

FLORIDA SOLAR



ENERGY CENTER<sup>®</sup>

## FSEC STANDARD

# Operation of Photovoltaic Equipment Certification Program

## FSEC Standard 201- 10

January 2010

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## FSEC STANDARD 201 - 10

### OPERATION OF PHOTOVOLTAIC EQUIPMENT CERTIFICATION PROGRAM

#### 5.0 Definitions

**Model:** A photovoltaic system or component that is characterized by a specified size, set of materials, configuration and performance. A significant change in any of these basic characteristics constitutes a new model.

**Photovoltaic Module (flat-plate):** The smallest environmentally protected planar assembly of solar cells and ancillary parts, such as interconnections, terminals, and protective devices, such as bypass diodes, where the assembly is intended to generate dc power under unconcentrated sunlight. The structural (load carrying) member of a module can either be the top layer (superstrate), or the back layer (substrate).

**Photovoltaic System:** The complete collection of all components assembled for the conversion of sunlight to electricity that is utilized for performing work in a system or is stored for performing work in the system at a later time. Systems can be grid-tied (utility-interactive) or stand- alone in nature.

**Test Set (of PV modules):** a selection from a number of a particular model of photovoltaic modules that are used in performance testing. The modules in the test set must be identical in all respects, including PV cells, series-parallel connections, substrate, superstrate, encapsulating materials, framing, inter-cell wiring and terminals.

#### 6.0 Certification of PV Equipment

##### 6.1 Application

An individual, company, or corporation (the requestor) who desires to have PV equipment tested or reviewed for certification must first make application. The application form for testing and certifying PV module power ratings and the application form for system review and certification can be obtained from FSEC or its website [www.fsec.ucf.edu](http://www.fsec.ucf.edu). With the application for certification, is required to provide the information as listed on the relevant application form. Partial or incomplete applications will not be accepted, but will be returned for the completion of the information requested. This information includes but is not limited to: the identification of the equipment manufacturer, type and model, serial numbers (or distributor name, address and phone numbers), and reference module information.

## **6.2 Similar Models**

Models that incorporate changes that the manufacturer or designer may consider insignificant may be submitted for consideration for certification with the data from similar models. FSEC reserves the right to determine, for testing purposes, if the candidate model is similar or different from the previously evaluated model.

Any changes in either the PV cell type or manufacturing process will require re-testing of a test set of modules incorporating the changes. Significant changes to major components (ie, module, inverter, string configuration, etc) may require re-submittal of the system for review as a new model.

## **6.3 Reference Module**

FSEC maintains a set of calibrated reference modules for several PV cell types for testing. However, if the test set submitted is of a type for which FSEC does not have a calibrated reference module, the closest available reference will be selected.

Alternatively, the requestor may supply, at their expense, a reference module that is spectrally matched to the test set modules. Independent accredited or national laboratories shall calibrate this reference module. The National Renewable Energy Laboratory (NREL) in Golden, Co. and Sandia National Laboratories (SNL) in Albuquerque, NM are examples of two laboratories that may perform this service.

## **7.0 Commencement and Authorization**

When the application is reviewed as complete, the test or review will be authorized. Upon authorization, an invoice for appropriate fees will be sent to the requestor. For testing, the module manufacturer or supplier will be notified by FSEC to submit the selected modules for testing. FSEC reserves the right to verify random selection of the modules submitted for testing.

## **8.0 Standards and Fees**

### **8.1 Standards**

Module testing will be conducted in accordance with *FSEC Standard 202 Test Method for Photovoltaic Module Power Rating*. At the completion of the test, the requestor will be provided a final test report and the test data may be posted on the FSEC web site.

PV systems will be evaluated in accordance with *FSEC Standard 203 Procedures for Photovoltaic System Design Review and Approval*.

At the completion of the design review, the requestor will be provided feedback on any non-compliance issues or notification of acceptance. System summary information may be posted on the FSEC web site.

## **8.2 Fees**

Fees to cover the cost of testing, certifications, reviews, inspections, and other related services performed may be charged by FSEC prior to certification of the module or system. Fee amounts are stated in the *FSEC Fee Schedule*. FSEC may revise the fee schedule as deemed necessary to cover testing and associated costs.

## **9.0 Certification**

When a PV module has successfully completed the testing process and has been accepted, FSEC will notify the requestor in writing and the official list of certified module models will be posted on the FSEC website. The website list shall serve as the primary source for verification of module certification. Certificates will not be issued for module certifications.

When a PV system has successfully complete the design review process and has been accepted, FSEC will notify the requestor in writing and the official list of certified systems will be posted on the FSEC website. A certificate will be issued to the requestor shown on the application. Certificates will not be issued to third parties.

The certification symbol may be used in advertising, catalogs and sales promotion material only with written consent from FSEC and when each individual model for which the certification applies is clearly identified.

## **10.0 Acceptance of Test Results from Other Organizations**

PV modules tested for power rating by an accredited test lab may be accepted for certification. The modules shall be tested according to FSEC Standard 202.

The requestor shall submit a completed application with a copy of the complete test report for the module to be certified. FSEC will review the test report for compliance.

FSEC reserves the right to determine if a module submitted under this section meets all required provisions before acceptance of the power rating test results.