



**System Impact Study Report
Report GIP-IR426-SIS-R0**

**Generator Interconnection Request #426
45 MW Generating Facility
New Page, NS**

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Executive Summary

This report presents the results of a System Impact Study (SIS) for a 45 MW steam driven generating facility interconnected to the NSPI transmission system. The study performed analysis on the impact the proposed development would have on the NSPI power grid. System studies, including short circuit, power factor, voltage flicker, steady state, stability, Bulk Power System analysis, under-frequency operation, low voltage ride through and loss factor were performed. NSPI and NPCC planning criteria were applied.

The Interconnection Request #426 (IR#426) is Network Resource Interconnection Service (NRIS), meaning that generation output need not be curtailed during system peak conditions for the reliable operation of the transmission system, provided all network elements are in service. This facility is currently in operation as an Energy Resource Interconnection Service (ERIS). System Impact Study for the ERIS was performed under IR#219.

The Point-Of-Interconnection (POI) is at the 138 kV bus at 47C-NewPage substation and the In-Service date for this request is January 2017. Hence, the base case selected for this study is for winter peak 2017.

The short circuit level increase due to the interconnection of IR#426 is within the fault interrupting rating of the existing circuit breakers in the system.

IR#426 provides adequate reactive power to meet the Generator Interconnection Procedure (GIP) requirement. Load flow analysis does not indicate any thermal or voltage violation due to the interconnection of IR#426 for all the design contingencies studied in this SIS. The system loss factor for IR#426 is 10%.

Stability Analysis indicates that IR#426 remains online as required when Nova Scotia system is islanded. IR#426 meets the requirement for Low-Voltage-Ride-Through and stayed online for transmission system faults near the POI.

IR#426 was not found to cause issues with the stability of the interconnected system. IR#426 will not alter the non-Bulk Power System (non-BPS) status of 47C-NewPage substation.

The study does not identify any issues with the interconnection of IR#426 as a NRIS service for the in-service date requested. Hence, network upgrades are not required.