

University of Central Florida

Enhanced and Expanded PV Systems Testing Capabilities at FSEC

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Description: An important FSEC function is consumer protection from poorly designed and manufactured PV modules and systems. FSEC's test capabilities were established over 10 years ago and were adequate at the time to test and certify PV modules for certification. However, PV costs have fallen and competing electric utility rates have risen. In the last two years, these curves have crossed under some economic scenarios and incentive programs, and the demand for PV module testing and system certification has jumped. Thus, this task will provide for enhanced and expanded PV testing and certification capabilities. The task will also be done in close coordination with FSEC's work with the U.S. Department of Energy PV program.

Budget: \$196,018

Universities: UCF/FSEC

Progress Summary

The objective of this project is to provide for enhanced and expanded PV testing and certification capabilities at the Florida Solar Energy Center (FSEC). Funding from the Consortium has been used to either purchase or leverage the purchase of photovoltaic testing equipment that will be used to expand the research and commercial testing programs at FSEC.

A state of the art long-pulse simulator has been purchased and delivered to FSEC. This simulator increases the speed of testing and expands the capabilities to test different PV materials. The same equipment is utilized by the National Renewable Energy Lab (NREL) for reference module calibrations and characterizations for industry.



Figure 1. Long-pulse solar simulator for PV module testing

Additional testing equipment added to the program includes multi-channel I-V curve tracing hardware for automated testing of PV modules under natural sunlight. The new equipment allows for the reliable testing of new high voltage and high power modules.



Figure 2. Multi-channel I-V curve tracer (left) capable of continuous testing of multiple PV modules

The test facility expansion will increase the small systems and inverter test areas to allow for side-by-side comparisons of inverters, modules, complete systems and balance of system (BOS) components.

As a result of FSEC's expanded capabilities, the PV test program has attracted funding projected to exceed \$250k for 2010. Funding sources are both public and private.