NRC·CNRC

Hybrid-Electric Research Outfit facility

Powering the electrification of aircraft propulsion

A key priority for the aviation sector is developing sustainable, low-carbon aviation technologies, enabled by advances in clean energy sources and novel hybrid-electric architectures. The Hybrid-Electric Research Outfit (HERO) facility at the National Research Council of Canada (NRC) was designed to test new technologies for advancing electrification of aircraft propulsion.

Equipment overview of the Hybrid-Electric Research Outfit facility.

This facility is highly flexible, allowing testing equipment to be reconfigured to suit different topologies. The facility is equipped with a powerful battery emulation system that enables tests to run without the need to recharge batteries, thereby accelerating research and testing programs while reducing operational costs.

Equipment and systems

- Air and water cooling system
- Alternative current (AC) and direct current (DC) load banks
- Data acquisition systems with controller area network bus communication protocol
- DC power distribution module
- Dynamometer
- High-power density permanent magnet motor
- Micro-gas turbine
- Motor controller (inverter)
- Variable voltage high-power DC power supplies

Facility specifications

Maximum DC power supply	200 kW
DC operations voltage[a]	0 to 1,200 V
Testing area	580 ft^2

Note:
[a] Subject to test configuration and load specifications.

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