

NOVA SCOTIA POWER INC.
CUSTOMER OPERATIONS
TRANSMISSION & DISTRIBUTION ENGINEERING DEPARTMENT



INTERCONNECTION FACILITIES REPORT
FOR
ESTABLISHING A 25 kV SYSTEM CONNECTION
FOR A NEW 23 MW WIND POWERED GENERATING FACILITY
AT POINT TUPPER, NOVA SCOTIA

Rev. 2

Prepared by: Ron Tutty 2009/10/8
Project Engineer Date

Approved by: Jim Hoyle 2009/10/09
Director, Project Implementation Date



W.O.no.: _____ Page 4 of 48

Project: Statia Generating Facility

Date: 2009-06-29 Rev. no.: 1

Interconnection Facilities Report

System	Description
1.0	<p>SUMMARY</p> <p>This project provides for the establishment of a 25 kV system connection for the proposed Statia Phase 1 and 2 wind powered generation facility (IR137 & IR150) with the combined generating capacity of 23 MW located in Richmond County, Nova Scotia. A “Distribution System Impact” study carried out by Nova Scotia Power has concluded that this wind generating facility may be directly connected to the 25 kV bus (1C-B41) of the 1C Point Tupper substation via a new 25 kV circuit (1C-413). Therefore, the Point of Interconnection will be the 25 kV bus, 1C-B41. The wind powered generation facility is comprised of 12 Enercon wind-turbine generators (WTG) type E82, each rated at 2.0 MW. The total generating capacity will be continuously limited to 23 MW. Since this generation exceeds the minimum load of 4MW on the supply substation transformer 1C-T61, excess generation will flow back up to the 138kV transmission system.</p> <p>The proposed wind farm will be located at 3729 Port Malcolm Road in Point Tupper, Richmond County, Nova Scotia on land owned by Statia Terminals. The system connection for this site will require the construction of a 2.5 km, 25 kV distribution line from the 1C Point Tupper substation to the intersection of the Port Malcolm Road and the Bear Head Road. This portion of the circuits will be constructed with 556 aluminum conductor. At this intersection, two branch circuits will be constructed with 336 aluminum conductor. One branch will extend the line 2.5 km along the Port Malcolm Road to connect six wind turbines and the other branch will extend the feeder 2 km along the Bear Head Road to connect six wind turbines. Refer to the One Line Diagram of the System Connection in Appendix B.</p> <p>The system connection for the Statia wind powered generating facility will include the installation of a new 25 kV feeder bay (1C-413) at the 1C Point Tupper substation. This will include the installation of one 25 kV circuit breaker or recloser, A and B disconnect switches, revenue metering and protection, control and telecommunications modifications at the 1C Point Tupper substation. The system connection will also include the following modifications to the Nova Scotia Power system:</p> <ul style="list-style-type: none">• Metering upgrades on L-6523 to allow the full capacity of the line to be used.• Installation of a transfer trip scheme at 1C Point Tupper to avoid islanding of the Statia generating facility.
Transmission Engineering Department	Customer Operations prepared by: <u>Ron Tutty, P. Eng.</u> checked by: _____ approved by: _____ Division approved by: _____



Interconnection Facilities Report

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	<ul style="list-style-type: none"> Installation of communication infrastructure to allow monitoring and control of the equipment that connects the Statia generating facility to the Nova Scotia Power system. <p>Each WTG will be connected to a 25 kV collection feeder via an individual 400V/25kV step-up transformer. The proposed wind generation facility will be interconnected to the NSPI distribution system via a new 25 kV feeder (1C-413) to the existing 1C Point Tupper substation.</p> <p>A one-line diagram of the proposed interconnection is shown in Appendix B – One Line Diagram of System Connection.</p> <p>The Point of Interconnection to the Nova Scotia Power system will be the 25 kV bus (1C-B41) at the 1C Point Tupper substation.</p> <p>The estimated cost of the Nova Scotia Power portion of the project and the estimated scheduled in-service date are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Cost Estimate</th> <th>Annual Licence Cost</th> <th>Project Duration</th> <th>In-Service Date</th> </tr> </thead> <tbody> <tr> <td>\$1,101,748</td> <td>\$136</td> <td>8 months</td> <td>2010-04-30</td> </tr> </tbody> </table> <p>The above in-service date assumes a connection with a 12 wind turbine, generating facility complete with protection, transfer trips, status, SCADA and revenue metering.</p> <p>The project in-service date is dependent upon the starting date, which cannot commence until the following conditions are met:</p> <ul style="list-style-type: none"> the customer delivers to Nova Scotia Power the balance of the cost estimate for the project, or for the first discrete portion of the project, in a form acceptable to Nova Scotia Power, as per the Interconnection Agreement. 	Cost Estimate	Annual Licence Cost	Project Duration	In-Service Date	\$1,101,748	\$136	8 months	2010-04-30
Cost Estimate	Annual Licence Cost	Project Duration	In-Service Date						
\$1,101,748	\$136	8 months	2010-04-30						

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