



KINECTRICS

Case Study

Hydro One PV Inverter Study On Performance Metrics and Certification



Project Title: Hydro One PV Inverter Study on Performance Metrics and Certification

Customer Name: Hydro One
Service: GRIDSIM Testing
Location: Toronto, Canada

PROJECT OBJECTIVE

Kinectrics' substantial expertise in the area of distribution grid engineering, power quality and equipment testing led to us being selected by Hydro One to perform a study of PV (Photo Voltaic) inverters for a range of performance metrics and evaluate CSA certification requirements.

Kinectrics aimed to achieve the objective by offering comprehensive consulting and testing services to help Hydro One accommodate higher penetrations of distributed generation efficiently.

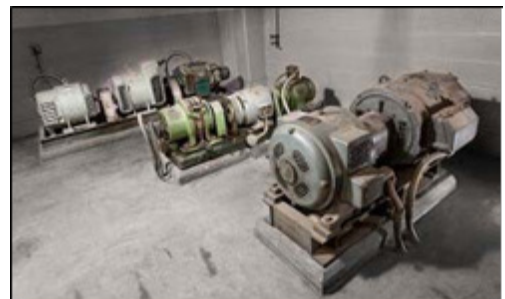
SCOPE OF WORK



Kinectrics opened a new inverter testing lab specifically to address the work needed in the study. The project required the evaluation of several standard manufacturer designs. The facility was able to test up to 6 inverters in parallel and features PV array simulators for testing inverters up to 45 kW.

TESTING PERFORMED

- Inverter efficiency and MPPT
- Power Quality
- Fault current contribution (up to 5MW)
- Anti-Islanding
- Ride-through
- Other protection functions
- IEEE 1547.1, UL1741, and CSA C22.2 No. 107.1





The lab created a test bed environment complete with PV array simulators, load banks, switching and data acquisition as well as MG (Motor Generator) sets.

Additionally, Kinectrics was able to test other types of generators for:

- Power Quality
- Fault current contribution
- Anti-Islanding
- Ride-through
- Other protection functions

RESULTS AND VALUE ADDED

The testing was performed to Hydro One's satisfaction providing a thorough study of the state of the art in inverter technology. Several recommendations were made by the Kinectrics team in terms of improvements to certification testing, power quality considerations and specific load and generation profiles to focus attention on.

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