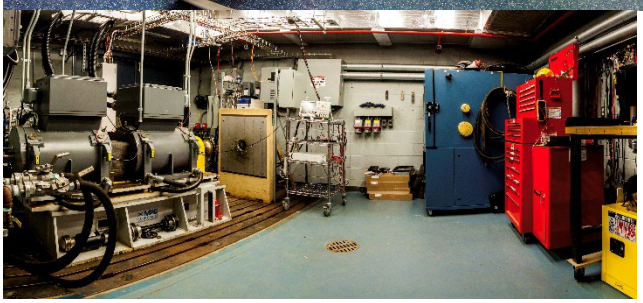
Electrical Component Testing



A high-voltage system may look flawless in the lab—but real-world operational loads reveal the weaknesses that development alone can't catch. Thermal stress, transient power demands, and harsh environmental conditions can compromise performance and mission success. At the Electrical Components Laboratory (ECL), we push advanced electrical power systems to their limits, turning theoretical designs into real world-ready solutions. As an ISO/IEC 17025–accredited laboratory, ECL delivers rigorous, data-driven testing of high-voltage components, including electric machines, alternators, inverters, motor controllers, and DC/DC converters. Our testing exposes true performance boundaries, validates reliability, and ensures your systems deliver power when it counts most.

Partner with ECL to validate your designs, mitigate integration risk, and field electric power systems that perform decisively in any environment.

Our Specialized Electrical Power Testing Services
ECL provides a comprehensive suite of mission-focused test capabilities centered on one goal: delivering actionable data to accelerate development of robust, next-generation vehicle electrification technologies.

High-Power Component Endurance Testing: Proving Operational Reliability
An electric power system earns trust by performing under sustained load and environmental stress. ECL tests advanced electric machines, high-voltage alternators, motor controllers, inverters, and DC/DC converters in temperature- and humidity-controlled environments. Using thermal chambers, variable coolant temperature and flow, and high-sensitivity pressure measurements, we expose failure modes before they can compromise vehicle readiness.

- **Benefit:** Field electrical components with proven durability and reduced risk of thermal or coolant-related failures.

Power Performance & Quality Mapping: Controlling Energy Under Extreme Demand
Unlock the full capability of your power generation and control systems. ECL conducts detailed performance mapping using 346 kW and 373 kW AC dynamometers, resistive and capacitive load banks,

and programmable power absorption and supply. We evaluate power quality, transient response, and harmonic distortion across a wide operating range.

- **Benefit:** Maintain stable, efficient power delivery and protect downstream systems, even under aggressive load transients.

Development & Integration Analysis: Engineering the Electric Advantage

The decisive edge in vehicle electrification is engineered here. ECL supports component-level, propulsion-cell, and on-vehicle testing to validate integration with next-generation hybrid-electric architectures. Accredited testing to **MIL-PRF-GCS600** ensures compliance while accelerating development and reducing program risk.

- **Benefit:** Eliminate unknowns, harden electrical architectures, accelerate fielding, and extend the operational life of high-power systems.

With unique facilities, accredited processes, and deep technical expertise, the Electrical Components Laboratory delivers the confidence required to power the Army's future mobility.

ECL: Real loads. Real power. Real confidence.