relationship with BCTC**

- 5.2.1 Effect of Sea Breeze's proposal for BCTC to manage and operate VIC as an integrated part of the provincial transmission system.
  - 5.2.1.1 Possible contractual terms and conditions.
  - 5.2.1.2 Rate implications.
- 5.2.2 Efficiency of operating regime that would exist if Sea Breeze owns facilities which form part of the BCTC-operated system.

5.2.2.1 What contractual mechanisms are available to provide for safe, reliable service in this operating regime?

5.2.2.2 Are there significant costs associated with these mechanisms?

### **5.3 Terms of CPCN approval sought by Sea Breeze**

5.3.1 Should approval of CPCN be conditional on, inter alia, Sea Breeze first entering into discussions in good faith with BCTC, BC Hydro, and others concerning the use of the Juan de Fuca Project to provide transmission reinforcement to Vancouver Island?

### **5.4 Consultation with the public and First Nations**

5.4.1 Has Sea Breeze adequately consulted the public?

5.4.2 Has Sea Breeze provided accurate and reliable information to the public?

5.4.3 Has Sea Breeze made appropriate modifications to its application in light of the public input received through the consultation process?

5.4.4 Does Sea Breeze have an obligation to consult and if necessary, accommodate First Nations?

5.4.5 Has Sea Breeze adequately consulted First Nations?

## **6.0 VIC – Project Description**

### **6.1 Engineering design**

6.1.1 Differences between AC and HVDC Light® technology, and implications of Sea Breeze's selection of HVDC Light® technology for VIC.

6.1.2 Evaluation of BCTC's analysis of HVDC Light® and the applicability of that analysis to VIC.

6.1.2.1 Evaluation of Sea Breeze's response to BCTC's analysis of HVDC Light®.

6.1.3 Is HVDC Light® technology sufficiently proven in similar situations?

6.1.4 What is the useful life expectancy of VIC?

6.1.5 Are HVDC Light cables certified for use in the deep waters of the Strait of Georgia?

6.1.6 Are HVDC Light cables certified for the seismic conditions of the route?

## **6.2 Project schedule**

- 6.2.1 Is Sea Breeze's project schedule achievable?
- 6.2.2 Is there any potential impact on project schedule associated with use of extruded insulation cables?
- 6.2.3 What are the risks to the project schedule of ROW acquisition?
- 6.2.4 What impact could permitting have on the project schedule?
  - 6.2.4.1 What is the status of consultation and permitting with US agencies regarding the US portion of VIC?
- 6.2.5 What is the risk that Sea Breeze will be unable to meet the Fall 2008 in-service date, and what are the related consequences?

## **6.3 Routing**

- 6.3.1 Has Sea Breeze conducted the necessary due diligence on the route, including consideration of:
  - (a) seismic and geotechnical,
  - (b) submarine cable hazards,
  - (c) impacts on municipal operations and other utilities, and,
  - (d) non-natural hazards?
- 6.3.2 Can community concerns along the VIC route reasonably be assumed to be similar to those for VITR?
- 6.3.3 What are the implications of the proposed National Marine Conservation Area south of Active Pass and Salt Spring Island?
- 6.3.4 Is the width of the corridor in Boundary Pass adequate for repairs to the cable?

## **6.4 Cost estimates**

- 6.4.1 How firm are VIC cost estimates?
- 6.4.2 How reliable are vendor estimates without the benefit of preliminary design?
- 6.4.3 Are the cost estimates correct, complete and clearly identified?
- 6.4.4 Have the cost estimates properly reflected construction cost inflation in British Columbia?

- 6.4.5 Potential impact on project cost estimates of delays in project in-service date.
- 6.4.6 Potential impact on VIC project cost estimates relating to the final determination of cable routing.
- 6.4.7 Potential impact on VIC project cost estimates of issues relating to obtaining necessary rights of way or expropriation.
- 6.4.8 Potential impact on VIC project cost estimates of legal challenges/claims/ appeals by affected local residents/landowners, municipalities, First Nations, etc.
- 6.4.9 Potential impact on VIC project cost estimates related to final project specifications.
- 6.4.10 Are offsetting benefits associated with VIC realistic and achievable?
- 6.4.11 Are there any additional costs associated with future upgrades that should be taken into account?

**6.5 Project Management, including schedule and cost control**

- 6.5.1 Ability to conclude any necessary agreements with BC Hydro, BCTC, ABB, municipalities, lenders, etc.
- 6.5.2 Contemplated arrangements with ABB for project construction.
- 6.5.3 What mechanisms are contemplated for avoidance of delay and cost overruns in construction of VIC?
- 6.5.4 Should a CPCN be subject to a collar mechanism outside which cost variances would not affect ratepayers?
- 6.5.5 Should consideration of the CPCN await completion of the EAC application?
- 6.5.6 Degree of Commission control over construction and operation of VIC, including:
  - 6.5.6.1 Ability of Commission or stakeholders to compel performance.
  - 6.5.6.2 Recourse available to Commission or stakeholders if financing or other regulatory approvals are not obtained, or project is abandoned.
  - 6.5.6.3 Ability of Commission or stakeholders to ensure VIC Project is built to appropriate reliability standards, and to enforce reliability standards after VIC is built.

## 7.0 VIC – Project Justification

### 7.1 System impacts of the project

- 7.1.1 System benefits identified in Sea Breeze’s evidence.
  - 7.1.1.1 Avoidance of seismic upgrades to Arnott substation.
  - 7.1.1.2 Elimination of need for Synchronous Condensers on Vancouver Island.
  - 7.1.1.3 Avoidance of O&M costs for existing HVDC system.
  - 7.1.1.4 Avoided/deferred costs in relation to Lower Mainland VAR support.
  - 7.1.1.5 Deferral/avoidance of system upgrades in relation to Cut-Plane D.
  - 7.1.1.6 Other “operational issues” for which Sea Breeze asserts “improved operational performance” for VIC in comparison to VITR, which have not been quantified as part of Sea Breeze’s cost-benefit analysis in Table 4.3.1.
- 7.1.2 VIC system impacts/contribution to system reliability.
- 7.1.3 Losses associated with VIC.
- 7.1.4 System impacts of VIC in combination with Juan de Fuca.

### 7.2 Socioeconomic impacts of the project (and route options if any), including safety, reliability, health, aesthetic, recreation, habitat, First Nations and construction impacts (Effect on property value may be a way of measuring some of these impacts)

- 7.2.1 Exposure of VIC to seismic, geotechnical, and other risk.
- 7.2.2 Health risks associated with VIC.
- 7.2.3 Other environmental impacts of VIC which are materially different from those associated with VITR.
- 7.2.4 Potential impact/lack of impact of VIC on property values and on local residents’ enjoyment of their property.
- 7.2.5 What will be the aesthetic benefits to Salt Spring Island and Galiano Island?
- 7.2.6 Other socio-economic costs and benefits of VIC.
- 7.2.7 Safety issues associated with direct burial of terrestrial cables.
- 7.2.8 Impact on municipal road allowances in White Rock.
- 7.2.9 Potential environmental impacts in and around Semiahmoo Bay.

### **7.3 Cost of Service and rate impacts of the project (and route options if any)**

- 7.3.1 Evaluation of Sea Breeze's estimates of VIC capital and O&M costs – What is a reasonable estimate of BCTC O&M costs for VIC?
- 7.3.2 Does the VIC project attract property taxes that are not payable by BCH/BCTC? If it does, why and how much? Would treatment of this facility as a part of the BC regulated transmission system impact the tax treatment?
- 7.3.3 Evaluation of Sea Breeze's quantification of the value of certain system benefits, including avoided/deferred system costs attributable to VIC Project [see, in particular, Sea Breeze's response to BCUC IRs 1.17.1 and 1.73.2 (VIC)]
- 7.3.4 What is the capital structure and rate of return on equity requested by Sea Breeze vis-à-vis BCH and BCTC? Is the equity component of either BCH or BCTC appropriate for Sea Breeze?
- 7.3.5 What costs should be borne by Sea Breeze and what costs should be borne by rate payers?
- 7.3.6 Is the actual cost of capital for Sea Breeze a relevant consideration in determining the VIC revenue requirement and/or for comparing the cost of the projects?
- 7.3.7 Forecast rate impacts resulting from VIC.
- 7.3.8 Uncertainty of forecast rate impacts.

## **PART IV**

### **8.0 Juan de Fuca Project**

#### **8.1 Certainty regarding the Juan de Fuca Project: will Sea Breeze be able, and will it choose, to proceed with the project?**

- 8.1.1 What are the risks associated with Sea Breeze obtaining necessary regulatory approvals for Juan de Fuca to proceed?
- 8.1.2 From which regulatory agencies are approvals required, and what are the established criteria and precedents for issuing such approvals?
- 8.1.3 What socio-economic and environmental impacts may affect approvals?
- 8.1.4 What are the conditions precedent of Sea Breeze for proceeding with the project?
- 8.1.5 What is Sea Breeze's investment threshold, i.e. its hurdle rate? What internal rate of return can be expected from using a discount from VITR?
- 8.1.6 Other financial issues that could affect Sea Breeze's willingness to proceed.

- 8.1.7 Contractual relationship with BCTC and/or BC Hydro, including charges to BCTC and/or BC Hydro.
- 8.1.8 Time frame for entering into contractual arrangements.
- 8.1.9 Current status and timing of the project.

**8.2 Terms of the order sought by Sea Breeze**

**8.3 System impacts of the project**

- 8.3.1 Juan de Fuca impact/contribution to system reliability, and its ability to satisfy Vancouver Island's need for transmission reinforcement.
- 8.3.2 Ability to ensure firm supply of power at Port Angeles (e.g. through return of DSBs; power purchased at Mid-C; wheeling of power from Blaine intertie).
- 8.3.3 Is it necessary to change the terms of the Columbia River Treaty for Juan de Fuca to be a viable alternative?
- 8.3.4 Effect of contemplated upgrades to BPA system.
- 8.3.5 Potential impacts on provincial energy policy and BC Hydro supply planning.
- 8.3.6 Should Juan de Fuca be considered and studied by BCTC or by BC Hydro?

**8.4 Does the Juan de Fuca Project eliminate or delay the need for either VIC or VITR?**

**8.5 Does the Juan de Fuca Project change the ranking of VIC and VITR if it proceeds?**

- 8.5.1 Long-run system planning implications of Juan de Fuca in conjunction with VIC or VITR.
- 8.5.2 Financial impacts.

**8.6 Nature of regulatory oversight over Juan de Fuca Project, both during construction and after completion**

- 8.6.1 Ability of Commission and stakeholders to ensure Juan de Fuca Project will be completed as planned and on schedule.
- 8.6.2 Ability of Commission and stakeholders to ensure reliability standards are met after Juan de Fuca Project is built.

## PART V

### 9.0 Comparison of Projects

#### 9.1 Is each of the projects sufficiently well defined and devoid of serious impediments to its completion and ongoing viability?

9.1.1 How does the Juan de Fuca proposal affect the project comparison?

#### 9.2 How should local impacts, the need for electricity supply on Vancouver Island, reliability, and cost-effectiveness be considered in public interest determination?

9.2.1 To what extent should the distribution of costs and benefits among groups of residents and ratepayers be considered?

#### 9.3 Overall comparison of the socioeconomic impacts of all projects, including safety, reliability, health, aesthetic, recreation, habitat, First Nations and construction impacts including how to evaluate considerations that may be difficult to quantify and the weighing of impacts and benefits between different subclasses of customers.

9.3.1 To what extent should the Commission consider socio-economic and environmental impacts as part of the total costs of the projects?

9.3.2 To what extent should community contributions be considered in the cost comparison?

9.3.3 To what extent would the application of decision-making principles such as the precautionary principle or the principle of prudent avoidance affect project comparison?

#### 9.4 Comparison of specific system impacts and related financial impacts for the projects, including:

9.4.1 Seismic issues, including Arnott.

9.4.2 Synchronous condensers on Vancouver Island.

9.4.3 Costs in relation to existing HVDC system.

9.4.4 VAR requirements in the Lower Mainland.

9.4.5 Reinforcement of transmission on Vancouver Island.

9.4.6 Upgrading of supply to Salt Spring and Galiano Islands.

9.4.7 Transmission losses.

9.4.7.1 Has BCTC evaluated the losses for VITR on the same basis as evaluated for VIC?



- 9.4.8 Has BCTC conducted the powerflow studies necessary to properly compare VITR and VIC?
- 9.4.9 Advancement of Second Circuit to Vancouver Island.
- 9.5 **Comparison of overall operational impacts of all projects, including reliability and system restoration.**
- 9.6 **Comparison of the overall financial costs and rate impacts for all projects.**
- 9.7 **Comparison of cost and schedule risks for all projects.**

## **PART VI**

### **10.0 Request for Removal of Existing 138 kV lines in Tsawwassen**

#### **10.1 Health and other impacts of existing 138 kV lines in Tsawwassen**

- 10.1.1 Has BCTC complied with standards concerning safe levels of EMFs?
- 10.1.2 Do the 138 kV lines in Tsawwassen meet generally accepted industry standards?
- 10.1.3 Do the existing lines pose a safety hazard to students, given the proximity of the lines to emergency exits at South Delta Secondary School?

#### **10.2 Cost of removing Tsawwassen portion of the lines, including replacement facilities**

**CERTIFICATE OF SERVICE**

I hereby certify that the foregoing document has been served upon each person listed on the official service list in this proceeding.

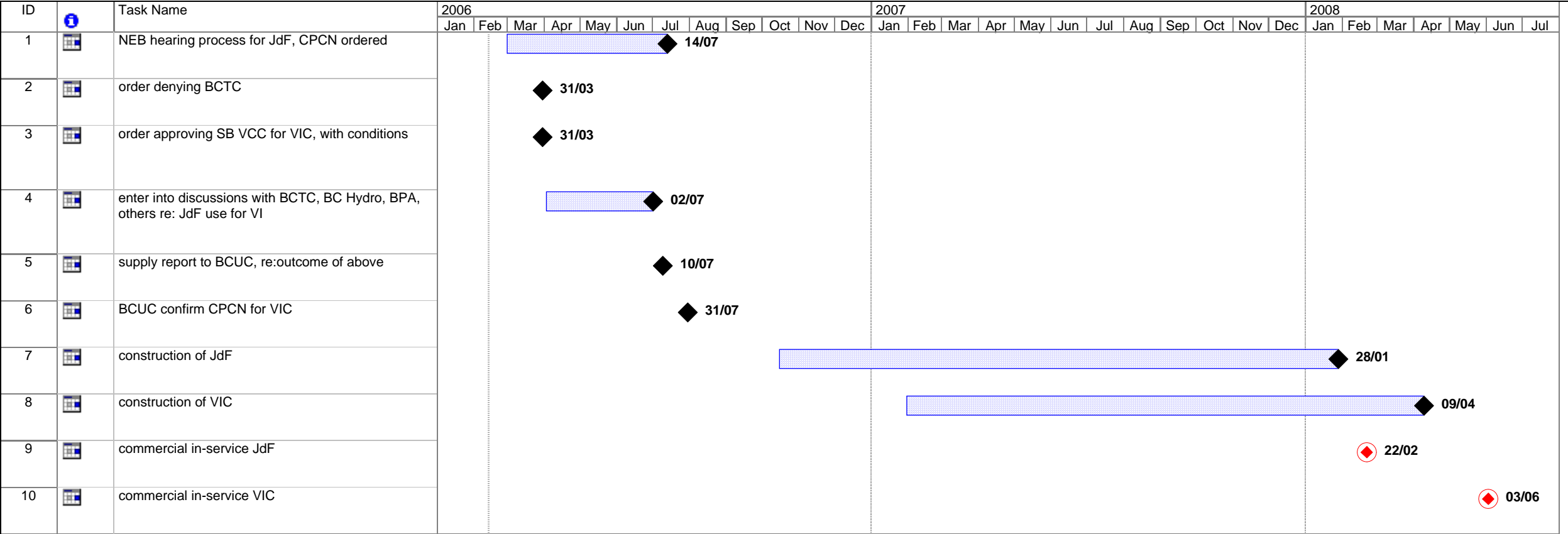
Dated at Washington, D.C., this 17<sup>th</sup> day of February, 2006.

