

**NOVA SCOTIA POWER INC.**  
**CUSTOMER OPERATIONS**  
**TRANSMISSION ENGINEERING DEPARTMENT**



**INFRA-STRUCTURE REPORT**  
**FOR**  
**ESTABLISHING A 69kV SYSTEM CONNECTION**  
**FOR A NEW 9, 12, OR 15 MW**  
**WIND FARM NEAR THE CANSO (TOWN)**  
**[REDACTED]**  
**PROJECT ...-###-T###**

**Prepared by: Joe Yurchesyn, P. Eng.,**  
**Equipment Design & Practices Specialist**

**Date: 2004-12-06**

**Revision: 0**



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Project: ###C- [REDACTED] Interconnection Substation  
Establish 69kV System Connection for Wind Farm

Date: 2004-12-06 Rev. No.: 0

# Infra-Structure Report

System	Description																
1.0	<p><b>SUMMARY</b></p> <p>This project provides for the establishment of a “69kV System Connection” for a (minimum) 9 MW wind farm near the 19C-Canso (Town) substation. Facilities required to upgrade the connection to 12 and 15 MW are detailed separately as increments to the scope.</p> <p>The estimated project(s) cost and scheduled “in-service” durations are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Total Size</th> <th>Capital Cost</th> <th>Project Duration</th> <th>Annual Lease/Licence Cost</th> </tr> </thead> <tbody> <tr> <td>9 MW</td> <td>\$1,519,000</td> <td>11 months</td> <td>\$7,800</td> </tr> <tr> <td>12 MW</td> <td>\$2,851,000</td> <td>14 months</td> <td>\$7,800</td> </tr> <tr> <td>15 MW</td> <td>\$12,332,000</td> <td>29 months</td> <td>\$7,800</td> </tr> </tbody> </table>	Total Size	Capital Cost	Project Duration	Annual Lease/Licence Cost	9 MW	\$1,519,000	11 months	\$7,800	12 MW	\$2,851,000	14 months	\$7,800	15 MW	\$12,332,000	29 months	\$7,800
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Transmission Engineering <b>Department</b>	Prepared by: <u>J. A. Yurchesyn, P. Eng.</u> Approved by: _____	Customer Operations <b>Division</b>	Checked by: _____ Approved by: _____
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April 28, 2008



Dear [REDACTED],

**Re: Interconnection Request #8, Location Canso: Addendum 1**

Addendum to the *"Infra-Structure Report for Establishing a 69kV System Connection for a New 9, 12, or 15MW Wind Farm Near the Canso Town"*

In response to your January 11, 2008 request, and in keeping with the assumptions included in the attached re-study agreement of February 5, 2008, we have re-studied the requirements of the System Impact Study report [REDACTED] - Canso dated 29 June 2004, in consideration of changes to NSPI's interconnection requirements. We have concluded that the revised impact assessment will enable the following generating facility capacity to be interconnected to Line L5527 near the Canso Town Substation without replacement of the Lochaber Rd Substation Transformer 4C-T2:

- 1) Up to 12 MW based on the use of 1.5MW GE DFIG generators
- 2) Up to 13.8MW based on the use of 2.3MW Enercon E70 E4 generators

All other facility requirements as laid out in Section 5 remain unchanged except for section 5.3 which is not applicable to the 12MW GE or 13.8MW Enercon proposal.

We have also reviewed the Facilities Study dated 6 December 2004 (*Infra-Structure Report for Establishing a 69kV System Connection for a New 9, 12, or 15MW Wind farm Near the Canso Town*) and note that the requirements described in the following sections are no longer required:

- Section 2.2 "Incremental Scope for 12 MW Installation"
- Section 5.0 "Incremental Line Work for 12 MW"
- Section 8.0 "Incremental Substation Work for 12 MW Installation"
- Section 12.2 "Retirements for the 12 MW Installation"
- Section 14.1 "Substation Civil Works and Structures: 4C - Lochaber Road Substation"
- Section 16.1 "Incremental Commissioning for 12 MW: 4C - Lochaber Road Substation"

Other sections related to the 15MW option are also not applicable to the 12MW GE or 13.8MW Enercon options.

In addition, the requirements of Section 2.1, “*Scope for a 9MW Installation*” will now apply to both the 12MW GE option and the 13.8MW Enercon option. The requirements in Sections 2.1.1 (1) and 4.1 regarding the 2km extension of the 69kV line L-5527 will be limited to the actual length of line extension required to reach the new proposed site of the 69/25kV interconnection substation (adjacent to the existing Canso Town Substation 19C).

Please note that the requirements for any capacity greater than 12 MW for the GE option, or 13.8MW for the Enercon option, would require the replacement of the 4C – T2 Locharber Road Substation transformer in addition to the incremental line work as documented in Section 6, and would also require the re-instatement of the above-mentioned Facility Study sections.

The interconnection costs for the 12MW GE or 13.8MW Enercon options would be in line with the 9MW costs identified in Section 1 of the December 2004 Facilities Study. However, the 2004 estimates require revision and update to reflect current labour and material rates. A revised cost estimate and updated project milestones needs to be developed when we re-visit the existing GIA for the Invenenergy Canso Project.

Sincerely,



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Control Centre Operations  
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CC: Bill Ellis

Att: Re-study Agreement