



Innovation Corner: The Kinectrics Cable Centre of Excellence



The Kinectrics Cable Centre of Excellence (COE) assembles a team of multi-disciplinary experts in all aspects of cable technologies and lifecycle management. Our experts have been brought together under the Kinectrics Innovation Hub to bring industry-leading capabilities to our customers, focused on solving the industry's toughest problems.

The Cable COE was established to fulfill the key mandate of:

1. Building the industry's most comprehensive understanding of cable aging mechanisms and properties
2. Developing the leading test methodologies and equipment configuration to manage the world's most critical assets
3. Delivering the most comprehensive life-cycle management solutions for cables of all voltage classes to achieve the lowest overall cost of operation

The Cable COE has made significant strides towards this mandate through:

- Conducting collaborative research with the University of Waterloo for the identification, discrimination, localization and assessment of physical and chemical cable aging defects
- Conducting collaborative test programs with IREQ (Institut de recherche d'Hydro-Québec) to establish the influence of test frequency and test methodology on Partial Discharge (PD) and withstand testing outcomes
- Developing field hardware for remotely monitoring PD in expansive HV cable networks
- Developing advanced cable designs including novel polymeric insulation, advanced dielectrics, and self-healing materials/fluids
- Performing leading research programs for industry organizations such as EPRI

The team continues to progress activities towards the COE mandate. Current active pursuits include extensions of the research programs above to further define testing best practices (and move towards the codification of test configurations), deployment of digital worker tools to improve the speed, accuracy, and efficiency of test activities, and broad deployment of an exciting new tool for the management of test data called TAASK: Test Acquisition, Analysis, and Storage for Kinectrics.

Read more about our low and medium voltage cable services [here](#).

Kinectrics' Virtual World - HV Rotating Machine Lab in 360°

Kinectrics' High Voltage Rotating Machine lab provides testing services that can extend asset life and improve system reliability. From pre-qualification testing to forensic analysis, Kinectrics provides a life cycle approach that helps sustain the expected lifetime of the machine.

Take a self-guided tour of this lab [here](#) today!



Featured Insight: LineVue® - Automated Field Inspection for Overhead Conductors

Do you know the condition of your aging power lines?

Many transmission and distribution lines are very old with some conductors and shield wires having been in service for more than 70 years. With lines well past their design life, the rates of deterioration are largely unknown. As lines continue to age, it becomes increasingly important for utilities to know the existing physical condition of conductors to optimize capital management of these important assets.

Knowing the actual condition of the conductor steel core is important for utilities to determine whether the conductor needs immediate replacement to avoid unplanned failures or, if utilities can forego expensive capital investment programs to extend the life of their assets.

LineVue® is a non-destructive automated inspection tool used to collect information and assess the conductor condition in the field and in real-time. LineVue® helps utilities better manage these key assets, address safety concerns, increase infrastructure reliability, and reduce replacement costs – be informed and make the right investment decisions by knowing the condition of your lines.

Watch our [video](#) to learn more.



Case Study: Hydro One PV Inverter Study on Performance Metrics and Certification

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.



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 included: 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.

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.

Learn more about our state-of-the-art GRIDSIM Power Lab [here](#).