/s/ Brian R. Gish

Brian R. Gish  
Davis Wright Tremaine LLP  
1500 K Street, NW, Suite 450  
Washington, DC 20005  
202-508-6689

**4.155.1-C:**

**REVISED GANTT CHART**  
**SHOWING CONDITIONAL SCHEDULE**  
**FOR THE JUAN DE FUCA PROJECT**



Project: BCUC 2.95.1  
Date: 13 Feb '06

Task

Progress

Summary

External Tasks

Deadline

Split

Milestone

Project Summary

External Milestone



## **4.155.1-D:**

### **CORRESPONDENCE WITH WECC REGARDING THE JUAN DE FUCA PROJECT.**

**Subject:** WECC communications re JDF

**From:** "E. John Tompkins, P.E." <ejt@trmc.tc>

**Date:** Thu, 16 Feb 2006 04:54:21 -0500

**To:** "James Griffiths" <JamesGriffiths@seabreezepower.com>

Jim,

Here attached are the files from my Computer that were kept regarding WECC communications about JDF and our status report. A lot of our communications were verbal at each meeting attended & I had numerous calls with WECC related individuals (WECC employees & Committee Chairs) that were verbal and no written notes kept.

Cheers,

E. John Tompkins, P.E.

COO & Director of Sea Breeze Pacific RTS

for the Juan de Fuca Cable Project

CFO of Boundless Energy, LLC,

President of TR&MC, and

Director of Atlantic Energy Partners, LLC

for Project NeptuneRTS

=====

TOMPKINS, Research & Management Consulting

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Sea Breeze WECC Letter to PCC\_TSS.pdf

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WECC\_UserName\_Request-BCTC IR.pdf

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WECC\_TSS\_Members.pdf

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WECC\_Juan\_de\_Fuca\_Review\_Group.pdf

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Comprehensive SBP-JDF Status Report.pdf

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| <b>EMAIL of BCTC Minutes comments.pdf</b> | <b>Content-Type:</b> application/pdf<br><b>Content-Encoding:</b> base64 |
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| <b>My Presentation to the WECC PCC meeting on 9 30 2005.msg</b> | <b>Content-Type:</b> application/octet-stream<br><b>Content-Encoding:</b> base64 |
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## ***Sea Breeze Pacific Regional Transmission System, Inc.***

info@SeaBreezePower.com  
www.SeaBreezePower.com  
Voice (604) 689-2991

Lobby Box 91, Suite 1400 - 333 Seymour Street  
Vancouver, British Columbia V6B 5A6 Canada  
Fax (604) 689-2990

October 26, 2004

Phil Park, Chairman  
Planning Coordination Committee

Chifong Thomas, Chairman  
Technical Studies Subcommittee

Western Electric Coordinating Council  
University of Utah Research Park  
615 Arapeen Drive, Suite 210  
Salt lake City, UT 84108-1262

Gentlemen:

Please consider this correspondence a formal notification that Sea Breeze Pacific Regional Transmission System, Inc. (SBPRTS) intends to initiate a Regional Planning Project Review Process for its proposed ± 1000 MW transmission interconnection between the Olympic Peninsula and Vancouver Island, British Columbia. The interconnection consists of two HVDC Light modules of about 550 MW capacity each.

The planning process will be conducted in accordance with the WECC Regional Planning Guidelines, and SBPRTS intends to undertake this process with the assistance of a qualified consulting group. The necessity for undertaking the Regional Planning Review was identified by BPA in its Interconnection Feasibility Study Agreement with SBPRTS.

SBPRTS is a Vancouver based corporation comprising a joint venture between Sea Breeze Power Corporation, a renewable energy developer, and Boundless Energy LLC, a developer of merchant transmission (Project Neptune).

In order to get this process going, we'd like to suggest a meeting on Nov. 10 or 11 in Vancouver, BC. I will be the contact person and you can reach me at 860-747-0497 or [ejt@trmc.com](mailto:ejt@trmc.com).

Sincerely Yours,

E. John Tompkins, P.E.

cc: Tom Noguchi, BPA



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| Requested Password:                                                                   | <input type="password" value=""/>                                                                                                                           |
| First and Last Name:                                                                  | <input type="text" value="Elmer John Tompkins, P.E."/>                                                                                                      |
| Company:                                                                              | <input type="text" value="aBreeze Pacific Regional Transmission System"/>                                                                                   |
| Work Email:                                                                           | <input type="text" value="ejt@trmc.com"/>                                                                                                                   |
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### Technical Studies Subcommittee

#### Functional Guidelines

The Technical Studies Subcommittee shall perform studies, maintain data files, evaluate proposed system additions or alterations, prepare reports and recommendations, and perform such other duties as directed by the Planning Coordination Committee.

**Chair:** Dana Cabbell (SCE)  
**Vice Chair:** Kyle Kohne (BPA)  
**Secretary:** Jay Seitz

#### Members:

AESO - Trevor Cline  
 FBC - Waseem Arif  
 APS - Peter Krzykos  
 BEPC - Matthew Stoltz  
 BHP - Vance Crocker  
 BPAT - Kyle Kohne  
 BCTC - Eric Tse  
 CISO - Gary DeShazo  
 CDWR - Charles Kearney  
 EPE - Boris Tumarin  
 ENMX - Shamir Ladhani  
 IPC - Mark Hanson  
 IID - David Barajas  
 LDWP - Ly Le  
 NCPA - Les Pereira  
 NWMT - Charles Stigers  
 PG&E - Chifong Thomas  
 PAC - Craig Quist  
 PGE - Kenneth Dillon  
 PSC - Thomas Green  
 PNM - Jeff Mechenbier  
 GCPD - Wayne Kunkel

**Documents:**  
[TSS Documents](#)

#### Meetings:

| Meeting Number/Date                                       | Agenda | Minutes | Comp Minu Pack      |
|-----------------------------------------------------------|--------|---------|---------------------|
| 143/August 9-11, 2006 -- TBD                              |        |         |                     |
| 142/March 29-31, 2006 -- TBD                              |        |         |                     |
| <a href="#">141/January 18-20, 2006 -- Marina del Rey</a> |        |         |                     |
| 140/August 10-12, 2005 -- Spokane                         | Word   | PDF     | <a href="#">ZII</a> |
| <a href="#">139/April 13-15, 2005 - San Francisco</a>     | Word   | PDF     | <a href="#">ZII</a> |
| <a href="#">138/January 12-14, 2005 -- Phoenix</a>        | Word   | PDF     | <a href="#">ZII</a> |
| <a href="#">137/August 11-13, 2004 -- Calgary</a>         | Word   | PDF     | <a href="#">ZII</a> |
| <a href="#">136/April 7-9, 2004 -- Monterey</a>           | Word   | PDF     | <a href="#">ZII</a> |
| 135/Jan. 14-16, 2004 -- Las Vegas                         | Word   | PDF     | <a href="#">ZII</a> |
| 134/Sept. 3-5, 2003 -- Victoria                           | Word   | PDF     | <a href="#">ZII</a> |
| 133/May 7-9, 2003 -- San Diego                            | Word   | PDF     | <a href="#">ZII</a> |
| 132/Jan. 8-10, 2003 -- Tucson                             | Word   | PDF     |                     |

- [Tech Studies](#)

## Calendar

| << January 2006 >> |    |    |    |    |    |    |    |
|--------------------|----|----|----|----|----|----|----|
|                    | S  | M  | T  | W  | T  | F  | S  |
| >                  | 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| >                  | 08 | 09 | 10 | 11 | 12 | 13 | 14 |
| >                  | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| >                  | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| >                  | 29 | 30 | 31 | 01 | 02 | 03 | 04 |

### Today's Events

[RTWG & RCS Meetings](#)

[UFAS Meeting](#)

[RS Meeting](#)

[LRS Meeting](#)

[ISAS Meeting](#)

[CMOPS Meeting](#)

PSE - Joseph Seabrook  
 SMUD - Dilip Mahendra  
 SRP - Jim Hsu  
 SDGE - Abbas Abed  
 SCL - C.V. Chung  
 SPR - Joseph Tarantino  
 SCE - Dana Cabbell  
 SWTC - Pamela Johnson  
 TANC - Peter Mackin  
 TSGT - Vincent Leung  
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 WECC - Donald Davies

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### Upcoming Events

#### Thu, January 12 2006

[ISAS Meeting](#)

[CMOPS Meeting](#)

#### Fri, January 13 2006

[CMOPS Meeting](#)

#### Wed, January 18 2006

[NWPP OC Meeting](#)

[TSS Meeting](#)

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Johnson, Steven (ATG) [[StevenJ@ATG.WA.GOV](mailto:StevenJ@ATG.WA.GOV)]

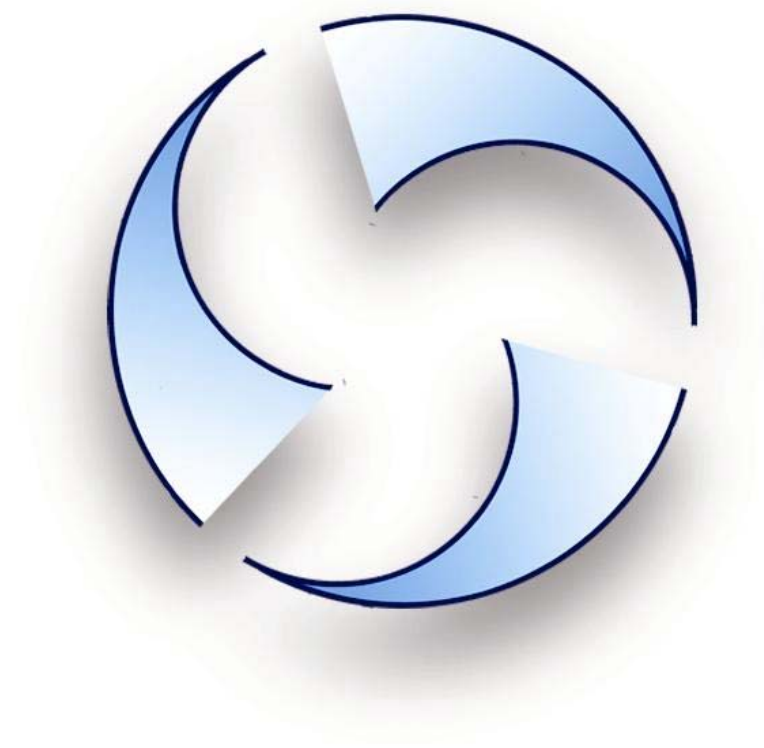
[robert.pan@bctc.com](mailto:robert.pan@bctc.com), [john.phillips@pse.com](mailto:john.phillips@pse.com), "Bill Hosie" [bill\\_hosie@transcanada.com](mailto:bill_hosie@transcanada.com),  
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*Sea Breeze Pacific Juan De Fuca Cable, LP*



# **WECC PATH RATING PROCESS PHASE 1 COMPREHENSIVE STATUS REPORT**



## **SBP JUAN DE FUCA INTERCONNECTIONS**

April 14, 2005

# **Comprehensive Status Report for the Two 550 Mw SBP Juan de Fuca Interconnections.**

## **Introduction**

Attached is a summary graphic showing the past, current & planned activities of the developers Sea Breeze Pacific Regional Transmission System (SBP-RTS), which is a partnership of Sea Breeze Power Corp and Boundless Energy on the two proposed 550 Mw Interconnections across the Strait of Juan de Fuca and the progress of the Sea Breeze Pacific Juan de Fuca projects to date.

As shown on the attached graphic, and as voted on by the WECC Planning Coordination Committee ("PCC") and with the WECC Board approval of Projects in the Path Rating Process, the Juan De Fuca Interconnection project entered Phase 1 of the Path Rating Process on October 26, 2004 by the WECC's receipt of our letter to the PCC & TSS Chairs, formally requesting this process be started. The graphic also shows our WECC activities related to this project commenced about 6 months earlier. In fact the SBP-RTS partnership had been working on this project for more than 1 year before the WECC work started. During this time period the project was kept confidential, although certain Transmission Providers who agreed to maintain confidentiality in accordance with the FERC orders re interconnections and independent or merchant development were provided presentations of our initial Project designs, Assessments and Reviews, which are the early activities in the WECC process. One of the drawbacks to the new WECC Path Rating Process is the need for a merchant or independent project developer is that such a developer cannot go public until considerable work is done and positions in Interconnection Queues have been requested and established.

As we have discussed with members of the Steering committee, and expressed at the last PCC meeting where the new WECC rules were adopted, another area where this Path Rating Process is not the best fit for a Merchant or Independent developer who would usually propose controllable transmission technologies, is that Phase 1 has less meaning for a controllable technology and any project proponent who has to market the Interconnection Transmission Services is only interested in the Phase 2 studies and their results. The other area of concern is the definition of the actual path. The Juan de Fuca WECC review group, in discussing this came up with several potential interpretations. After considerable discussions at the review group and with the steering committee members, authors of the new procedures, and the Chairs of PCC & TSS, the Path for an independent developers project in Phase 1, can only be the path they are proposing which is from one interconnection point to the other. In the Case of the Juan de Fuca project (in Phase 1) this would be from the BCTC substation (Pike) on the Island near Victoria and the BCTC substation (Ingledow) in the lower Mainland of BC to the Port Angeles and Fairmount substations on the Olympic Peninsula.



