



***Sea Breeze Pacific***  
***Regional Transmission System, Inc.***



**Sea Breeze Pacific RTS, Inc.**

**JDF2C Project**

**Connecting Kitsap/South Bremerton substations  
to BC Hydro's Ingledow substation  
through Southern Vancouver Island, B.C. for the option  
of multi-terminal interconnection at Pike substation in the future**

**WECC Regional Planning Compliance Report**

**Nov. 14, 2008**

## **WECC REGIONAL PLANNING COMPLIANCE REPORT JUAN DE FUCA CABLE 2 PROJECT**

### **1.0 Background**

Sea Breeze Pacific Regional Transmission System (SBP-RTS) and its partners propose to construct an HVDC Light® merchant transmission line between the Olympic Peninsula (USA) and Vancouver Island (Canada). The line, known as the Juan de Fuca Cable 2 Project (JdFC2), is to run under the Strait of Juan de Fuca, connecting either or both the Bonneville Power Administration/Puget Sound Electric in the Kitsap/South Bremerton area (as those facilities have common ownership) to the existing BC Hydro Ingledow substation in Greater Vancouver area of British Columbia. The routing of the cable will go through Vancouver Island so that the connection could be multi-terminal in the future. As proven with the first Juan de Fuca Cable, the proposed route for JdFC2 will avoid areas with high seismic risk, and limit environmental impacts, efficiently utilize existing transmission line and railroad rights-of-way and roadways; will utilize horizontal directional drilling for the landfall; and will be installed underground and underwater. Associated facilities include converter stations adjacent to the existing substations and approximately 500m of overhead/underground HVAC lines to connect to the electrical grids.

Once constructed, the JdFC2 Project would be interconnected to the BC and Washington State electricity grids and operated by either an independent system operator or some other FERC approved Operating Authority in the WECC jurisdiction.

HVDC Light® is a state-of-the-art enhancement of traditional high voltage direct current power transmission technology developed in the 1990's by ABB Inc., one of the world's largest electrical manufacturing and engineering companies. ABB is an internationally recognized leader in the field of direct current (DC) transmission, and a key member of the Sea Breeze team. Approximately nine HVDC Light® projects are now in commercial operation in Europe, Australia and the United States.

An “Open Season” as required by FERC was conducted for the Juan de Fuca 2 Cable project at the same time as that of the Juan de Fuca 1 Cable Project.

The proposed in-service date for JdF2C is December 30, 2013 and the line will have a path rating of 1100 MW.

### **2.0 Introduction**

All of the information summarized in this report, and various other presentations delivered regarding the JdF2C project, are publicly available on the JdFC project web site (<http://www.jdf2cable.com/>). A previous study conducted at the time of the Juan de Fuca Cable project indicated that 1100 MW could be introduced at Fairmont on the Olympic Peninsula. From those results and the work we have done in Phase 0 we have determined that 1,000 MW could be introduced further down the Olympic and Kitsap Peninsulas in the Kitsap/South Bremerton area.

## WECC REGIONAL PLANNING COMPLIANCE REPORT JUAN DE FUCA CABLE 2 PROJECT

The previous study at 550MW into Fairmont is available on the Bonneville Power Administration website (<http://www.bpa.gov/>).

On October 26, 2004, the Sea Breeze Pacific Regional Transmission System, Inc. (SBP-RTS) entered Phase I of the Western Electricity Coordinating Council (WECC) path rating process for the Juan de Fuca Interconnection Project initiated by our letter to the PCC and TSS chairs formally requesting the initiation of that process. The project initially consisted of two 1100 MW HVDC Light® interconnections across the Strait of Juan de Fuca. Sea Breeze Pacific Juan de Fuca Cable, LP (SBP-JdF), a project company created by SBP-RTS to develop this project, subsequently submitted to WECC a “Phase 1 – Comprehensive Status Report” dated April 14, 2005, outlining the two proposed interconnections: JdF, from Pike substation on Vancouver Island to Port Angeles on the Olympic Peninsula; and, JdFC2, from either the BCTC Pike substation on Vancouver Island or the BCTC Ingledow substation on the lower Mainland of BC, to the BPA Fairmont substation on the Olympic Peninsula.

