



# ***SB Okanagan Holding (01) Corp.***

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## **Investigation Plan for Wind Energy Development: Bouleau Mountain Wind Farm Project**

### **BACKGROUND: SEA BREEZE GROUP OF COMPANIES**

Sea Breeze Power Corp., along with its wholly-owned subsidiary SB Okanagan Holding (01) Corp. ("Sea Breeze" or "the Proponent") is engaged specifically in the development of wind farms in British Columbia.

The selection of well-suited locations for the production of wind-generated electricity achieves several social, governmental and economic goals. "Green" energy is set as a production target by governments and utilities across Canada. The BC government has announced in its energy plan that all new electricity generation projects must have zero net greenhouse gas emissions, such as wind power.

The wind energy department at Sea Breeze was founded on the recognition that several significant social, economic and technical trends of the past three decades are rapidly converging. This convergence, consisting predominantly of field-proven wind power technology, the implementation of favourable government policies, and growing consumer demand for "green" energy, has created a commercial opportunity of significant size. Large amounts of renewable, emission-free electricity can likely be developed in many areas of British Columbia.

The Sea Breeze group of companies is one of the largest proponents of wind farms in BC. The Sea Breeze group has many investigative tenures with MFLNRO offices in Nanaimo, Kamloops, Prince George, Smithers, and Fort St. John. The Sea Breeze team is very familiar with MFLNRO and the Crown Land application process and has had a voice in outlining the wind farm specific application procedure and the Operational Policy.

In addition to Permits and Licenses with MFLNRO, Sea Breeze Energy, Inc. has also developed a project – the Cape Scott Wind Farm Project (formerly the Knob Hill Wind Farm Project) - that was the first utility scale wind farm in B.C. to receive an Environmental Assessment Certificate from the BC Environmental Assessment Office ("EAO"). The studies for this application were very thorough. In many cases, the company contracted several professionals in their respective fields and will retain their services as needed to satisfy requirements for our other projects in order to address issues related to biology, marine habitat, geology, terrain stability, and First Nations and public consultation.

In March of 2010 Sea Breeze Energy, Inc. signed an Electricity Purchase Agreement with BC Hydro in relation to Phase I of the Cape Scott project. Cape Scott Phase I has been sold to IPR-GDF-Suez and is scheduled to begin construction in early 2012 and to be in service in 2013. Sea Breeze has an option to remain a minority owner of that project.

## **PROJECT OVERVIEW: THE BOULEAU MOUNTAIN WIND FARM PROJECT**

This application is for investigative activities related to the development of a utility scale wind power generation facility. The purpose of the Bouleau Mountain Wind Farm Project (the "Project") will be to supply electricity into the BC grid. The purpose of the investigative phase will be to establish project feasibility and to investigate factors that require consideration in the design and permitting of the Project.

The Project is in the assessment and feasibility stage. Sea Breeze has conducted a review of available desktop information, a preliminary site visit, and has identified several locations for initial meteorological towers. Consultation with affected stakeholders and First Nations is also ongoing.

Each turbine will consist of a tower made of tubular steel standing 80-120m tall, a nacelle sitting atop the tower to house the generator and other electrical equipment, and three blades 30-65m long (exact dimensions depend on specific turbine model). The finished project will also include access roads to each turbine, a medium voltage (~35-kV) electrical collection network interconnecting each turbines, a substation to step up to a higher voltage (~69-500-kV), a transmission line to interconnect with the BC grid, and an operations/control center and workshop. During construction, the Project will also require some temporary use of lands for storage, rock quarrying, concrete mixing, transporting, and potentially housing a construction crew.

## **PROJECT SCHEDULE**

The stages of development of the project are anticipated to proceed as follow, subject to any currently unforeseen delays in development:

- Stage 1: Permitting applications for investigative tenures.
- Stage 2: Consultation with local First Nations to establish their interests and involvement in investigative activities.  
Investigation of site: literature review, fieldwork, and wind resource monitoring.  
Negotiations with potential financial partners for the Project.
- Stage 3: Expansion of wind resource monitoring, focused field studies, and preliminary design.  
Environmental Assessment.  
Refined financial modeling of expected costs and revenues.  
Marketing of electricity, possibly in a competitive call by BC Hydro.
- Stage 4: Financing, detailed design, construction permitting.
- Stage 5: Construction and commissioning.
- Stage 6: Operations (typically 20 years).
- Stage 7: Decommissioning, or overhaul as appropriate.

The Project is currently in “Stage 2” as described above. Next steps will include further field work, discussions and consultation with First Nations, and the installation of additional met towers.

Sea Breeze is currently seeking financial partners for several of its wind power sites. The company anticipates that its recent success with the Cape Scott Wind Farm will bring added credibility to this effort. However, the flow of development dollars in BC wind sites may depend on the timing of BC Hydro’s next announcement of a call for power in BC, and so development efforts before that time need to be kept very cost efficient.

### **PROJECT CONSIDERATIONS DURING INVESTIGATION**

For the Environmental Assessment of the Cape Scott Wind Farm, Sea Breeze Energy, Inc. contracted the consulting services of various qualified registered professionals. The Proponent will utilize the services of similar specialists to examine the possible effects of the proposed wind farm on valued ecological and social factors.