As discussed above, Phase 2 is more important to a merchant entity and in that process where the effects on other facilities are studied in detail, SBP-RTS has already identified (on the southern end) it's ideas for system reinforcements that the Juan de Fuca project may pursue to improve the "Planned Rating" and or the Ratings of other Paths in WECC. The Independent or Merchant entities, to protect their ideas, need to use the Phase 1 process to identify concerns and possible limiting factors and then evaluate the optimum solutions to maximize the Interconnections marketability during Phase 2.

## **Current Project Status**

The attached summary graphic shows, in summary form, the considerable progress in the development of the SBP Juan de Fuca Cable interconnection projects. The following Information is a description of the Progress in the Ares of

- 1) Siting,
- 2) Environmental/Permitting,
- 3) Legal Approvals
- 4) Marketing
- 5) Technical Analysis & Interconnection Studies

## **SITING**

Sites have been identified for Port Angeles & Fairmount and the Marine Routing. Site have been explored near Victoria on Vancouver Island and near Ingledow. Work is continuing to obtain the rights to desired sites.

## **Environmental/Permitting**

### **Canada**

SBPJDFC has made contact with the Canadian Environmental Assessment Agency, and will be contacting the Department of National Defence and Environment Canada shortly. A project description will be presented to the regulatory agencies, particularly the NEB, CEAA, and DFO. Shortly afterward SBPJDFC will request a joint meeting with these agencies to determine if a scoping document is required or if SBPJDFC can proceed directly to the Certificate of Public Necessity and Convenience and Necessity (CPCN) Application stage. The CPCN is currently scheduled to be submitted by December 15<sup>th</sup>, 2005.

### **The United States of America**

The Project has submitted an application for a Presidential Permit with DOE. The required 60 day notice period has expired with no negative comments received.

A meeting with BPA has confirmed that an Environmental Impact Statement (EIS) will be prepared for the Project. BPA is currently reviewing a Notice of Intent (NOI) to conduct an EIS that was prepared by SBPJDFC and is anticipated to publish this NOI in the Federal Register. An open-house will be held at the Peninsula College in Port Angeles from 4 to 8 PM on May 18<sup>th</sup>.

The meeting with BPA also established the City of Port Angeles as the lead for the SEPA process.

## **Legal Approvals**

The project has met with all Regulatory agencies in the USA & Canada, even though several of the local & state regulatory agencies have stated they have no jurisdiction on an international project regulated by federal entities. The project expects to file shortly for FERC Market Authority Approval and will ultimately have its own Transmission Tariff or be requested by FERC to operate under one of the existing OATTs of another utility.

## **Marketing**

As indicated on the attached Summary Graphic diagram, the Project will hold an Open Season type of RFP for the sales of its Transmission Services from about July 15<sup>th</sup> through August 15<sup>th</sup>, 2005. The project has also been discussing with the regulators the option of selling some of the services on a negotiated bi-lateral basis as the Project sponsors do not have and cannot exercise Market Power or anti competitive practices.

## **Technical Analysis & Interconnection Studies**

Boundless Energy NW and Sea Breeze Power Corp formed a partnership named Sea Breeze Pacific Regional Transmission System ("SBP-RTS"), for the development of several Transmission projects. SBP-RTS did its own feasibility analysis originally on a multi-area type simulation and prepared the 7 pages attached after the Summary Graphic Diagram. This analysis looked at BCTC exports under various load levels and export levels.

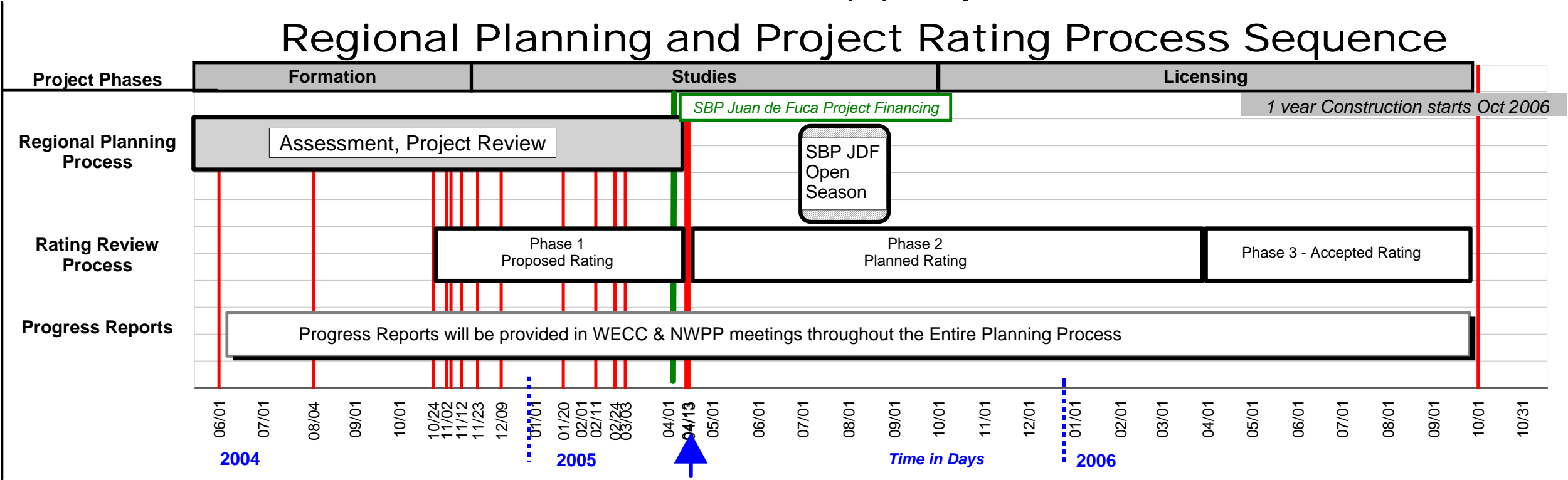
BPA has done an excellent Feasibility study with a nomogram analysis. The detailed results are available to qualified entities on the BPA website and a copy of the summary report is also attached here.

BCTC has worked on the Scope of their Feasibility study of our northern interconnections and has hired the Consultant ABB to do this work expeditiously.

The project has signed an agreement with BPA for its Interconnection system Impact Study in Port Angeles & Fairmount, and that study is underway and should be done in late June or early July. The project is also working with BCTC towards its Interconnection study.

Finally the Interregional study work is being done by SBP-RTS and ABB's separate Study Group in NC. A WECC review group has been formed and has met several times already. The Project has held HVDC educational seminars in BC, and Portland, OR. Future educational seminars are planned for Vancouver, and Seattle, Washington in coordination with IEEE in the Seattle area.

Graphical Display of the Schedule for the  
Regional Planning and Project Rating Process Sequence  
for the two 550 mw Interconnections accross the Strait of Juan de Fuca proposed by Sea Breeze Pacific RTS



- May 27 2004 Our letter for WECC application
- June 1 2004 WECC application sent
- August 4 2004 WECC letter accepting our membership
- Oct 24 2004 Our letter requesting the process be started - sent to 2 committee chairs
- Nov 2 2004 Meet with Phil Parks, chairman of the TSS committee
- Nov 5 2004 Email soliciting members of the Review Group
- Nov 12 2004 Email announcing formation & members of the Review Group
- Nov 23 2004 Email announcing the first meeting
- Dec 9 2004 First/kickoff meeting in Vancouver of the Review Group & educational seminar on HVDC
- Jan 20 2005 NWPP TPC meeting in NV - presentation
- Feb. 24 2005 2nd meeting in Seattle of the WECC Regional Interconnection Study Review Group
- March 3 2005 WECC meetings in Las Vegas (John & Tony - PCC Mtg Presentation to start Phase 2)
- March 24 2005 Meeting with BCTC in Vancouver re the Feasibility Study for the interconnections to the BCTC system
- April 7, 2005 WECC Board Meeting & Annual Meeting in San Francisco.
- April 13, 2005 WECC Path Rating Process Comprehensive Status Report Prepared
- April 15, 2005 TSS meeting in San Francisco (Presentation of Comprehensive Status Report)

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# Vancouver Island HVdc Ties Concepts

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April 2, 2004

**Prepared BY:**

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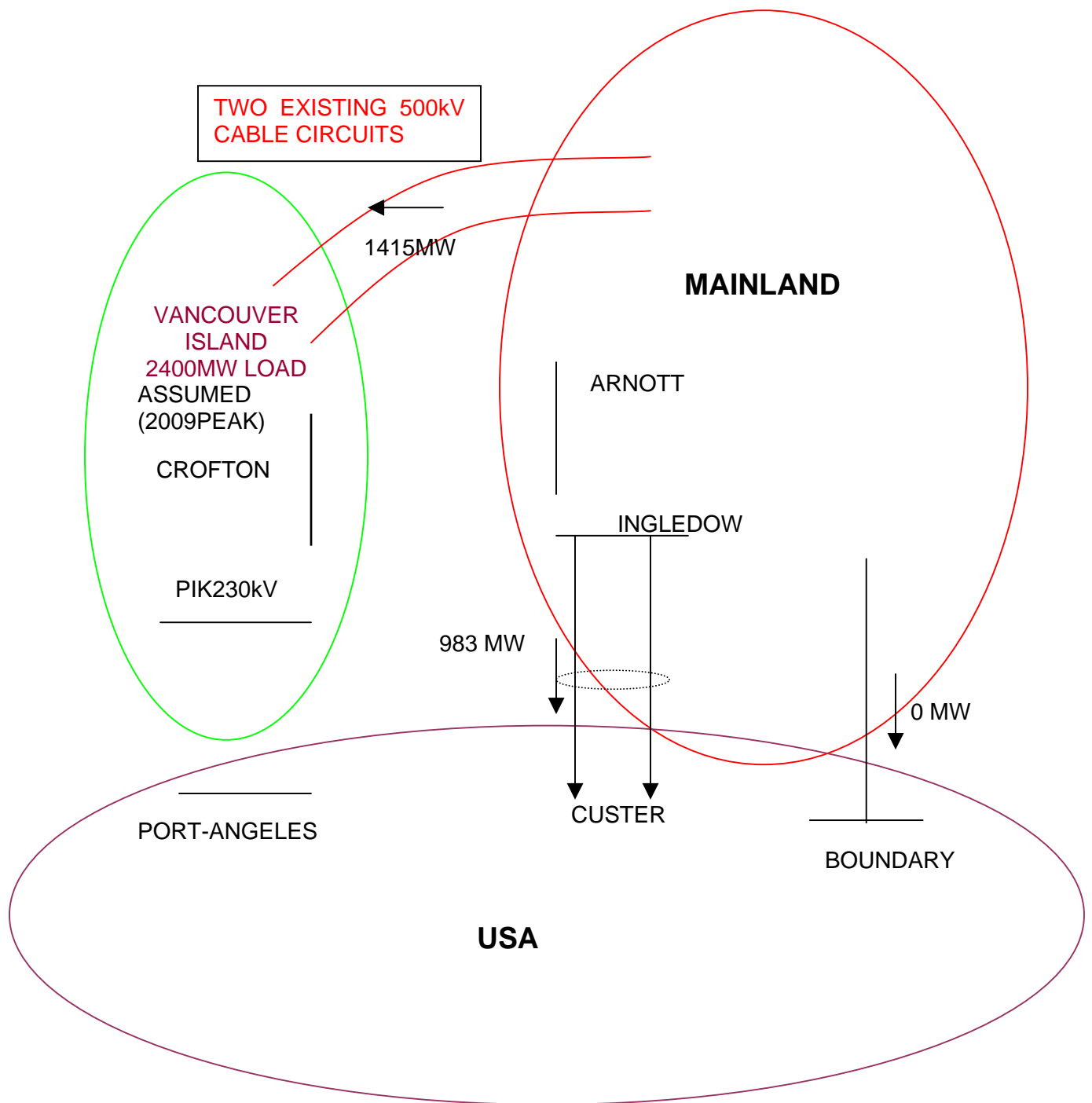