To simplify and clarify this process, and to avoid overlap in securing Environmental Impact Statements, SPB-RTS decided to separate these two interconnections into separate projects and in this application to WECC seeks a path rating only for the first interconnection, the Victoria to Port Angeles path. The 2<sup>nd</sup> Project (which is expected to proceed within two years after JdFC #1) will be addressed through a separate application to WECC.

The WECC Regional Planning Process is outlined in WECC's *Overview of Policies and Procedures for Regional Planning Project Review, Project Rating Review, and Progress Reports*, published in April 2005, well after the JdFC Project was initiated. The intention of the Process is to keep others broadly informed, to avoid duplication, and to allow for an integration of interests.

SBP-RTS first formed a project review group for the Juan de Fuca Cable project to achieve these precise goals in December of 2004 (a list of the group participants is included as Appendix A). SBP-RTS conducted an Open Season, according to FERC requirements to assure complete, fair and non-discriminatory open access. The Open Season was conducted for SBP-RTS by Société Générale which established an Interlinks site, assured the project was well publicized, and encouraged all interested parties to participate. SPB-RTS also has maintained membership in, and actively participated in, virtually all regional planning efforts within WECC, NWPP, NTAC, the CA-NW-CAL study group, and others; and has reported regularly on the project's progress in every available forum. Further, SBP-RTS knows from those communications that no duplication of the capabilities of this project was planned by other participating entities. Through these activities and others, SBP-RTS believes that the requirements for openness and inclusion have been fulfilled.

## WECC REGIONAL PLANNING COMPLIANCE REPORT JUAN DE FUCA CABLE 2 PROJECT

### 3.0 WECC Planning Guideline Compliance

#### *1) Take multiple project needs and plans into account, including identified utilities' and non-utilities' future needs, environmental and other stakeholder interests.*

The purpose of the Juan de Fuca Cable 2 Project is to provide a seismically secure independent transmission line between the Olympic and/or Kitsap Peninsulas of Washington State and the Ingledow Substation in the Greater Vancouver Area in British Columbia, thus providing additional power transfer capacity in interconnecting major power entities in the Pacific Northwest, including B.C. Hydro, the Bonneville Power Administration, and potentially Puget Sound Energy. SBP-RTS has discussed this project at length with all parties in the Northwest and has given presentations of our plans at Northwest Power Pool Transmission Planning Committee (TPC) meetings, NTAC, WECC PCC, the CA-NW-CAL Working Group, the TCWG (Transmission Coordination Working Group), and at meetings of the Columbia Grid Biennial Planning Review group. By participation in all of these groups we have taken into account the plans and needs, and identified projects, of all utilities and non-utilities considering construction in the Northwest.

The successful completion of a full Environmental Impact Statement during the permitting of the Juan de Fuca Cable project on the United States side, and full federal CPCN on the Canadian side, has given us the insights to understand the environmental and stakeholder interests with regard to new transmission. Additionally the new route from Ingledow to Pike was vetted during a Provincial CPCN hearing on the VITR Project and alternatives.

In compliance with FERC requirements, SBP-RTS conducted a Fair and Non-discriminatory Open Season for JdFC and JdFC2 (in its previous configuration of 550 MW from Ingledow to Fairmont) utilizing Société Générale as its agent. This process allowed all interested parties to obtain information regarding the project and participate as they saw fit. FERC has approved that Open Season process and specifically directed that the project sponsors may now bilaterally negotiate the remaining transmission arrangements. Because of the improvements in the project design it is our intent to voluntarily conduct another open season in the future.

Numerous studies, such the Canada/Northwest/California study by NWPP, have recognized that the Coast of BC has thousands of MWs of renewable energy, more than can be utilized in British Columbia. Several States in the Western United States have enacted Renewable Portfolio Standards. Clearly, renewable resources are available in the North and want to sell South, and this type of power is clearly desired in the South. It is public knowledge that PG&E was awarded \$14 million to study how renewable generation from BC can be transmitted to San Francisco.

