

**Lawrence Technological University 10kW PV System  
21000 West Ten Mile Road, Southfield**



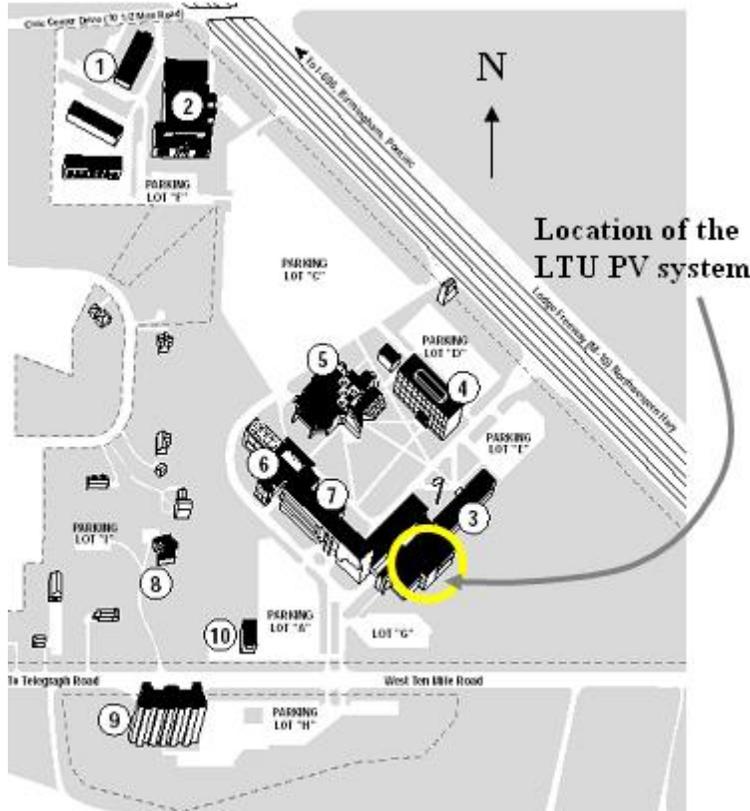
Lawrence Technological University (LTU), located in Southfield, Michigan, received a grant in 2004 from the Energy Office of Michigan's Department of Labor & Economic Growth to install and demonstrate a 10 kW solar photovoltaic (PV) system.

Dr. Robert W. Fletcher, Associate Professor of Mechanical Engineering at LTU, was the initiator and Principle Investigator on the project. The PV system was designed and installed as a grid-tied array consisting of sixty-three Shell 165 watt mono-crystalline silicon photovoltaic panels, configured into six strings of panels. Three strings contained ten panels in series, and the other three contained eleven panels in series. All six strings were routed through separate fused breaker boxes and then into six separate Sunny Boy 2500 watt inverters. Inverter outputs were combined in groups of two, with each combined power fed into the three separate phase legs going into the Engineering building. The panels were mounted on a ballasted aluminum frame where the solar orientation angle of the panels can be manually adjusted to account for seasonal variation of the sun's position in the sky. Forty-three LTU students, four LTU faculty members, and five LTU staff members directly supported the planning, design and installation at various times throughout the project.

The system has now run uninterruptedly since start-up in early April and has delivered over 7.7 megawatt-hours of power. This has directly saved LTU over \$1000 in utility costs, and over this short period has reduced CO2 gas emissions by ~160,000 pounds (assuming eastern coal used in a utility plant), cut sulfur dioxide emissions by ~125 pounds, and eliminated the need of ~58,000 gallons of public utility power plant cooling water.

To-date the system has produced almost 19 mega-watt-hrs of electricity which has been fed directly into the engineering building.

Directions:



Lawrence Technological University is located on 21000 West Ten Mile Road in Southfield. The 10 kW PV system is on the Engineering Building High-bay. Excellent viewing of the PV system can be gained from the fourth floor of the University Technology Building (#7 on map) southern portion of the building looking southeast. Parking is free on campus.