

The Florida Regional Test Center

The Florida Regional Test Center (FL RTC) is operated by the Florida Solar Energy Center (FSEC), a research institute of the University of Central Florida (UCF), under the technical oversight of Sandia National Laboratories.

Located on the campus of UCF, the FL RTC provides the physical and technical infrastructure needed to conduct validation testing for large-scale photovoltaic (PV) systems in a hot, humid climate. The site can accommodate approximately 250kW of PV installations, with systems ranging in size from 10 to more than 100kW.

Site Description

- 10-acre site for ground-mounted arrays that can accommodate both small and large systems and different PV technologies
- Flexible rack configurations for adjusting tilt angle and orientation



Aerial view of the Florida RTC showing two PV systems

- Rooftop 10° tilt (south-facing) that can support up to 40 kW of PV
- Extensive monitoring capabilities for collecting data on the physical and electrical parameters of a PV system
- If demand for the existing site exceeds capacity, FSEC has set aside a second site, which can host \leq 4 MW of PV power production.

Meteorological Instrumentation

The FL RTC weather station collects data on:

- Global horizontal irradiance
- Direct normal irradiance
- Diffuse horizontal irradiance
- Precipitation
- Temperature
- Relative humidity



Weather instruments on top of 30m weather tower

Measurement and Modeling Capabilities

- String level DC voltage and current
- Module temperatures
- AC current, voltage, frequency, PF, etc.
- Module performance under a range of operating conditions
- Indoor and outdoor IV measurements
- System modeling using multiple performance models
- Electroluminescence, infrared, and optical imaging for modules
- Materials characterization techniques for failure analysis.



PV system being validated at the FL RTC.



Representative inverter, disconnects, and monitoring equipment boxes at the FL RTC

About the Florida Solar Energy Center

The Florida Solar Energy Center (FSEC), a division of the University of Central Florida (UCF), has been researching and testing PV technologies for more than 30 years. Located on the UCF campus, FSEC complements UCF's nationally recognized programs in engineering, optics and photonics, energy efficiency and renewable energy. Both FSEC and UCF have strong partnerships with Sandia.



Racking being built for an RTC validation study



Sun tracker measures irradiance at the FL RTC

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