

Juan de Fuca Cable – Converter Station

Why would a converter station have to be built?

Although Direct Current (DC) power is more efficient for transmitting over longer distances, households and businesses use Alternating Current (AC) power. Converter stations convert AC to DC and vice versa. Sea Breeze would need to construct a converter station so that electricity could be transferred into Vancouver Island's AC grid or transmitted through the Juan de Fuca Cable.

Proposed converter station location

Sea Breeze Pacific is proposing to build a converter station near the BC Transmission Corporation's Pike substation, north of Thetis Lake Park.



Architectural rendering of a converter station

The footprint of the proposed converter station would be approximately 100 x 150 metres. Most of the High Voltage Direct Current ("HVDC") Light™ equipment would be contained in the building.

Environmental and aesthetic considerations

Noise: At a minimum, the station would meet View Royal's code requirements for noise. Our technical partners, ABB Inc., have much experience in designing converter stations to include features that minimize noise. For example, the converter station equipment can be housed in the building, which reduces noise around the structure.

Design: Converter stations can be designed to fit into their surroundings, incorporating features consistent with existing structures in the area.

Construction: Construction would take place during daytime hours to reduce noise impacts, and would last approximately 7 months.

Sea Breeze Pacific could work with architects and local residents to develop the design.

Safety and Security: The converter station site would be fenced and secured during construction and operation. Geotechnical and seismic studies would provide design criteria to meet structural and earthquake standards.

Technology

The converter station would use Insulated Gate Bipolar Transistors (IGBTs), which are virtually maintenance free.



Inside a valve enclosure with IGBT valves
Photo courtesy of ABB

Semiconductor valves carry current in one direction only and prevent current from flowing in the opposite direction. This feature is needed for the conversion from AC to DC and vice versa.

Advantages of IGBTs:

- *Little to no maintenance*
- *Highly automated and can be operated remotely*
- *Converter station can automatically regulate voltage to stabilize the grid*

For more information, contact:

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