Figure 1: NPP09R1-983MW EXPORT

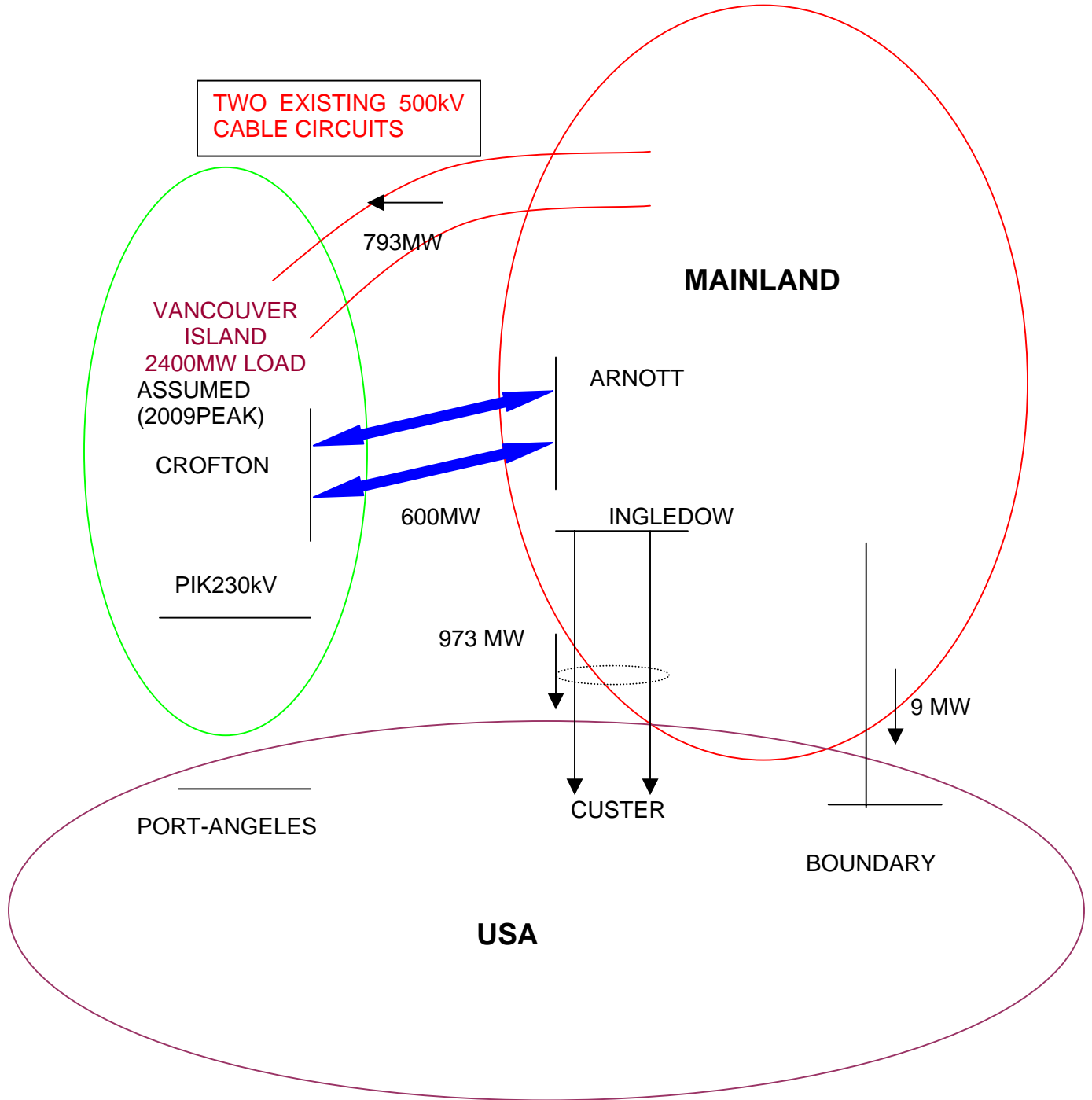


Figure 2: NPP09R1-983MW EXPORT, WITH PHASE-1-A1

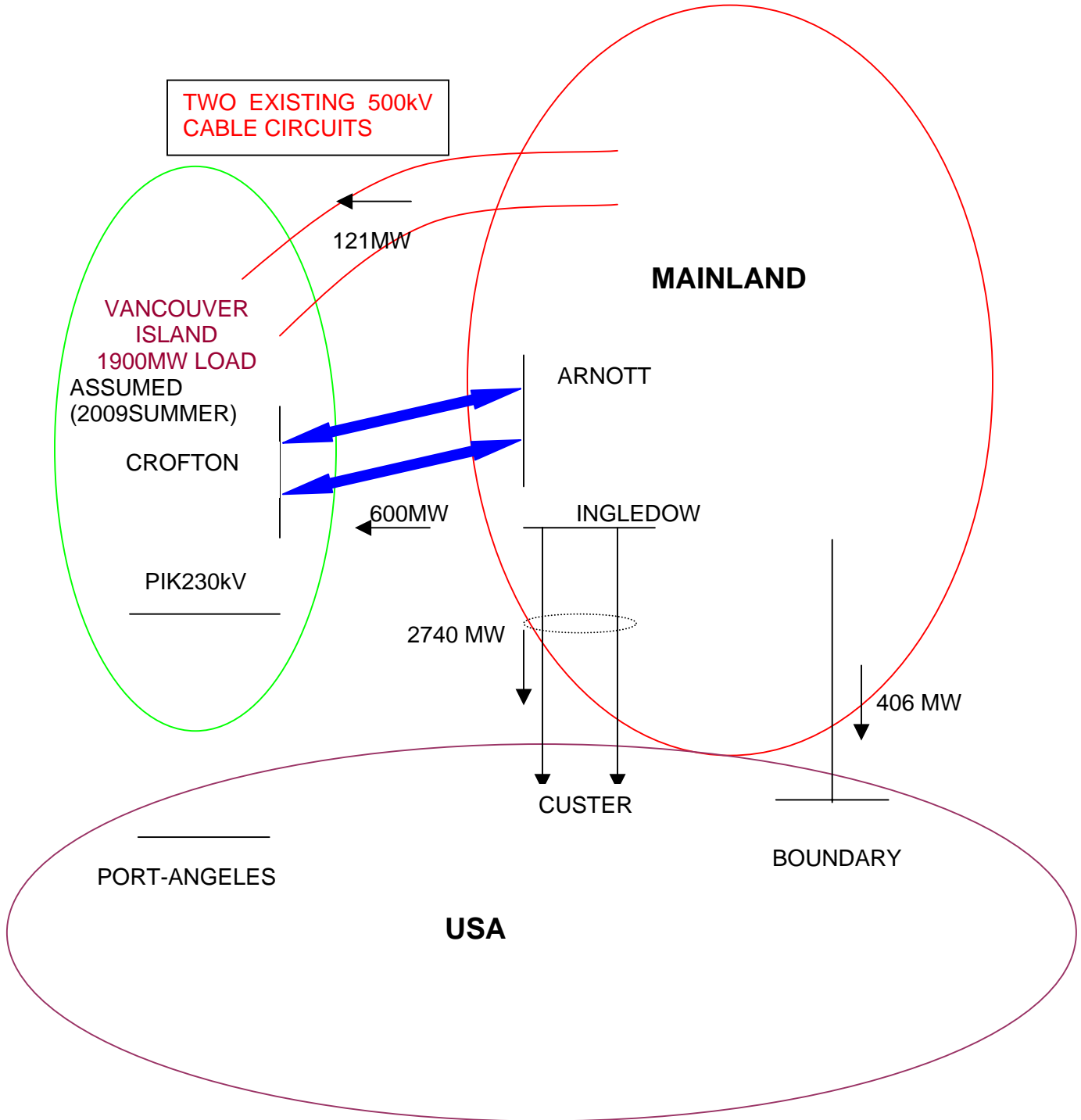


Figure 3: NPP09HS-3150MW EXPORT, WITH PHASE-1A1



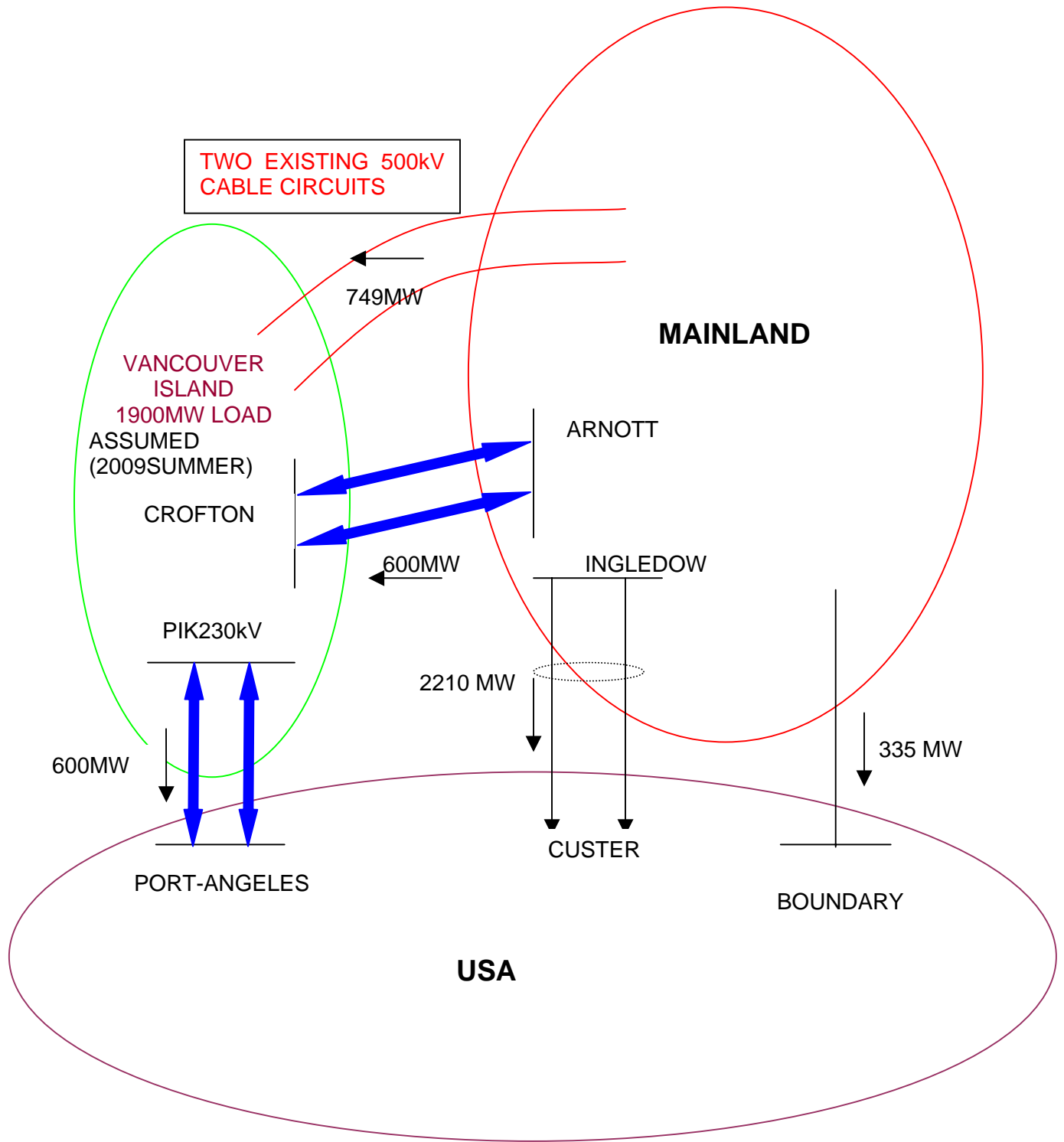


Figure 4: NPP09HS-3150MW EXPORT, WITH PHASES-1&2A1

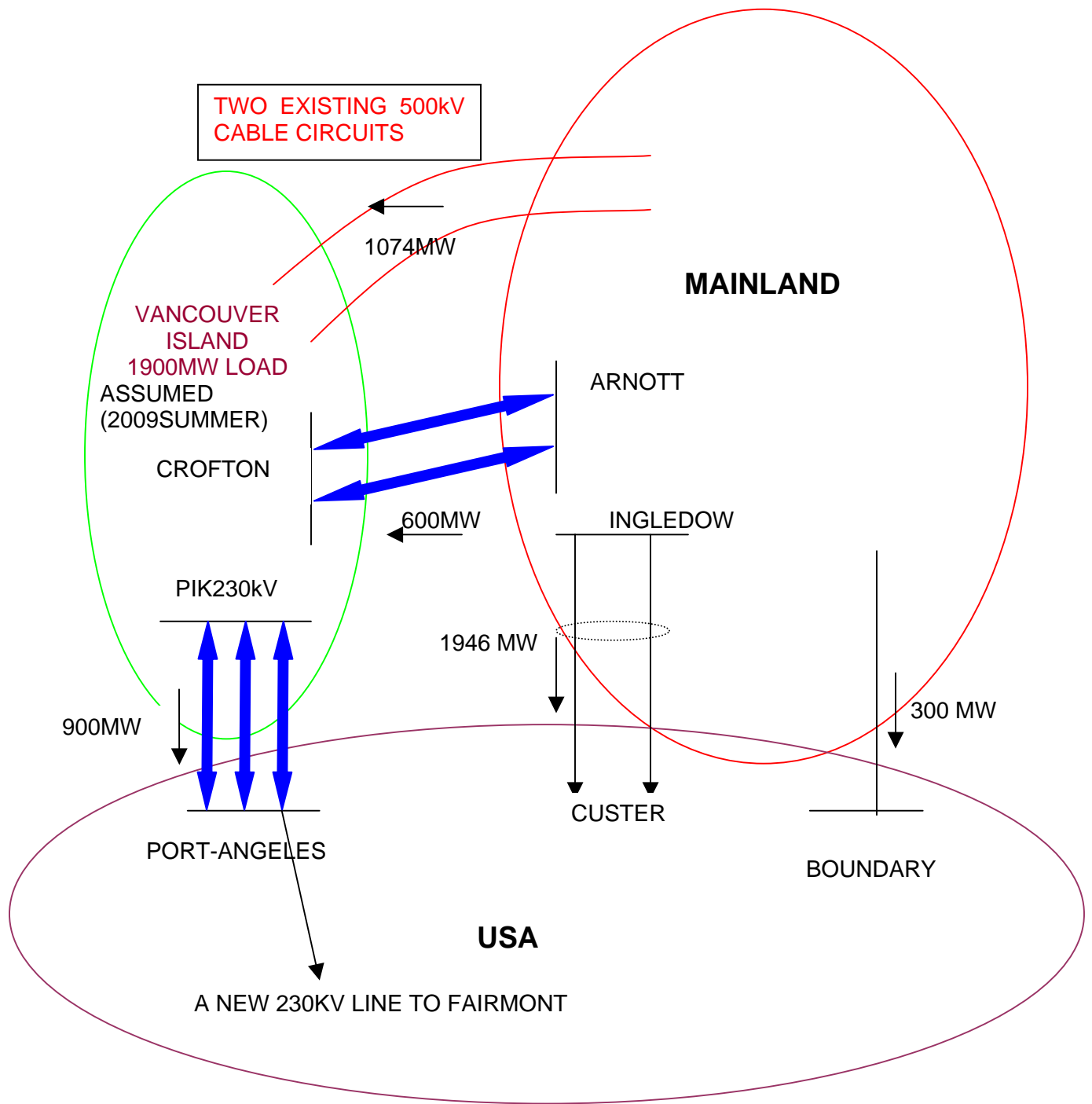


Figure 5: NPP09HS-3150MW EXPORT, WITH PHASES-1&2B1



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# Feasibility Study for Seabreeze DC Interconnection

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Issued: Feb 11, 2005

Revision: 2

**Prepared for: Bonneville Power Administration**

**Submitted by:**

Electric Systems Consulting  
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|                                                           |                             |                         |                     |
|-----------------------------------------------------------|-----------------------------|-------------------------|---------------------|
| <b>Feasibility Study for Seabreeze DC Interconnection</b> | <b>Dept.<br/>Consulting</b> | <b>Date<br/>2/11/04</b> | <b>Pages<br/>67</b> |
|-----------------------------------------------------------|-----------------------------|-------------------------|---------------------|

Author:

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## Summary

Seabreeze submitted an interconnection request to BPA for a DC terminal in the Port Angeles/Fairmount area from either Vancouver Island or Ingledow. To assess the feasibility of the interconnection, BPA requested ABB Electrical System Consulting to develop nomograms indicating acceptable DC terminal operating conditions, considering the effects on the Olympia Peninsula transmission system (primarily 230kV and 115kV).

Power flow cases for a large number of operating conditions were used to develop the nomograms. A variety of system parameters were also considered including seasonal load participation factors, DC power levels for both importing (at Port Angeles) and exporting power (from Port Angeles to Vancouver Island), and system contingency sets.

The results indicated that under pre-contingency system conditions, a large range of different DC power level vs. load level conditions will not cause facility overloads or bus voltage violations. This range is significantly reduced following planning contingencies. In most cases branch overloading was the limiting criteria.

One branch that regularly experienced overloads was the Fairmount 115/230kV transformer. The effect of increasing the transformer rating to 200MVA was investigated and found to increase the range of the DC power levels for pre-contingency system conditions, but was less effective following contingency conditions. Increasing the reactive compensation at Foss Corner and Valley Junction, while also converting it to switched compensation was found to help alleviate bus undervoltages created by a bus outage at the Kitsap 115kV bus.

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|       | Appendix C – Nomogram Limit Violation Lists .....                | C-Error! Bookmark not defined. |

# 1 Introduction

Seabreeze submitted an interconnection request to BPA for a DC terminal in the Port Angeles/Fairmount area. To assess the feasibility of the interconnection, BPA requested ABB Electrical System Consulting to develop nomograms indicating acceptable DC terminal operating points considering the effects on the Olympia Peninsula transmission system (primarily 230kV and 115kV). To examine the most limiting conditions the total HVDC interconnection was connected to Port Angeles in this study.