The following are brief descriptions of some of the potential issues associated with this project and how the Proponent plans to address them.

#### **Wind Resource Analysis**

Wind resource feasibility was estimated using publicly available data, typically from Environment Canada. Subsequently, initial wind measurements are typically taken by installing a meteorological tower on the site (or several in the case of this large project) and collecting data for at least 12 months. If these measurements are encouraging, additional meteorological towers would be installed on the site to aid in the modeling of wind speeds across the site.

Sea Breeze installed a met tower in 2007 and removed it in 2009, however the data collected during that period suggests that a viable wind farm could be built at this site. Going forward the Proponent intends to install one or two met towers at representative locations at the project. Then the Proponent would conduct a wind resource modeling exercise in order to establish where gaps exist in our understanding of the distribution of the wind resource across the site. At that time additional met towers could be installed. It is possible that the locations of these additional met towers could change due to the gaps analysis, and in this case the Proponent will keep MFLNRO informed regarding the new locations.

Other modern technologies such as LiDAR or SoDAR can also be used to measure the wind resource. These devices could be installed adjacent to met towers, or they can also be relocated at various points around the development area to probe the variation in wind speed, direction, and other factors such as turbulence and sheer. These technologies can be used to provide initial measurements in advance of a met tower or to fill information gaps that exist between met towers.

## **Constructibility**

Sea Breeze has conducted a field visit to establish that the site is generally constructible using existing construction methods.

Further constructability and environmental studies will be undertaken in the lead up to the next call for power by BC Hydro. Ongoing discussions with overlapping tenure holders are also useful for determining site feasibility with respect to possible conflicts with other infrastructure at the site. Issues of concern at this site include possible conflicts with other infrastructure and operations activities as well as possible seasonal constraints on construction activities.

Further investigation of constructability issues may include geotechnical drilling at the project site in order to test the ground conditions. This is important information given the high cost of wind turbine foundations. The locations for geotechnical drilling will be near to the met tower locations, with specific sites identified in collaboration with a qualified engineering firm and provided to MFLNRO. Drilling could potential involve the clearing of trees and/or the sourcing of water and licenses for these activities would be sought if needed.

Environmental studies, as well as consultation with local First Nations and stakeholders, also contribute to the determination of site feasibility.

## **First Nations**

Sea Breeze takes a proactive approach to engaging local First Nations in project development activities including obtaining their input on the suitability of the project area. The Company initiates early discussions to inform First Nations of the proposed projects and, where appropriate, Sea Breeze also informs First Nations of our interest in entering into consultation and capacity funding agreements to support their involvement in the development and construction of the eventual wind farm.

Sea Breeze researches government maps and websites to identify First Nations reserve lands, asserted traditional territories and treaty lands to determine which First Nations may be impacted by an energy project under investigation. Sea Breeze then initiates early project discussions with the potentially affected First Nations. Initial contact is typically made between Sea Breeze's senior executives such as the CEO (or President) and the elected Chiefs and Councils of the First Nations. Ensuing discussions typically address the questions of which First Nations are most impacted by the project and how they wish to be consulted. The Company recognizes that all of the potentially impacted First Nations within the region will be informed and consulted on the proposed project.

To date, Sea Breeze has been in communication with the Upper Nicola Band, the Okanagan Indian Band, and the Okanagan Nation Alliance. Sea Breeze intends to increase the level of engagement with these First Nations as development activities at this site increases in intensity.

## **Wildlife and Birds**

The proponent will investigate desktop sources to establish where red, blue and yellow listed species are known to exist in the vicinity. Sea Breeze will conduct studies to examine the possible effects of the proposed wind farm on local birds, bats, and other wildlife. Strategies to avoid impacts to wildlife and wildlife habitats, along with strategies to minimize or reduce the impacts and disturbance, will be developed by consulting biologists and discussed with agency personnel.

## **Plant Life**

This project is expected to have low impacts to plants during both construction and operation, based on the small footprint of a typical wind farm relative to its spatial extent. Sea Breeze will study these potential impacts, and develop appropriate mitigation measures, and discuss the findings with the MFLNRO.

## **Mining Interests**

Sea Breeze will conduct a search through the BC Ministry of Energy and Mines of all mineral rights tenure holders in the project area. If any current claims are identified, Sea Breeze will contact the owners and the Gold Commissioner as per the guidelines outlined in the *Mineral Right of Way Act*.

## **Fish**

In addition to consultation with Fisheries and Oceans Canada, local First Nations, and others, Sea Breeze will conduct a study of the potential effects of the proposed project on fish and fish habitat, and will develop appropriate mitigation measures. Sea Breeze will obtain necessary approvals in relation to construction that could impact fish and fish habitat, where necessary.

## **Local Government and Recreational Use**

Given the location of the proposed project, we do not anticipate any conflicts with recreational users or other interested parties. The Proponent will contact all local government to discuss potential land-use and zoning issues associated with the project area. The Proponent has taken care not to site this project within any restricted areas such as provincial parks.

## **Forests**

We anticipate that activities related to the proposal will be conducted on existing industrial roads in the area. Installation of meteorological towers may require some minimal clearing and brush cutting operations at the direct base area of the towers. Any additional clearing, road improvements, or road extensions will be authorized with the co-operation of MFLNRO and forest companies as appropriate.