

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's PV program.

Budget: \$132,398.

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. Using funding from the Consortium, this project has been used to either purchase or leverage the purchase of photovoltaic test equipment that will be used to expand the research and commercial testing capabilities at FSEC.

The new equipment purchased under this project has been in service for several months and has proven to be very valuable to the PV testing program. The capabilities have been leveraged to attract new funding from the public and private sectors.

The expansion of capabilities has attracted to additional requests for certification of equipment,

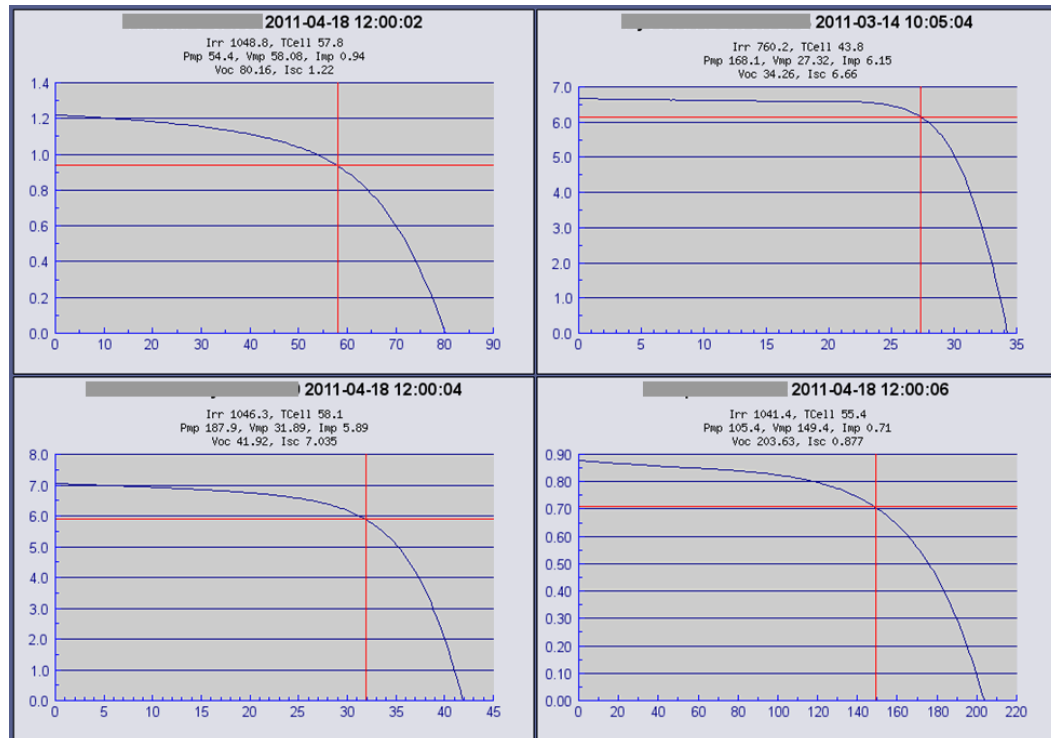


Figure 1. Sample data from a side-by-side comparison of PV modules



calibration of references, and prototype testing. System integrators and manufacturers are also interested in longer term bankability studies to validate performance and potential value of the electricity generated by the solar equipment. One of these studies is currently underway and two additional studies are proposed. The ability to perform these tests is a direct result of this project.

A sun-tracking system for testing PV modules has been identified and the procurement process has begun. It is anticipated to have the equipment in service during the second quarter of 2011. This highly accurate tracker will improve the accuracy of the data acquisition process.

Deliverables:

Expanded Testing Facilities for PV modules and systems, with proven capabilities:

- Long-pulse solar simulator for new multi-junction cell designs
- One 3-axis tracking platforms for maximum exposure and aging testing
- Stationary I-V curve tracers, with flexible connection systems
- Doubling of fixed test rack space
- Improve certification process and minimize time requirements

Industry Support:

This task will be strongly supported by the PV manufacturers. Many such companies have already contracted with FSEC for testing in our uniquely hot, humid and lightning-prone environment. Further, the US DOE is expected to continue support FSEC's PV test program with contract work for accelerated aging, high voltage and generalized testing.