This report discusses the general criteria and assumptions used in the development of the nomograms. It also presents conclusions that can be inferred from the study results.

Power flow cases for a large number of system operating conditions have been used for the nomogram development. Several system parameters have been considered including seasonal load participation factors, DC power levels for both importing (at Port Angeles) and exporting power (from Port Angeles), and system contingency sets. Nomograms considering thermal overloads only and thermal overloads plus operating voltage criteria violations have been developed. Evaluations have been made to determine potential solutions to the voltage criteria violations and transformer overload limitations.

## 2 Nomograms

A large number of power flow cases have been performed in order to develop each nomogram. The power flow program used for this study is PSS/E which has long been recognized as an industry standard for power flow calculations. Each power flow case considered a unique set of system conditions and the results have been used to develop several sets of nomograms, which indicate the areas of load power level vs. DC terminal power level for which the Olympia Peninsula transmission system are maintained within facility ratings and bus voltage criteria..

### 2.1 Nomogram Parameters

The nomograms have been developed with a different parameter settings applied to each. The following parameters were considered

- DC Power Level
- Seasonal Load Base
- Peninsula Load Level
- Contingency Sets
- Limit criteria

Each is briefly considered below.

#### 2.1.1 DC Power Level

The DC terminal is modeled at the Port Angeles 230kV bus. For each nomogram attempts were made to find power flow solutions for DC terminal power levels ranging from -1000MW (exporting power from Port Angeles) to +1000MW (importing power at Port Angeles). The DC power level was varied in steps of 50MW.

The DC converter was modeled two ways: 1) a power source and power sink at unity power factor ( $\text{pf}=1.0$ ); and, 2) a power source and power sink capable of supplying variable and controllable reactive power in addition to the real power.

#### 2.1.2 Seasonal Load Base

The electrical loads seen at the various buses in the Olympia Peninsula system change with the seasons. The base winter load is approximately 1150MW while the base summer load is approximately 600MW. The load behavior also varies with season due to the mixture of industrial and residential loads, and due

to seasonal differences in the load power factors. In order to properly account for the load variations, summer and winter have been considered independently. Load participation factors have also been considered for each season to define how the loads at the various buses contribute to a change in the overall Peninsula load. The participation factors are discussed further in Appendix A.

### 2.1.3 Peninsula Load Level

Starting from the seasonal base load, each nomogram considers a range of load levels, varied in steps of 25MW. For the summer cases, load levels ranging from 300MW to 800MW have been considered. For the winter cases, load levels ranging from 550MW to 1250MW have been considered. The higher load level cases can account for potential future load growth or can represent abnormal ambient conditions without load growth.

### 2.1.4 Contingency Sets

BPA provided two sets of contingencies to be used in evaluating the system behavior – single contingencies and common mode contingencies. Twenty-five (25) single contingencies considering single branch outages were provided. Twenty-eight (28) common mode contingencies were provided. These contingencies are listed in Appendix B.

In addition to nomograms representing each contingency set, base nomograms considering the full pre-contingency conditions are provided.

### 2.1.5 Limit Criteria

Two sets of limit criteria have been applied for the development of different nomograms. Any condition under which the selected limit criteria are violated is considered unacceptable. The two limit criteria sets are:

- Branch overloads only. Any branch experiencing a current level in excess of its 100% Base A rating is considered overloaded. Nomograms developed with this criteria applied can be considered as representing the latent system capability if bus voltage criteria violations are mitigated.
- Branch overloads plus bus voltage criteria violations. The acceptable voltage range for all cases is 95% to 105% of the nominal bus voltage. Any bus experiencing a voltage less than 95% or over 105% is considered in violation of the limit criteria.

It should be noted that the power flow cases have been performed assuming ideal voltage control at the buses with shunt capacitors. That is, the shunts were considered continuously variable instead of changing in discrete steps.

## 2.2 Existing System Nomograms

Table 1 lists the specific nomograms that have been developed using the model of the existing Olympia Peninsula transmission system and describes the parameters used to develop each nomogram. The actual nomogram plots are given following the conclusions in Figure 1 through Figure 24

For each nomogram a list that indicates the limiting violations is provided in Appendix C. The list indicates all unacceptable DC power / load level combination immediately adjacent to an acceptable DC power / load level combination. It also provides information on the violations. For conditions where multiple contingencies result in criteria violations only the most severe violation is indicated.



**Table 1 – Existing System Nomogram List**

| Figure # | Description     | Season | DC term pf | Contingency Set | Limit Criteria |
|----------|-----------------|--------|------------|-----------------|----------------|
| 1        | Base System     | Summer | 1.0        | --              | Overload       |
| 2        | Base System     | Summer | 1.0        | --              | All            |
| 3        | Contingency Set | Summer | 1.0        | Single          | Overload       |
| 4        | Contingency Set | Summer | 1.0        | Single          | All            |
| 5        | Contingency Set | Summer | 1.0        | Common Mode     | Overload       |
| 6        | Contingency Set | Summer | 1.0        | Common Mode     | All            |
| 7        | Base System     | Summer | Var        | --              | Overload       |
| 8        | Base System     | Summer | Var        | --              | All            |
| 9        | Contingency Set | Summer | Var        | Single          | Overload       |
| 10       | Contingency Set | Summer | Var        | Single          | All            |
| 11       | Contingency Set | Summer | Var        | Common Mode     | Overload       |
| 12       | Contingency Set | Summer | Var        | Common Mode     | All            |
| 13       | Base System     | Winter | 1.0        | --              | Overload       |
| 14       | Base System     | Winter | 1.0        | --              | All            |
| 15       | Contingency Set | Winter | 1.0        | Single          | Overload       |
| 16       | Contingency Set | Winter | 1.0        | Single          | All            |
| 17       | Contingency Set | Winter | 1.0        | Common Mode     | Overload       |
| 18       | Contingency Set | Winter | 1.0        | Common Mode     | All            |
| 19       | Base System     | Winter | Var        | --              | Overload       |
| 20       | Base System     | Winter | Var        | --              | All            |
| 21       | Contingency Set | Winter | Var        | Single          | Overload       |
| 22       | Contingency Set | Winter | Var        | Single          | All            |
| 23       | Contingency Set | Winter | Var        | Common Mode     | Overload       |
| 24       | Contingency Set | Winter | Var        | Common Mode     | All            |

### 3 Nomogram Analysis

Several observations can be made from an analysis of the existing system nomograms and the limiting violations for each

1. The results indicate that under pre-contingency system conditions, a large range of DC power level vs. load level conditions will not cause facility overloads or bus voltage violations when connected to the Port Angeles 230kV bus. There are thermal limits which are reached at approximately 750 to 800MW importing (at Port Angeles) in the summer, but the DC power level can reach 1000MW for many load conditions in the winter. The exporting power (from Port Angeles) limits are reached at between -400MW and -600MW depending on the Peninsula load for both seasons.
2. The contingencies significantly reduce the acceptable operating areas. As expected, the common mode contingencies are more severe and in some instances (e.g. common mode contingencies 6 and 19) result in no acceptable points. It may be necessary to allow the DC power to be ramped back from the direction it was flowing, or allow the northern peninsula to be islanded on the HVDC Light terminals, under some severe contingencies. This consideration should be investigated in future studies.
3. In general the HVDC converter that is capable of supplying reactive compensation at the Port Angeles 230kV bus more readily avoids voltage criteria violations.
4. Under most base case system and single contingency cases the limiting criteria are branch overloads. In several cases, the only branch overload observed is the Fairmount 115kV – Fairmount 230kV transformer. This suggests a system enhancement, which was explored below.

5. Where branch overloads were not exclusively associated with the Fairmount transformer, transmission lines are involved. The more common branch overloads are observed on the following lines, depending on the contingency.
  - Happy Valley 230 – Port Angeles 2 230
  - Fairmount 230 – Happy Valley 230
  - Fairmount 115 – Shelton 115
  - Olympia 230 – Shelton 230
- Future studies could consider means of reducing the overloads on these branches, including a division of the DC power between multiple buses – e.g. Port Angeles 230 and Fairmount 230.
6. For single contingency cases where the limiting criteria are voltage violations, most of these violations can likely be corrected by an appropriate minor adjustment in selected transformer tap setting.
7. The most severe of the common mode contingencies often result in power flow cases that will not converge or result in voltage collapse conditions in portions of the Olympia Peninsula system.

### **3.1 System Enhancement Nomograms**

#### **3.1.1 Fairmount 115/230kV Transformer Rating**

As previously stated, the results indicate that the Fairmount 115/230kV transformer often limits the DC power level to avoid loading beyond the rating. In almost all of these cases it limited the amount of power that can be imported to the Olympia Peninsula. Additional cases were run to evaluate the effect of increasing the transformer rating to 200MVA. The transformer impedance as taken on the transformer rating base was assumed to remain constant.

This change increases the acceptable import operating area for the pre-contingency system in the winter at higher load levels. It had little effect on the summer operating area or on any of the contingency operating ranges, which are limited by other branches.

The improved winter base nomogram is provided in Figure 25. Additional improvement would be expected from a transformer rating above 200MVA.

#### **3.1.2 Foss Corner / Valley Junction Capacitors**

Also noted above was the severity of common mode contingency 06. This contingency simulates a bus fault on the Kitsap 115kV bus with the loss of all lines from that bus. For winter cases under this contingency, all of the remaining 115kV buses in the S. Bremerton/Valley Junction/Foss Corner region experience undervoltages around 0.9pu or lower. The capacitors at the Foss Corner 115kV bus and the Valley Junction 115kV bus were modified so that they had continuous control with a voltage set point of 1.025pu. They were also increased to permit 80MVAR of shunt capacitors at each bus. These changes allowed the buses in the problem region to maintain acceptable voltages for those operating points which were not otherwise limited by overloads. The nomograms for both the overload limits and all limits are shown in Figure 26 and Figure 27 respectively.

## **4 Conclusions**

Applying a DC terminal at the Port Angeles 230kV bus is feasible for a large potential range of system conditions for both summer load conditions and winter load conditions. Exporting power (from Port Angeles), under pre-contingency conditions and this study's assumptions, is possible to DC power levels of 400MW or more depending on the load levels. Importing power (at Port Angeles), under pre-contingency conditions and this study's assumptions, is possible to DC power levels as high as 800MW in the summer and 1000MW in the winter depending on load levels.

The limits are generally caused by branch overloads on nearby 230kV and 115kV lines. Overloads on the Fairmount 115/230kV transformer also limit several conditions. Increasing the transformer rating to 200MVA alleviates many of these limitations.

Limits related to voltage criteria violations are more readily avoided if the DC converter can provide reactive support to the Port Angeles 230kV bus.

Following contingencies, the region of DC power is significantly reduced – primarily by line overloads. Under these conditions, a ramp back scheme of the DC power is a mitigation alternative that can be addressed in future studies. This consideration and options to relieve the most commonly overloaded lines should be examined in future studies.

One of the most severe common mode contingencies is a bus outage at the Kitsap 115kV bus. The Kitsap 115 bus outage results in deep undervoltages on the 115kV system near South Bremerton, Foss Corner, and Valley Junction. An increase of the capacitors at Foss Corner and Valley Junction to a total of 80MVAR at each location alleviates these undervoltages for several operating points. Future studies may examine placing a bus sectionalizing breaker on the Kitsap 115kV bus.

The technical study results included in this document are for interconnection only. Any transmission service for delivery beyond the point of interconnection must be requested and arranged for separately.

**MINUTES OF THE  
WECC STUDY GROUP MEETING  
DECEMBER 9, 2004  
FAIRMONT HOTEL, VANCOUVER AIRPORT**

**Sea Breeze Pacific Regional Transmission System, Inc.  
December 9, 2004**

**WECC Regional Plan Meeting**

**Attendance List**

|                                 |                       |                        |                                                                                               |
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| <b>Robert Pan</b>               | <b>BCTC</b>           | <b>604-699-7349</b>    | <b><a href="mailto:robert.pan@bctc.com">robert.pan@bctc.com</a></b>                           |
| <b>Eric John</b>                | <b>ABB</b>            | <b>919-856-2390</b>    | <b><a href="mailto:eric.john@us.abb.com">eric.john@us.abb.com</a></b>                         |
| <b>Christer Eriksson</b>        | <b>ABB</b>            | <b>541-298-4161x11</b> | <b><a href="mailto:christer.Eriksson@us.abb.com">christer.Eriksson@us.abb.com</a></b>         |
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| <b>Chuck Matthews</b>           | <b>BPA</b>            | <b>360-619-6668</b>    | <b><a href="mailto:cematthews@bpa.gov">cematthews@bpa.gov</a></b>                             |
| <b>Bill Lemon</b>               | <b>Capital Access</b> | <b>206-315-8332</b>    | <b><a href="mailto:blemon@capitalaccessllc.com">blemon@capitalaccessllc.com</a></b>           |
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| <b>Eugene Hodgson</b>           | <b>SBP-RTS</b>        | <b>604 689-2991</b>    | <b><a href="mailto:eugenehodgson@seabreezepower.com">eugenehodgson@seabreezepower.com</a></b> |
| <b>E. John Tompkins</b>         | <b>SBP-RTS</b>        | <b>860-7474-0497</b>   | <b><a href="mailto:ejt@trmc.com">ejt@trmc.com</a></b>                                         |
| <b>Don Martin</b>               | <b>ABB</b>            |                        | <b><a href="mailto:don.e.martin@us.abb.com">don.e.martin@us.abb.com</a></b>                   |

**WECC Regional Plan Study Committee Meeting for Juan de Fuca  
HVDC Transmission Interconnection proposed by:  
Sea Breeze Pacific Regional Transmission System, Inc.**

**Fairmont Hotel, Vancouver International Airport, Vancouver, B.C.  
December 9, 2004**

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**Attendees:**

Paul B. Manson, SBP-RTS  
Eugene Hodgson, SBP-RTS  
Brian Chernack, SBP-RTS  
E. John Tompkins, SBP-RTS  
Don Martin, ABB Study Group  
Christer Eriksson, ABB, Inc.  
Eric John, ABB, Inc.  
Bill Lemon, Capital Access LLC  
Patrick Howard, Capital Access LLC  
Robert Pan, B.C.T.C.  
Chuck Matthews, Bonneville Power Administration  
Gordon Dobson-Mack, Powerex Corporation

**Via Tele-Conference:**

John Phillips, Puget Sound Energy  
Kenny Dillon, Portland General Electric

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John Tompkins opened the meeting by explaining the intent was to undertake a 3 phase planning and evaluation process pursuant to WECC Regional Planning Guidelines<sup>(1)</sup> to determine:

- A) The justification for the Juan de Fuca interconnection;
- B) A path rating for the new interconnection; and
- C) The impact on interconnected transmission systems.

