



GRIDSIM Power Lab

Coming Soon - Flexible Power
and Dynamic Grid



The Kinectrics GRIDSIM Power Laboratory will be a state-of-the-art, independent facility in Toronto, Canada aimed at testing smart grid systems, renewable generation equipment, and medium voltage power systems over a wide range of voltages and frequencies, and at power levels up to 12 MVA. The lab will be able to perform testing to UL 1741 SA and associated source requirement documents, CSA C22.2

No. 107.1 and IEC 62109. This capability suits the interests of global utilities, developers, original equipment manufacturers, and standards organizations to research, develop, test, and certify new technologies in support of safe renewable power integration with the grid. The lab is funded in part by the Ontario Ministry of Energy's Smart Grid Fund and Alstom.

APPLICATIONS



Alstom's Hesop 1500HP technology for Panama Line 2 Metro Extension Project

- Solar Photovoltaic Inverters & Inverter Stations
- Renewable Energy Storage Systems (ESS)
- Offshore Oil & Gas Power Systems
- Wind Power Converters
- Industrial Plant Power Equipment
- Light Rail Power Supply Substations
- Other Medium-Voltage/Power Equipment

THIRD-PARTY SERVICES FOR TOMORROW'S SMART GRID



Kinectrics is your one-stop, independent provider of smart grid related testing services. From flexible power and grid simulation to high current, high voltage, and consultancy services – Kinectrics can support the scope and scale of almost any renewable power system integration. If an inverter or medium voltage power system is functioning out of bounds during Type Testing, Kinectrics' world-renowned Transmission and Distribution expertise can provide supportive consultation to identify, analyze, and help resolve any issues.

WHAT WE OFFER



- Accelerate Inverters to Market with UL 1741 SA Certification**

Inverter manufacturers can meet modern utility needs and offer compliant grid support utility interactive inverters and utility interactive inverters to customers by certifying to UL 1741 SA — thereby accelerating their products to market.

- Eliminate On-site Compliance Testing**

A pre-certified inverter compliant to industry standards such as UL1741 SA minimizes the need for field service support by the OEM during on-site commissioning and reduces or eliminates the need for grid compliance testing to IEEE 1547.1.

- Major Project Cost Savings and Time Savings**

A pre-certified inverter will deliver cost and time savings to the EPC or developer by eliminating the need to demonstrate on-site grid compliance to IEEE 1547.1. One-time type-testing of multi-megawatt inverters will soon replace costly and timely field commissioning for attaining grid compliance.

- Safe Interconnection of Renewable Energy with the Grid**

The interconnection of renewable energy can be a risky and intensive activity to achieve grid interoperability. Outages caused by insufficient interoperability have visibly demonstrated the impact. Pre-certification of grid support utility interactive inverters and associated DG equipment creates a more stable utility grid.

- Full Range of Type Certifications for MV/MP Equipment**

With the advent of new standards supporting renewable power integration onto the grid, distributed energy resource manufacturers must certify their parts in order to stay competitive. Kinectrics offers a complete range of type-test certifications across industries – including Rail Transit - made possible with large-scale grid simulation capabilities.

- A Vendor-Neutral Research Test Bed**

Development of new grid interactive technologies, integration of DG equipment, and development of next-generation grids require test environments where test cases can be simulated to provide valuable data for real-grid scenarios. A future focus is also on distributed controls which will allow for a distributed infrastructure capable of self-healing and significantly more intelligence at the end node. Communication using the IEC 61850 standard and leveraging Kinectrics' state of the art RTDS (Real Time Digital Simulator) will allow for Power Hardware In the Loop (PHIL) studies. The aim is to allow utilities, developers, and OEMs to make more informed decisions about capital investment on the grid of tomorrow.

Technical Laboratory Features

CHARACTERISTICS	VALUES
Power	Low to high power range; up to 12 MVA
Voltage	600V up to 34.5 kV
Frequency	45 TO 67 Hz grid simulator power supply
Test Bays	2 independent parallel circuits
DC Power	5 MW DC Power Supply
AC Resistive Load Bank DC Resistive Load Bank Capacitive Load Bank Inductive Load Bank	Available as needed
Ancillary Services	Instrumentation, data acquisition, strong floor, craning and rigging equipment
Onsite Technical Service & Support	Yes (Field Engineers available upon request)
International Standards Compliance	UL 1741 SA, IEEE 1547.1, CSA C22.2 No. 107.1 and IEC 62109-1 and -2, IEC 61683, others

Kinectrics is registered to ISO 9001 QA program and has accreditation for ISO17025 and many other QA programs.



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