



**System Impact Study Report
Report GIP-IR362-SIS-R1**

**Generator Interconnection Request #362
12.6 MW Wind Generating Facility
Amherst, NS**

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Executive Summary

This report presents the results of a System Impact Study (SIS) for a proposed 12.6 MW increase to the existing IR#45 (31.5 MW) wind generating facility. The study performed analysis of the impact the proposed development would have on the NSPI power grid. System study, including short circuit, power factor, voltage flicker, steady state, stability, Bulk Power System analysis, low voltage ride through and loss factor was performed. NSPI and NPCC planning criteria were applied.

Based on the study results, it is concluded that the incorporation of the proposed 12.6 MW facility into the NSPI transmission system at the specified location has no serious negative impacts on the reliability of the NSPI power grid provided the recommendations given in this report are implemented.

Under the pre-existing arming level of the ‘Import Power Monitor’ SPS with the loss of L-8001, the addition of 12.6 MW by IR#362 could cause L-6513 to be overloaded up to 121% of its conductor thermal ratings during periods when summer line ratings are in effect, assuming other generation in this area is concurrently generating at full output. The overloads would also depend on the real-time local load demands and other local generation output. When NS export level is above 225 MW with 2 units at Langan armed, loss of L-8001 could also cause L-6513 to be overloaded up to 120% if the Langan units are not operated at rated load when they are rejected by SPSs. The overload also depends on the real-time local load demands and other local generation output. Therefore in order to accommodate IR#362 as NRIS this study recommends that L-6513 should be up-rated to an operating temperature of 60°C. The “Import Power Monitor” SPS and the ‘Export Power Monitor’ will no longer be used under normal system conditions once the system upgrades associated with TSR-100 are completed in 2016. IR#362 can therefore operate without restrictions assuming that L-6513 is up-rated in 2012.

IR#362 is proposed to be operated as an increase in capacity to IR#45 and as such, the bulk of the addition/changes to the NSPI system associated with IR#45 are assumed to have been completed. These include a three breaker ring bus substation at the Point of Interconnection and the installation of all associated protection control and communications. The cost estimate assumes the IC has already provided the Transmission Providers Interconnection Facilities (TPIF) associated with IR#45 and that no further TPIF are required. The total high level estimated cost for Interconnection Costs and Network Upgrades is \$3,190,000. The Facility Study will provide a more detailed cost estimate. All costs of associated facilities required at the Interconnection Customer’s substation and generating facility are in addition to this estimate.

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