

CAPABILITY STATEMENT: RENEWABLE ENERGY
INSTITUTION: UNIVERSITY OF NEVADA, LAS VEGAS, HOWARD R. HUGHES COLLEGE OF ENGINEERING

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For further Information: <https://www.unlv.edu/engineering/research>

OVERVIEW

UNLV provides support in identifying, designing, building, and testing components and systems for generating and storage of power for successful planned missions including the planning, designing, development, and testing of batteries and photovoltaic cells.

RESEARCH CAPABILITIES

Battery Performance Laboratory:

- Test bench for small motors and drives;
- Battery testing system; and
- Microgrid for testing advanced electrical devices.

Center for Energy Research:

Solar Site: This facility, located on the northwest portion of the UNLV campus, is part of the NREL MIDC network:

- Two Amonix high concentration PV systems (approximately 50 kW and 70 kW);
- A dish concentrator system (approximately 90-kW thermal energy); and
- Full meteorological instrumentation (including solar characterization devices such as normal incidence pyrheliometers, UV radiometers, pyranometers, 300 to 1700 nm spectrometers).
- Several solar lighting devices including a hybrid device;
- Façade evaluation facility for *In Situ* characterization of fenestration devices; cameras (including visible cameras with neutral density filters and infrared cameras);
- IV tracers (including a 1000V IV tracer that can measure up to 100 kW);
- Data loggers;
- Peripherals; and
- Sensors: temperature, humidity, water/air flow, heat flux, power meters, spectrometers, calorimeters, etc.

Roof Laboratory: The focus of this laboratory is solar energy. Equipment includes:

- Several solar thermal elements, including several types of solar water heating devices and solar stills;
- A variety of PV panels including monocrystalline, polycrystalline, amorphous crystalline;
- 3X concentration PV systems;
- Bifacial array and a 10-kW polycrystalline grid-connected system; and
- Arid regions building test facility (two identical buildings, one for construction modifications and one for control).

PAST PERFORMANCE

NASA, Lawrence Berkeley National Laboratory, Los Alamos National Laboratory, Rechargeable Power Energy North America LLC, Department of Energy, U.S. Agency for International Development, National Science Foundation, Office of Naval Research