Mr. Tompkins then proceeded to give a description of the Juan de Fuca interconnection projects: (a copy of the SBP-RTS Map of the Strait of Juan de Fuca projects is included as attachment #1 and available on our Web Site at [www.sbp-rts.com](http://www.sbp-rts.com) ).

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<sup>1</sup> A PDF copy of the WECC Procedures For Regional Planning Project Review And Rating Transmission Facilities is included, the URL is >  
[http://www.wecc.biz/documents/library/procedures/planning/NEWRPPR\\_402\\_Revised.pdf](http://www.wecc.biz/documents/library/procedures/planning/NEWRPPR_402_Revised.pdf)

There are two separate proposals, to interconnect up to 1100 MW between British Columbia and the Olympic Peninsula by means of two 550 MW HVDC Light systems. The first project would interconnect the BCTC Esquimalt substation on Vancouver Island to the BPA substation in Port Angeles, Washington. The second project would connect BCTC's Horsey substation in Victoria to BPA's Fairmont substation.

Mr. Tompkins explained that an alternative interconnection point in B.C. has been filed with BCTC, the Ingledow substation, in the event BCTC does not substantially reinforce transmission links to Vancouver Island within the next 3 – 4 years.

Chuck Matthews confirmed that the WECC planning process was meant to establish a maximum non simultaneous path rating for a new transmission line in Phase 1 and subsequently a simultaneous rating on other affected paths in Phase 2.

Gordon Dobson-Mack added that there was also a Phase 3 of the planning process, and it was suggested by the group that Phase 3 be covered the construction period. Tompkins discussed the schedule for the Port Angeles project, indicating that the goal of conducting an Open Season for the line's capacity in the late spring depended on meeting two objectives: assignment of Market Authority by FERC and establishment of a path rating to define the amount of service which could be offered for sale.

Tompkins described the permitting process which the project needs to satisfy: A Presidential Permit issued by the Department of State through the U.S. Department of Energy and a Canadian National Energy Board permit. SBP-RTS has filed its Presidential Permit application with D.O.E. and will complete the first phase of the NEB permit process – stakeholder participation – in January 2005.

Dobson-Mack opined that there might be more interest in an Open Season if the results of the simultaneous path rating study were available. Tompkins responded that preliminary information on load flow, stability and contingency model runs should be available by the beginning of the Open Season.

Robert Pan asked how the provisions of the scoping, or project justification, phase of the Regional Planning process were being addressed. He was particularly concerned about the need for the project and what sources of generation were to supply the system. He related that with the current transmission system, it would be difficult to export large amounts of energy from Vancouver Island.

Brian Chernack explained that SBP-RTS has no financial interest in any generation and has no control over who would bid for the service. He emphasized that the project justifications were: the Olympic Peninsula was capacity and energy deficient and BPA was severely constrained in meeting reliability requirements; Vancouver Island needed both energy and transmission reinforcement to back up the **twin - 500KV AC CHEEKYE-DUNSMUIR** interconnections **between the Lower Mainland and Vancouver Island**; both Port Angeles and Victoria are at the extremities of their respective grids and would benefit from the voltage support and black start capabilities of HVDC Light technology; and there is substantial interest among independent power producers to develop renewable energy generation on Vancouver Island, but were stymied

both by a lack of transmission capacity off the Island and a lack of transmission capacity for export from B.C.

Chuck Matthews pointed out that in doing the load flow studies for the Juan de Fuca projects, only existing resources could be considered.

During discussion of the need for increased transfer capability between BC and the US, Dobson-Mack indicated that he believes that BCTC currently has at least 500 MW firm Available Transfer Capability from the B.C. Lower Mainland to the US because BCTC's BC-US North-to-South firm path rating of ~1800 MW is not fully subscribed. On the BPA side of the intertie, there are several requests in the queue, including a request from a generator located at Cherry Point.

Matthews said there were really two major issues in simultaneous path rating. In summer, most of the flow was North to South, and in the winter in the opposite direction.

Tompkins acknowledged these transmission constraints and said SBP-RTS was aware that some of the proposed service would necessarily be non-firm.

The study committee then addressed what base cases should be used to study the interconnection impacts on the interconnected systems. After extensive discussion about when the project would come on line, it was agreed that the most recently certified WECC base cases for 2008/2009 should be used. These are HS-2, or High Summer 2008 posted in February 2004, and HW-1, High Winter 2009, posted in June 2004.

It was also agreed that the study participants would have two weeks to review the base cases and get back to John Tompkins on any changes to the backup resources.

Chuck Matthews is also to provide Tompkins with the appropriate contingencies to model.

The group also addressed which model to utilize. Don Martin of ABB, which will be doing the modellings, said it had the capability to use either the PT1 model or the GE model and had DC Light patches for each. Matthews said WECC used the GE model, so it was agreed that the GE model would be employed.

It was also agreed that SBP-RTS would sent out a target schedule for the path-rating phase with meeting minutes.

On the issue of reliability standards, Matthews related that WECC used the basic NERC standards and added its own standards for voltage and frequency dips. ABB will obtain the WECC standards from their website, and Dobson-Mack suggested adding a hot link in the minutes for the convenience of other Planning Committee members.

*In comments to the meeting notes, Gordon Dobson-Mack suggested the insertions in “**Bold**” below, which are helpful. We agree with the statements with the exception of the characterization of “**non-simultaneous**”, which SBP-RTS believes should be the definition for a “Simultaneous” Path Rating. Therefore, this Issue should be discussed at the next Review group Meeting.*

**The group discussed that the maximum non-simultaneous path ratings for North-to-South and South-to-North of the proposed Juan de Fuca DC interconnection would be the lesser of:**

- 1) the maximum rating of the DC line;**
- 2) the transfer capability of the delivering system;**
- 3) the transfer capability of receiving system.**

Given the limits in winter of the existing transmission system on the Olympic Peninsula, Dobson-Mack suggested that the transfer capability of the delivering system may limit the **maximum non-simultaneous** South-to-North transfer capability to 0 MW firm.

**In Robert Pan’s review of the draft minutes, BCTC offered the following comments, shown in “blue” type. SBP-RTS offers further commentary for clarification in “red” type.**

Dear Mr. Tompkins:

Thanks for the meeting minutes prepared! I would like to point out that a few statements in the minutes are unclear and should be clarified:

1. “Vancouver Island needed both energy and transmission reinforcement to back up the 500KV interconnections;” Paragraph 8 on Page 3.

The above description would be right if the 500 kV interconnection means the tie between Lower Mainland and Vancouver Island rather than the tie between BC and BPA. Therefore the 500 kV interconnection should be specified as the tie between Lower Mainland and Vancouver Island.

**The minutes reflect this clarification in “green underlined” type.**

However even with this correction, the description is an incorrect project justification as both BCTC and BPA concluded during the meeting that both of the area systems to be connected are currently short of supply sources and there is no firm capacity to supply the other through the proposed HVDC Light circuits.

**SBP-RTS disagrees with this opinion. SBP-RTS is not in the generation or power supply procurement business and does not use this as a Project Justification. An “Open Season” will determine the interest on the part of existing or new generation sources and/or power marketers or utilities to purchase the new transmission service to be afforded by the Juan de Fuca line. The Interregional Study will determine supply capability of integrating both area systems.**

BCTC has a solution to supply Vancouver Island from Lower Mainland through 230 kV cable circuits. We have recently named this project Vancouver Island Transmission Reinforcement Project.

**SBP-RTS has proposed to BCTC, BC Hydro and BCUC alternative fixes to the Vancouver Island supply situation. BCTC, while still in the study phase of its solution, was ordered by BCUC to evaluate the merits of the SBP-RTS proposals. Similarly, BC Hydro, in its**



current proceeding before the BCUC for approval of its Vancouver Island Generation RFP has been directed to provide an assessment of SBP-RTS's proposal to serve the Island with HVDC Light technology.

2. "... and Victoria are at the extremities of their respective grids and would benefit from the voltage support and black start capabilities of HVDC Light technology;" Paragraph 8 on Page 3. We presently have no transmission problem in the Victoria area. The proposed project is equivalent to increasing the load in the Victoria area by 550/1100 MW assuming the connection is intended to export power from Vancouver Island to Olympic Peninsula as I mentioned during the meeting. The negative impact of the proposed project on the area system is expected significant. With regard to voltage support and blackstart, we presently have no need for these capabilities.

BCTC utilizes SVCs at Dunsmuir and capacitor banks at its Duncan HVDC terminal to supply voltage support on Vancouver Island. The BCTC HVDC system is proposed to be retired in 2008 or 2009. As stated, SBP-RTS 's Victoria HVDC Light terminal has the capacity to provide dynamic voltage regulation and transient stability as well as black start capability, though BCTC would not be compelled to utilize/purchase these ancillary services unless it decided to do so.

3. "...were stymied both by a lack of transmission capacity off the Island and a lack of transmission capacity for export from B.C." Paragraph 8 on Page 3. Any generation to be added on Vancouver Island will offset power flow on the 500 kV cable circuits between Lower Mainland and Vancouver Island as I stated during the meeting. It is true that Vancouver Island is short of supply sources and depending on the location and amount of new generation, the on-island transmission network would need to be reinforced to bring power from that new generation to the load areas. There is no difficulty to transfer power off the island and to export power from BC.

Only a small fraction of requests for transmission across the Blaine Intertie are able to be satisfied on an annual basis owing to the combination of contractual and treaty obligations and the deterioration of transfer capacity as BC Lower Mainland approaches peak load requirements. This is part of the reliability and economic justification of the proposed project.

4. Both BCTC and BPA concluded at the meeting that a circuit rating review on the proposed project should be in a later stage.

SBP-RTS was advised by the Chairman of the WECC Planning Committee, Phil Park of BCTC, of the procedures to follow, and as indicated in the attached WECC Guidelines, the Path Rating study is the next step in the project planning and review procedure. Study and review timelines will be addressed at the next review committee meeting, tentatively scheduled in early February.

It would be appreciated if you could incorporate the corrections I suggest and the points that I made at the meeting. Thank you!

Robert Pan  
Senior Engineer  
System Planning(LM&VI), BCTC  
Tel: (604)699-7349, Fax: (604)699-7538  
[robert.pan@bctransco.com](mailto:robert.pan@bctransco.com)

## **WECC Operating & Planning Policies, Procedures, Criteria**

<http://www.wecc.biz/modules.php?op=modload&name=Downloads&file=index&req=viewdownload&cid=22>

## **WECC Reliability Criteria**

[http://www.wecc.biz/documents/library/procedures/WECC\\_Reliability\\_Criteria\\_04-23-04.pdf](http://www.wecc.biz/documents/library/procedures/WECC_Reliability_Criteria_04-23-04.pdf)

## **NERC/WECC Planning Standards**

[http://www.wecc.biz/documents/library/procedures/planning/WECC-NEERC\\_Planning%20Standards\\_4-10-03.pdf](http://www.wecc.biz/documents/library/procedures/planning/WECC-NEERC_Planning%20Standards_4-10-03.pdf)

Other additions to the minutes suggested by the group were: electronic copies of the proposed transmission route maps, and links to the ABB HVDC web pages (<http://www.abb.com/hvdc>) and SBP-RTS site ([www.sbp-rtts.com](http://www.sbp-rtts.com)).

**Brian Chernack**  
**Minutes Recorder**

## **Other Links**

<http://www.nerc.com/>

[www.WECC.com](http://www.WECC.com)

[www.Seabreezepower.com](http://www.Seabreezepower.com)

## **For the ABB HVDC Information,**

Go to: <http://www.abb.com/hvdc>

Click on: "What's new in ABB's HVDC web pages?"  
(under HVDC TOPICS on the right side on the page)



**E. John Tompkins, P.E.**

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**From:** Pan, Robert [Robert.Pan@bctc.com]  
**Sent:** Friday, December 31, 2004 6:11 PM  
**To:** ejt@trmc.com  
**Cc:** john.Phillips@pse.com; Dobson-Mack, Gordon; don.martin@ca.abb.com;  
paulmanson@seabreezepower.com; christer.Eriksson@us.abb.com; eric.john@us.abb.com;  
phoward@capitalaccessllc.com; Gillespie, Don; Garnett, Gerry; Pan, Robert  
**Subject:** RE: DRAFT MINUTES WECC STUDY GROUP MEETING ON DECEMBER 9, 2004

Dear Mr. Tompkins:  
Thanks for the meeting minutes prepared!

I would like to point out that a few statements in the minutes are unclear and should be clarified:

1. "Vancouver Island needed both energy and transmission reinforcement to back up the 500KV interconnections;" Paragraph 8 on Page 3.

The above description would be right if the 500 kV interconnection means the tie between Lower Mainland and Vancouver Island rather than the tie between BC and BPA. Therefore the 500 kV interconnection should be specified as the tie between Lower Mainland and Vancouver Island.

However even with this correction, the description is an incorrect project justification as both BCTC and BPA concluded during the meeting that both of the area systems to be connected are currently short of supply sources and there is no firm capacity to supply the other through the proposed HVDC Light circuits.

BCTC has a solution to supply Vancouver Island from Lower Mainland through 230 kV cable circuits. We have recently named this project Vancouver Island Transmission Reinforcement Project.

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4. Both BCTC and BPA concluded at the meeting that a circuit rating review on the proposed project should be in a later stage.

It would be appreciated if you could incorporate the corrections I suggest and the points that I made at the meeting.  
Thank you!  
Happy New Year!

Robert Pan

Senior Engineer  
System Planning(LM&VI), BCTC  
Tel: (604)699-7349, Fax: (604)699-7538  
[robert.pan@bctransco.com](mailto:robert.pan@bctransco.com)

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**From:** E. John Tompkins, P.E. [<mailto:ejt@trmc.com>]

**Sent:** 2004, December 30 7:07 AM

**To:** cematthews@bpa.gov; john.Phillips@pse.com; Dobson-Mack, Gordon; Pan, Robert; don.martin@ca.abb.com

**Cc:** bchernack@gwi.net; paulmanson@seabreezepower.com; christer.Eriksson@us.abb.com; eric.john@us.abb.com; phoward@capitalaccessllc.com

**Subject:** DRAFT MINUTES WECC STUDY GROUP MEETING ON DECEMBER 9, 2004

Gentlemen,

Attached please find a draft copy of the WECC Study Group Meeting Minutes from our meeting on Dec 9th in the Fairmont Hotel in Vancouver, BC. Please provide any comments by Friday so I can get this out to the larger group membership. Sorry about the last E-Mail w/o the attached file.