In addition, this transmission line can serve multiple purposes including the improvement of electrical system reliability on both ends of the interconnection for the major utilities

## WECC REGIONAL PLANNING COMPLIANCE REPORT JUAN DE FUCA CABLE 2 PROJECT

involved; improve the overall homeland security in both countries; provide a pathway for existing and future renewable power generators on Vancouver Island, or the coastal mainland of British Columbia, to access markets in United States; providing a mechanism whereby IPPs that are currently curtailed within the existing infrastructure are able to sell power North; allowing for a potential alternate pathway for Columbia River Treaty return power; and generally provide a merchant pathway between two financially differentiated markets. Members of the Pacific NorthWest Economic Region (PNWER), the Independent Power Producers of British Columbia (IPPBC) and the Northwest and Intermountain Power Producers Coalition (NIPPC) have individually and collectively expressed interest in the Juan de Fuca Cable and Juan de Fuca Cable 2 Projects.

The combination of HVDC Light<sup>®</sup> technology and horizontal directional drilling capability provide the most ecologically benign and socially acceptable mechanism for transmitting bulk electrical power.

All of the needs in question 1 were taken into account by SBP-RTS during the planning for the JdFC2 line.

### ***2) Cooperate with others to look beyond specific end points of the sponsors' project to identify broader regional and sub regional needs or opportunities.***

Through participation by SBP-RTS in the various planning forums in regional and sub-regional planning groups (which we have been allow to participate and vote in) we have cooperated to the fullest extent allowed by the current procedures and have entertained interest from other entities concerning the endpoints of interconnection. Throughout our planning process we will continue to analyze the optimal points for interconnection to the systems in Canada and the U.S.

It is for these reasons that the project design was changed to include a possible multi-terminal operation at Pike Substation and the size of the interconnection was increased to 1,100 MW. SBP-RTS has found interest in the JdFC2 Project from entities ranging from the Province of Alberta to the State of California. Ultimately, the JdFC2 project may couple with other proposed projects to provide further regional benefits. In addition, SBP-RTS has participated, and continues to participate, in other regional and sub-regional planning efforts.

### ***3) Address the efficient use of transmission corridors (e.g. rights-of-way, new projects, optimal line voltage, upgrades, etc.).***

As indicated in the introduction, JdFC2 and the technical qualities demonstrated by the environmental permits received by JdFC, indicate that JdF2 will make the most efficient use of existing corridors by undergrounding on land, and be buried or covered wherever possible underwater.

## WECC REGIONAL PLANNING COMPLIANCE REPORT JUAN DE FUCA CABLE 2 PROJECT

As can be seen in the following diagram, the selected technology allows for the transmission of power utilizing substantially less land area, and with a much smaller CO<sub>2</sub> footprint. SBP-RTS discussions with community groups and local municipalities indicate a strong preference for underground and underwater transmission vis-à-vis the prospect of increasing or adding to existing above ground corridor alternatives.

The project minimizes environmental impacts by connecting to existing stations and utilizing no new overland transmission rights-of-way.

***4) Identify and show how the project improves efficient use of, or impacts existing and planned resources of the region (e.g., regional benefits and impacts, transmission constraint mitigation).***

As mentioned above, JdFC2 will create additional transfer capability for both existing and future generation projects in Washington and British Columbia. The project will give renewable resources in the north access to United States load centers and will provide alternate pathways for south to north transmission as well. The combination of the JdFC2 and other planned SBP-RTS projects will allow power transfer to as far south as San Francisco and Los Angeles.

***5) Cooperate with Regional Planning Review Group members in determining benefits and impacts due to the project.***

SBP-RTS continually strives to maintain contact through regular participation in WECC, NTAC, TCWG, and other regional groups, and through direct participation in all Regional Planning Review processes. In accordance with the current WECC path rating process, SBP-RTS will solicit interest and participation in review groups as required in each phase of the process.

