



Solar Resource Measurements in Cocoa, Florida (FSEC) – Equipment Loaned to NREL

Cooperative Research and Development Final Report

CRADA Number: CRD-08-318

NREL Technical Contacts: Tom Stoffel (Primary)
and Afshin Andreas (Alternate)

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Cooperative Research and Development Final Report

In accordance with Requirements set forth in Article XI.A(3) of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

CRADA Number: CRD-08-318

CRADA Title: Solar Resource Measurements in Cocoa, FL (FSEC). Equipment Loaned to NREL.

Parties to the Agreement: University of Central Florida, acting on behalf of its Board of Trustees and for the benefit of the Florida Solar Energy Center (FSEC)

Joint Work Statement Funding Table showing DOE Commitment:

Estimated Costs	NREL Shared Resources
Year 1	\$ 4,500.00
Year 2	\$ 00.00
Year 3	\$ 00.00
TOTALS	\$ 4,500.00

Abstract of CRADA Work:

Site-specific measurements of global and diffuse solar irradiance components, passively separated by alternate shading and unshading of a pyranometer mounted under a shading band with alternating opaque and open panels (for a site other than NREL) are needed to verify the underlying theory and mathematical techniques for developing direct, global and diffuse renewable resource data from such a system.

These data are used for several research and development activities consistent with the NREL mission:

- Establish a national 30-year climatological database of measured solar irradiances
- Support development of radiative transfer models for estimating solar irradiance from available meteorological observations
- Provide solar resource information needed for technology deployment and operations.

NREL will provide the supporting equipment (Shadow Bank Stand) for the specially designed shading band. FSEC will provide the calibrated pyranometer and perform data acquisition of the radiometer signal.

Data acquired under this agreement will be shared with the NREL Principle Investigator for the purposes of validating techniques for estimating direct radiation from global and diffuse components measured with the ZEBRA system.

Summary of Research Results:

Since 2009, the University of Central Florida has collected solar resource measurements at the FSEC facility in Cocoa, Florida, using equipment on loan from NREL. The equipment was also used for training on the operation and maintenance of solar radiometers. The resulting data were used for a variety of applications addressing solar energy conversion technology development. This CRADA was also consistent with NREL's goal of developing an educated workforce to advance renewable energy technologies.

The measured solar irradiance data were never captured by the NREL Measurement & Instrumentation Data Center (www.nrel.gov/midc) due to a variety of technical issues. The now obsolete equipment has been abandoned in-place and continues to serve the needs of FSEC.

Subject Inventions Listing:

N/A

Report Date:

September 14, 2013

Responsible Technical Contact at Alliance/NREL:

Tom Stoffel (primary), Afshin Andreas (alternate)

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