Happy New Year,

E. John Tompkins, P.E.

COO of Sea Breeze Pacific RTS

CFO of Boundless Energy, LLC,

President of TR&MC, and

Director of Atlantic Energy Partners, LLC

for Project NeptuneRTS

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TOMPKINS, Research & Management Consulting

WEBSITE => [www.trmc.com](http://www.trmc.com)

E-MAIL => ejt@trmc.com

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203 Redstone Hill

Plainville, CT 06062

(860) 747-0497 phone

(860) 747-0279 fax

## Unknown

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**From:** Elmer J. Tompkins, P.E. [ejt@trmc.com]  
**Sent:** Friday, September 30, 2005 11:11 AM  
**To:** 'Chris.MOSCARDELLI@sgcib.com'; 'roger.bredder@sgcib.com'; blemon@capitalaccessllc.com  
**Cc:** 'brian chernack'; 'Paul Manson'; Rod Lenfest; 'Zak El-Ramly'  
**Subject:** My Presentation to the WECC PCC meeting on 9/30/2005

Gentlemen,

Below are the Points of my Presentation to the entire WECC PCC (Planning Coordination Committee) [about 50 – 60 people from all major companies except BCTC – Phill Parks did not attend].

- 1) WECC Path Rating process / Interregional Study Group – Base Cases being circulated for review.
  - a. This work is also waiting for BCTC Feasibility Study being published to move to Phase 2 in the rating process.
- 2) Contract for BPA Facility Study is under negotiation, with the only remaining item being our description for Upgrade Facilities.
- 3) BCTC Feasibility Study has been done and is in the Draft Report Stage for BCTC & our review.
- 4) We will file today, a CPCN for our plan to better reinforce VI with HVDC Light from Ingledow to Pike rather than BCTC's Plan for 230kv AC Cables from Arnott to VIT on VI, per the Order by the BCUC which required this filing by 09/30/2005.
- 5) We received our FERC order on Sept 15<sup>th</sup>, and circulated this and posted on the Interlinks website, where Bidders and those interested need to register. FERC order was very favorable and said we voluntarily met the 10 Criteria, even though they said we didn't have to in this instance. Also there was no restriction to prevent the fully permitted Knob Hill site from bidding in the 1<sup>st</sup> round, as FERC usually has restricted projects by sponsors.
- 6) Open Season is Underway and started Sept 14 with the Open Season meetings in Vancouver & PDX on Sept 14<sup>th</sup> & 15<sup>th</sup>. Bids will be due on Oct. 25<sup>th</sup> according to our schedule.

I very quickly went through the attached Presentation, and the PCC would like an electronic copy of this for inclusion with the meeting materials. Does anyone see any problem with that request? I said I thought we could comply.

Cheers,

E. John Tompkins, P.E.  
 COO & Director of Sea Breeze Pacific RTS  
 for the Juan de Fuca Cable Project  
 CFO of Boundless Energy, LLC,  
 President of TR&MC, and  
 Director of Atlantic Energy Partners, LLC  
 for Project NeptuneRTS

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TOMPKINS, Research & Management Consulting  
 WEBSITE => [www.trmc.com](http://www.trmc.com)  
 E-MAIL => ejt@trmc.com

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203 Redstone Hill  
 Plainville, CT 06062  
 (860) 747-0497 phone  
 (860) 747-0279 fax



# **Sea Breeze Pacific Juan de Fuca Cable, LP Open Season**

September 2005



# Agenda

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- Introduction

*Paul B. Manson, Director, Sea Breeze Pacific Juan de Fuca Cable, LP*

- Juan de Fuca Cable Project Overview

*Brian Chernack and John Tompkins, Sea Breeze Pacific Juan de Fuca Cable, LP*

- Economic Drivers

*Zak El-Ramly, PhD, President and CEO, ZE PowerGroup, Inc.*

- Overview of Open Season / Bidding Process

*Roger Bredder, Société Générale*

- Question and Answer Period



# Safe Harbor Statement

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*Included in this document is certain information which is “forward looking information” as defined by the Private Securities Litigation Reform Act of 1995. Examples include our expectations, beliefs, plans, goals, objectives and future financial and other assumptions. This information, by its nature, involves estimates, projections, forecasts and uncertainties and actual results or outcomes may differ substantially from those expressed.*

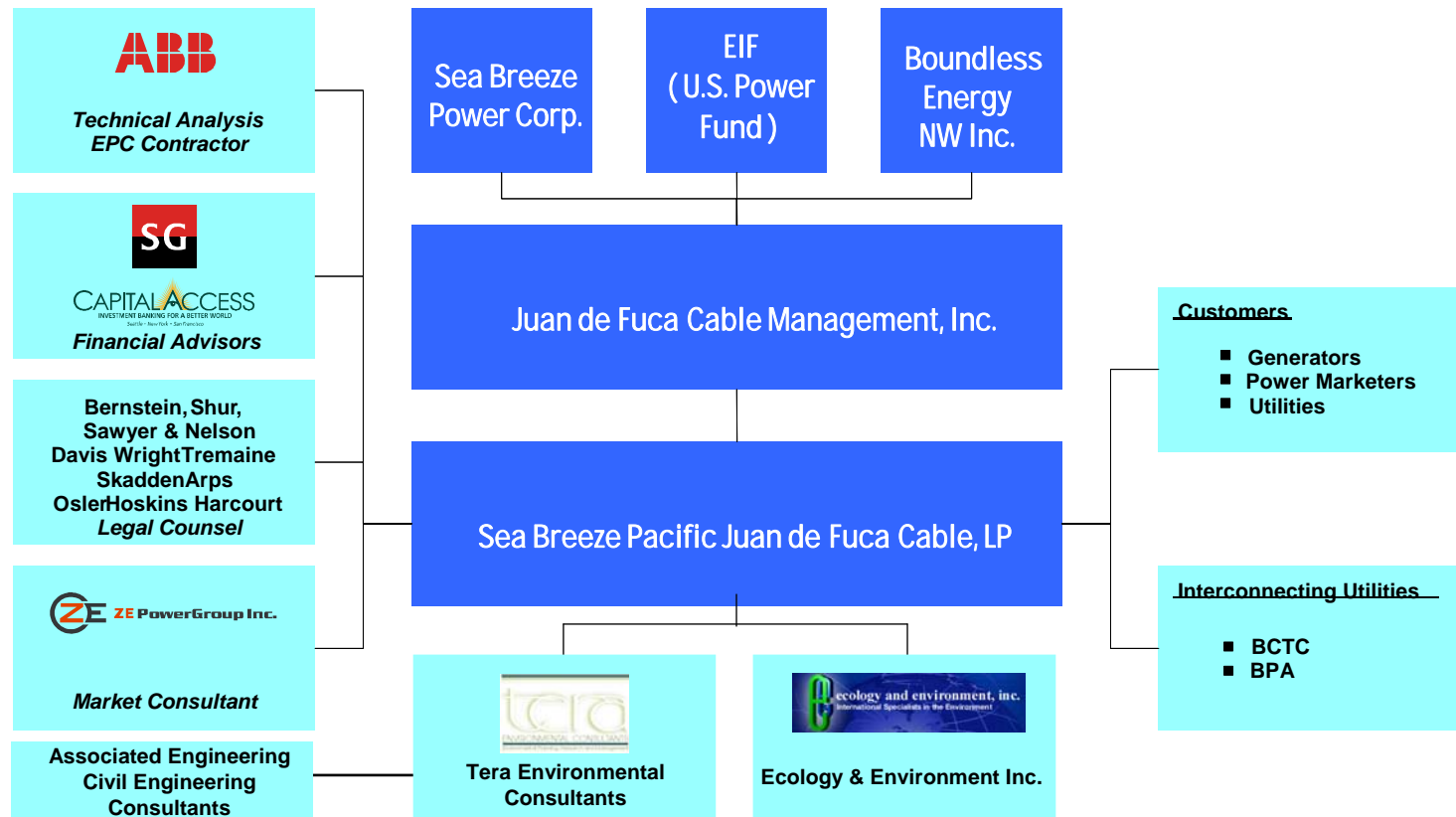
*Many factors that are difficult to predict, involve uncertainties that may materially affect actual results, are beyond our ability to control, and may influence our business and its outcomes. These factors include, without limitation, the risks of operating a deregulated business in a formerly regulated industry that is early in the process of becoming deregulated, weather conditions and fluctuations in energy-related commodities prices.*

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# Introduction

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# Project Participants

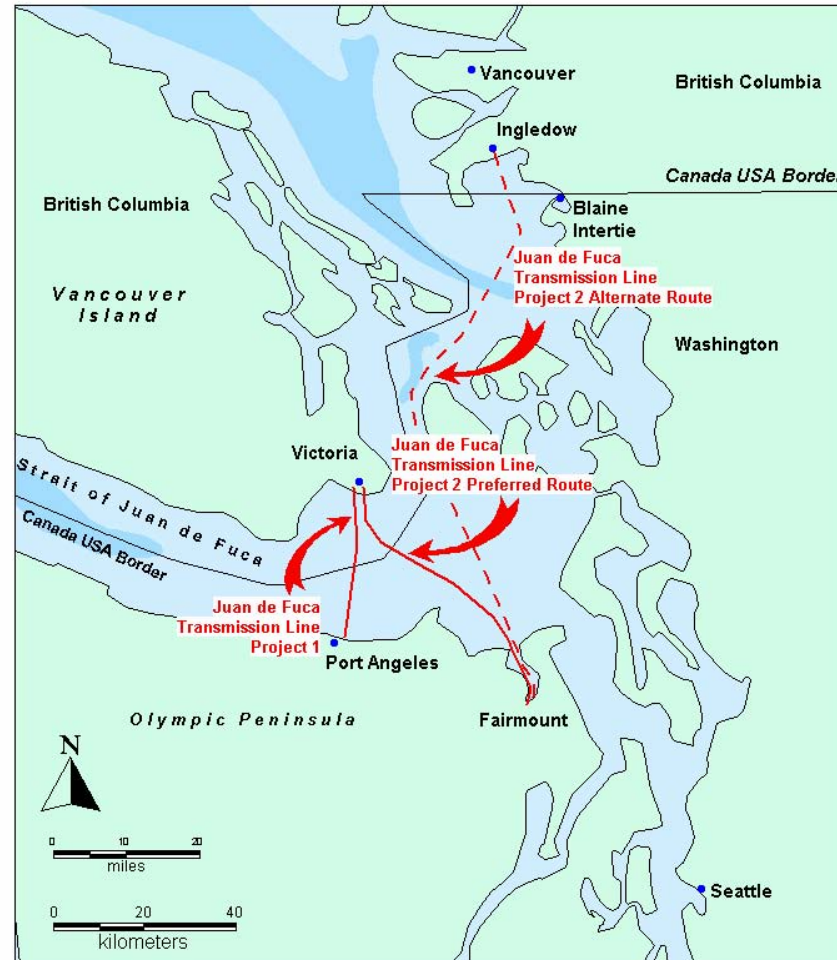


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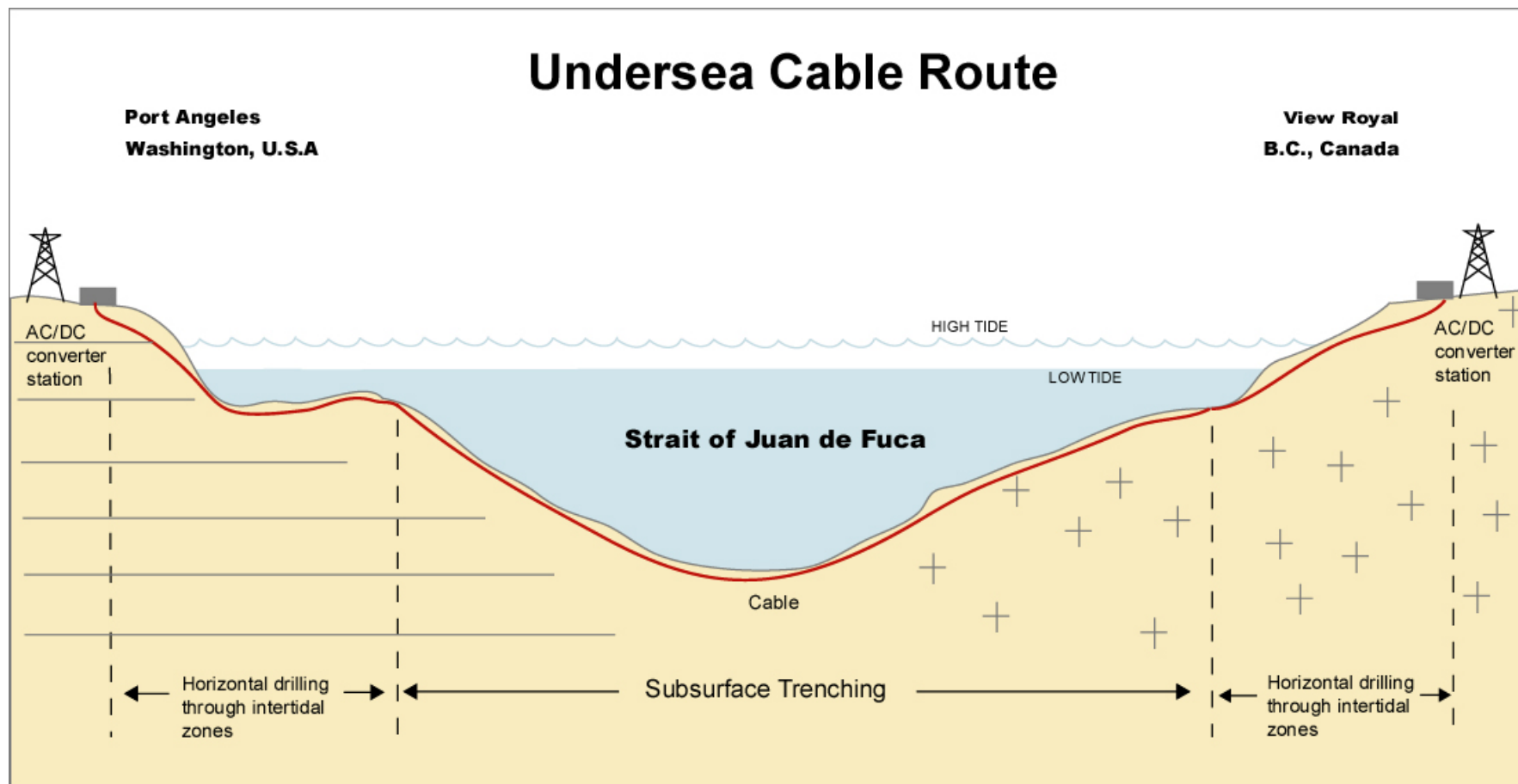
# Juan de Fuca Cable Project Overview

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# The Sea Breeze Pacific Juan de Fuca Cable Projects



# Juan de Fuca Cable Routing



# History of Project

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- **Started in 2003 in response to IPP failure to secure PPA because of lack of firm transmission from B.C. to US**
- **Expanded in scope in 2004 after feasibility analysis demonstrated potential regional benefits**
- **Together with complementary regulated project between B.C. and Vancouver Island will greatly enhance regional transmission capacity**