***6) Identify transmission physical and operational constraints resulting from the project or that are removed by the project.***

Our studies indicated no physical or operational constraints resulting from the project. Additionally with HVDC Light® Technology, one would not expect it to cause any operational or physical constraint problems to the existing system. See our introduction, the Juan de Fuca Cable 2 Project relieves the most congested corridor in the northwest the I-5 corridor. The project will increase the BC to USA transfer capability in both directions and provide an additional alternative to the congested corridor.

**WECC REGIONAL PLANNING COMPLIANCE REPORT  
JUAN DE FUCA CABLE 2 PROJECT**

***7) Coordinate project plans with and seek input from all interested members, sub-regional planning groups, power pools, and region-wide planning group(s).***

As previously noted, WECC and Northwest Power Pool (including NTAC), and TCWG groups are updated on JdFC2 progress on an ongoing basis. SBP-RTS maintains memberships, and regularly participates, in NIPPC, IPPBC and Pacific Northwest Economic Region (PNWER) and takes every opportunity to update all members and participants. SBP-RTS also participates actively in all WECC and NWPP regional planning committees and processes in the Northwest.

***8) Coordinate project plans with and seek input from other stakeholders including utilities, independent power producers, environmental and land use groups, regulators and other stakeholders that may have an interest.***

SBP-RTS solicits input from and participation by BPA, BCTC, NIPPC, IPPBC, TCWG, and the municipal power groups in the Pacific Northwest, as well as a variety of stakeholders including Provincial, federal, state and local agencies, land owners, environmental groups, etc.

In addition to the electric utilities and the utility related organizations already mentioned, SBP-RTS has made extensive outreach efforts to involve other potential stakeholders. A non-comprehensive list would include:

- First Nations on the coast of British Columbia; Indian and Northern Affairs Canada.
- Municipal and Regional Governments which may be involved.
- Other Federal Canadian and British Columbian Provincial agencies.
- Chambers of Commerce and economic development corporations.

SBP-RTS continues to work with utilities, landowners, environmental groups, local officials, federal and state agencies, regulators, and others throughout the line design and engineering process, to insure impacts are mitigated. This process will continue throughout the project life to ensure that all obligations are met.

***9) Review the possibility of using the existing system, upgrades or reasonable alternatives to the project to meet the need (including non-transmission alternative where appropriate).***

We understand that BPA and the other involved utilities have previously indicated interest in expanding the I5 corridor by utilizing additional overhead AC transmission lines. No other existing or planned transmission projects match the ability of the Juan de Fuca Cable 2 Project to efficiently and reliably provide the increased transmission

**WECC REGIONAL PLANNING COMPLIANCE REPORT  
JUAN DE FUCA CABLE 2 PROJECT**

capacity of 1100 MW, with the minimal environmental impact of JdFC2, as indicated above. However, this project does not compete with any of the other proposed upgrade projects, because of the amount of renewables available for transmission south.

***10) Indicate that the sponsor's evaluation of the project has taken into account costs and benefits of the project compared with reasonable alternatives.***

SBP-RTS' evaluation of the project included many different configurations and alternatives to the project which were evaluated during the planning process. These included different routings, different voltages and the overall need of the project. The presently-proposed configuration of the JdFC2 project is the result of these evaluations. By any objective standard, this project provides the best economic, technical, security, solution without undesirable environmental impacts and virtually without social objection.

***11) Coordinate with potentially parallel or competing projects and consolidate projects where practicable.***

We have identified no competing projects and will continue to work through NTAC, WECC, TCWG, Columbia grid, NTTG, TEPPC, and other regional groups to assure consolidation of projects wherever practicable.

WECC REGIONAL PLANNING COMPLIANCE REPORT  
JUAN DE FUCA CABLE 2 PROJECT

APPENDIX A

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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WECC REGIONAL PLANNING COMPLIANCE REPORT  
JUAN DE FUCA CABLE 2 PROJECT

APPENDIX B

JUAN DE FUCA SIMPLIFIED ONE LINE DIAGRAM

