

Notice to Market Participants – Completion of Ontario GIC assessment for TPL-007-4, R5 & R9

March 29, 2021

The IESO has recently completed a report to fulfill its obligations under requirements R5 and R9 of NERC standard TPL-007-4, Transmission System Planned Performance for Geomagnetic Disturbance (GMD) events. According to the implementation plan of TPL-007-4 in Ontario, the compliance date for these requirements is April 1, 2021.

Requirements R5 and R9 mandate that Geomagnetic Induced Current (GIC) flow information to be used for both the benchmark and supplemental thermal impact assessments be provided to each Transmission Owner (TO) and Generator Owner (GO) that own applicable Bulk Electric System (BES) power transformers in the planning area. The purpose of this study is to identify any equipment within the planning area that may be susceptible to high GIC currents. Transmission and Generator owners will have the opportunity to review these results and implement any mitigating action that is necessary.

The IESO has fulfilled these requirements and identified the maximum effective GIC value (I_{eff}) for the worst case geoelectric field orientation for the benchmark and supplemental GMD events, as outlined in the report. The effective GIC time series, $GIC(t)$ are available upon request to any TO or GO that own applicable BES power transformers in Ontario. The planning area within the IESO jurisdiction has been analyzed in detail and modelled in accordance with the Canadian Variance of TPL-007-4, Attachment 1. This was done using data collected by Natural Resources Canada (NRCan) to identify the earth resistivity and the peak electric field strength.

The IESO has identified through the benchmark and supplemental analysis that there are no transformers with I_{eff} currents greater than the identified threshold of 75 Amps/phase and 85 Amps/phase respectively, in the planning area. It is the recommendation of the IESO that transformers close to or within 10% of these thresholds be evaluated by the Transmission or Generator Owner, to determine if there will be any negative impacts on the equipment. The owners of transformers that fall within this range have been notified by the IESO.