# Project Status

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- **Environmental Permitting**
- **Regulatory**
- **Interconnection Studies**
- **EPC**
- **Project Financing**



# Environmental Permitting

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## U.S. Permitting

### ■ Presidential Permit

- Applied for December 2004 – Expect to receive July 2006

### ■ NEPA

- Initiated with BPA as Lead Agency March 2005
- Draft EIS to be completed in October 2005
- Record of Decision expected June 2006

### ■ Other

- Joint Federal/State Aquatic (JARPA) initiated May 2005 coincident with NEPA – Permit expected June 2006

# Environmental Permitting

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## U.S. Permitting (cont'd)

- **SEPA (Washington State Environmental Protective Act) – triggered by Draft EIS - Permits expected April 2006**

- **Local**

**Coastal Zone Management, Building, Right of Way, etc. to be applied for early to mid 2006**

# Environmental Permitting

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## CANADA

- **Canadian Environmental Assessment**

**Incorporated in National Energy Board Certificate of Public Convenience and Necessity**

- **Fisheries, Aquatic Habitat, Pollution Prevention to be applied for Fall/Winter 2006. Permits expected by June 2006**
- **Municipal building, rights of way, etc. to be applied for April 2006. Permits expected August 2006.**

# Utility Regulatory

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- **FERC Market/Negotiated Rate Authority to be issued Sept. 15, 2005**
- **NEB CPCN application process initiated Aug. 2004 – Permit application to be submitted October 2005. CPCN expected April 2006**
- **Washington Utility and Transportation Commission Jurisdictional Exemption to be submitted Sept. 15, 2006. Exemption order expected November 2006**
- **Project comes under British Columbia Utilities Commission definition of utility and could be subject to economic oversight. Jurisdictional issues to be resolved after completion of Open Season**

# Interconnection Studies

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## *U.S.*

- BPA Interconnection Feasibility Study completed Feb. 2005
- BPA Interconnection Study completed Aug. 2005
- BPA Facilities Study to be initiated Oct. 2005. To be completed in early 2006

## *CANADA*

- BCTC Interconnection Feasibility Study commenced June 2005. Results expected by Sept. 30, 2005
- BCTC Interconnection Study scoping in process

# Interconnection Studies

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## *Regional*

- **WECC Regional Planning/Path Rating Study commenced October 2004**
- **Phase 2 to be initiated upon completion of BCTC Feasibility Study**

# Why HVDC?

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- **HVDC applications are prevalent throughout the World**
  
- **Benefits of HVDC Light:**
  - **Dynamic reactive power supply and voltage stability support**
  - **Blackout risk management / Blackstart**
  - **Controllability and operational flexibility**
  - **Minimal environmental impacts**
  - **Minimal power losses**
  - **Higher transmission capability**
  - **No visual impairment on land**

**ABB Grid Systems**



## HVDC Alternatives



[www.abb.com/hvdc](http://www.abb.com/hvdc)

**ABB**



# HVDC Underground / Submarine Transmission



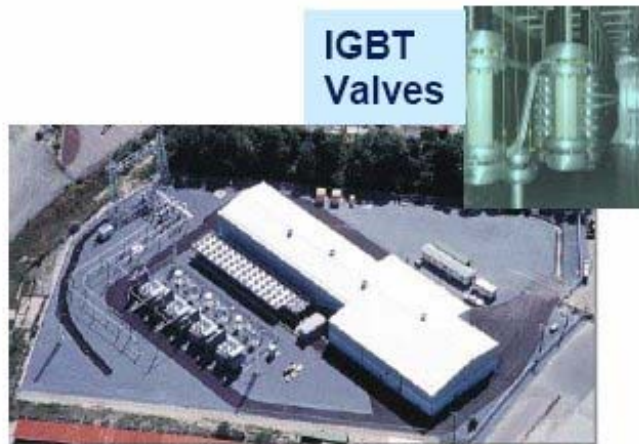
HVDC Converter Station



MIND Deep Sea Cable

## HVDC - 100 to 3300 MW

- Controlled power flow
- Demands reactive power – discrete switched reactive power supply
- No charging current – all cable capacity available for power transfer
- Mass impregnated cables
- Minimum power flow 10% of rated
- Power reversal by polarity reversal



HVDC Light Converter Station



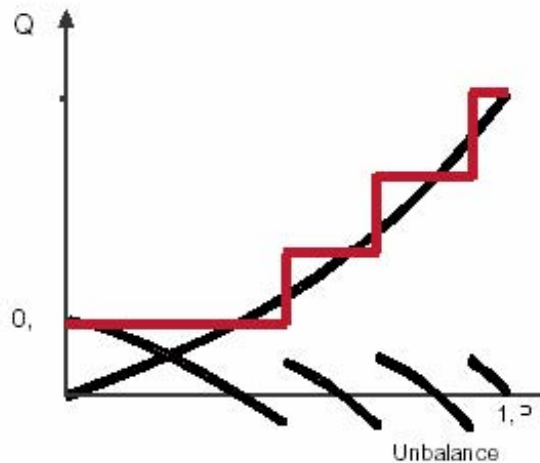
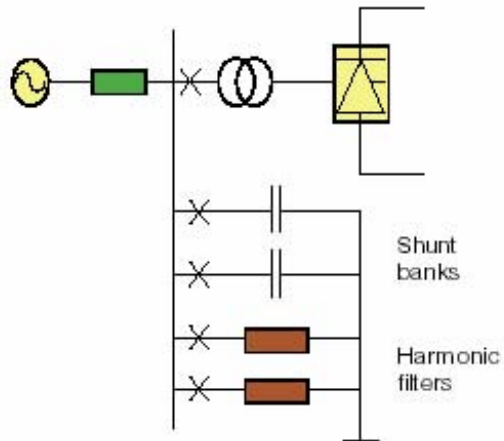
Light Deep Sea Cable

## HVDC Light - 50 to 1100 MW

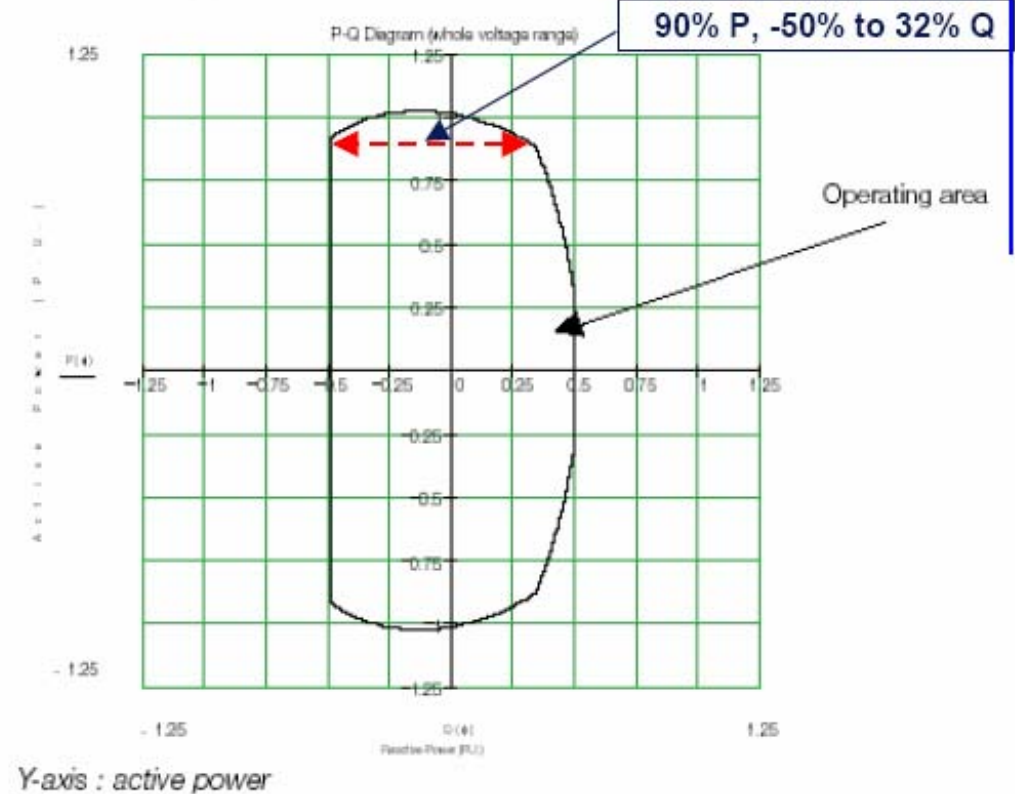
- Controlled power flow
- No reactive power demand – continuous reactive power control
- Dynamic voltage control
- No charging current – all cable capacity available for power transfer
- Extruded polymer cables with prefabricated joints
- No minimum power flow
- Power reversal by current reversal
- Black-start capability

# HVDC v HVDC Light – Reactive Power Balance

- Reactive power exchange for conventional HVDC

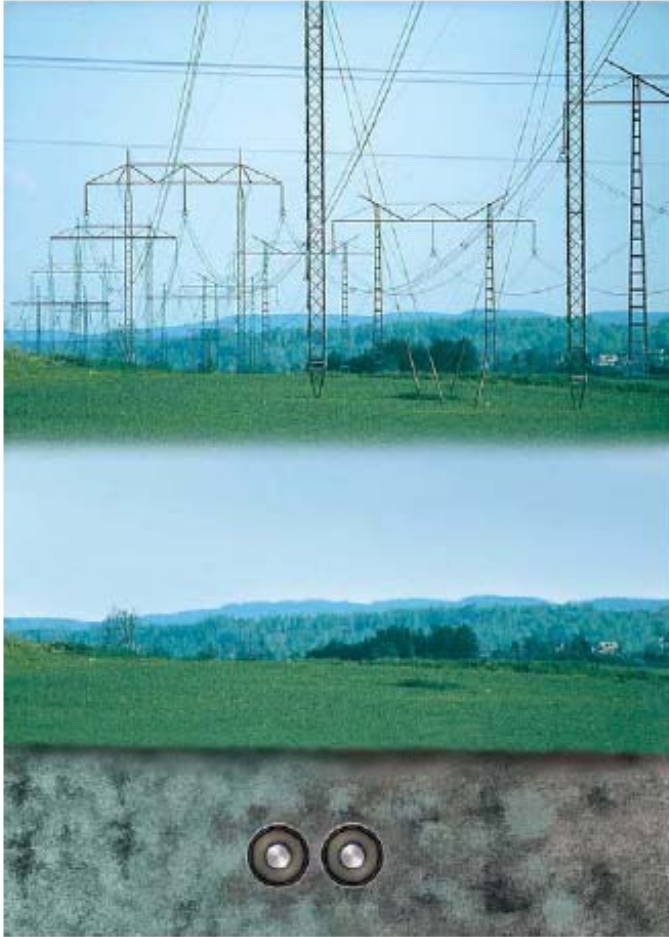


- An HVDC Light® can control both active and reactive power



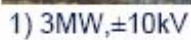


# What do we want to achieve?



- Reinforce or interconnect grids in an efficient and environmentally friendly manner
- Ease of interconnection - no reactive power demand, no minimum power, controllable power flow, no overloads
- More optimum generation dispatch by providing reactive power reserve for dynamic voltage support
- Shared ROW without degrading reliability
- Simple flexible cable, easier to install, vibration tolerant for use along RR and highway ROW
- Better land use, preservation of scenic vistas
- Alleviate EMF concerns along ROW – no electromagnetic induction from HVDC. Magnetic field from HVDC is static like that of the earth.
- Dynamic voltage support increases transfer capability of adjacent ac lines, reduces loss of load probability
- High reliability, easy to maintain or repair

www.oup.com/9780195306131



# Project Overview: Conclusion

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- **Proven Technology**
- **Excellent In-service record**
- **Low Line Losses**
- **Eases Transmission Constraints in the Pacific Northwest**

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# Overview Of Open Season/Bidding Process

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# Open Season Schedule

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September 14, 2005

- Open season initiated
- Intralinks web site operational

September 14-15, 2005

- Open season bidders conferences

October 25, 2005

- Firm bids due

October 31, 2005

- Bid clarifications requested

November 7, 2005

- Preliminary winners notified<sup>(a)</sup>

December 12, 2005

- TSR and other Product Agreements signed

(a) All bid results will remain confidential. Only the name of the winning bidder and the type and amount of products purchased will be made public.

# Overview of Open Season

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- Offering:**
- Long Term Transmission Scheduling Rights (“TSRs”)
  - VARs
  - Blackstart
  - Voltage Stability
  - Frequency Stability

**Bid Package:**

---

Open Season Bidding Guidelines  
Master Bid Form  
Pathway Bid Form  
Pathway Product Purchase Agreement

**Alternate Bids:**

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Bidders may submit multiple bids. The Company is also willing to consider alternate approaches such as leasing a Project

- Bid Selection:**
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- NPV @ 10% on 25 year term
  - Contract revisions
  - Creditworthiness of counterparty



# Intralinks Access

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*The Project's internet site through Intralinks will serve as the forum for communication of all information between the Company and the Bidders.*

- Intralinks provides a means of distributing all pertinent Project information as it becomes available
- Firms who have completed and submitted the bidding registration form will receive access to a secure Intralinks site
- The Intralinks System (**[www.intralinks.com](http://www.intralinks.com)**) will allow interested and authorized parties confidential access to the bidding information
- Questions should be submitted by e-mail to: **[chris.moscardelli@sgcib.com](mailto:chris.moscardelli@sgcib.com)**
- Frequently asked questions will be posted without attribution, along with the Company's response for all Bidders to review
- Whenever new information is posted on Intralinks, all registered Bidders will receive an e-mail notification

# Master Bid Form

*The Master Bid Form provides a summary of all 6 potential pathways available to Bidders*

## Juan de Fuca Cable Project - Open Season Master Bid Form

| Receiving Station Information |                    |                  | Delivery Station Information |                  |            |                                       |
|-------------------------------|--------------------|------------------|------------------------------|------------------|------------|---------------------------------------|
| Path No.                      | Receipt Substation | Landfall Utility | Delivery Substation          | Landfall Utility | Pathway MW | Estimated On-line Date <sup>(a)</sup> |
| 1                             | Port Angeles       | BPA              | Pike                         | BCTC             | 550        | 12/31/2007                            |
| 2                             | Fairmount          | BPA              | Ingledow                     | BCTC             | 550        | 12/31/2008                            |
| 3                             | Fairmount          | BPA              | Pike                         | BCTC             | 550        | 7/31/2008                             |
| 4                             | Pike               | BCTC             | Port Angeles                 | BPA              | 550        | 12/31/2007                            |
| 5                             | Ingledow           | BCTC             | Fairmount                    | BPA              | 550        | 12/31/2008                            |
| 6                             | Pike               | BCTC             | Fairmount                    | BPA              | 550        | 7/31/2008                             |

(a) On-line dates are estimated and subject to change

**Note:** Only two lines (1100 MW) of transmission will be constructed

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## Question and Answer Period

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