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# 2008 Solar Annual Review Meeting

**Session: Cross-cutting MT and Support Activities  
Program Covered in Presentation:**

*Southeast Region Experiment Station*



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# FY08 Progress Report

Southwest Region Experiment Station – tabular sample:

<p>Market Transformation</p>	<p>Solar America Cities Solar America Showcases GSIP</p>	<p>New Orleans Orange County Convention Center (1 MW PV -TT Lead) National Zoo &amp; Forrestal (TT Member) Plan by AOC (TT Member)</p>
<p>Test and Evaluation</p>	<p>PV System test, rating, code compliance, safety SAI TPP</p>	<p>LT Perf/Reliability- Inverters Structure/wind – mounts Perf vs Rating – UL LT Perf/Rel – Modules</p>
<p>Codes and Standards</p>	<p>Codes Development Codes Training Codes Inspection</p>	<p>Code Official Training Miami – Dade Wind Code Solar ABCs-Local Code Task</p>

# FY08 Progress Report



## 1. SERES MT Support: Solar America Cities and Showcases

### a) Tiger Team Lead: New Orleans (Solar America City)

- Local Code Officials Training (Mar08)

### b) Tiger Team Lead: Orange County (FL) Convention Center (Showcase)

- Technical Support - 1 MW Rooftop Array, funded by Orange County, State, OUC
- Developed Grant Proposal, Initial Design Criteria, Performance Prediction
- Final Design Specifications
- FSEC a member of the Evaluation Committee
- QC of installation, initial Performance Monitoring, Long-term monitoring

### c) Training:

- PV Installer Training – 7 weeklong courses
- Local Code Officials – 2 three day courses
- Train the Trainer – developmental work

### d) Public Information-Public Policy:

- Formed & Staffed Solar Info Office
- Florida Net Metering (achieved)
- Florida RPS (in process)
- National RPS (information & testimony)



#### **Solar Information Help Desk**

Got solar questions? We have answers.  
Call (321) 638-1719 or e-mail us

[solarinfo@fsec.ucf.edu](mailto:solarinfo@fsec.ucf.edu)



# FY08 Progress Report

## 2. SERES Test & Evaluation

- a) Long-term Performance And Reliability Of Utility-interactive Inverters. Continuous monitoring of 4 inverters in side-by-side comparison in Florida conditions. Coordinated evaluation of failures with SWRES.
- b) Advanced Integrated Structural Designs. Assessment of combined array/mount systems for wind load and workability
- c) Long-term Performance Evaluation Of PV Modules.
- d) Stabilized Module Performance vs Module Label
- e) Renovated and expanded outdoor test facilities.
- f) 2- axis Tracker “in place”
- g) Activated High-Voltage Bias test facility (+/- 3000v)



# FY08 Progress Report

## 3. SERES Codes and Standards

### a) Codes and Standards

- 1) Training on codes, specifically in Code Official training, and as part of PV Installer and Design courses,
- 2) Member/ tech advisor Miami-Dade County Wind Code revision (most stringent in US)
- 3) Solar ABCs lead on Local Codes and Standards



# FY09 Goals and Hopes

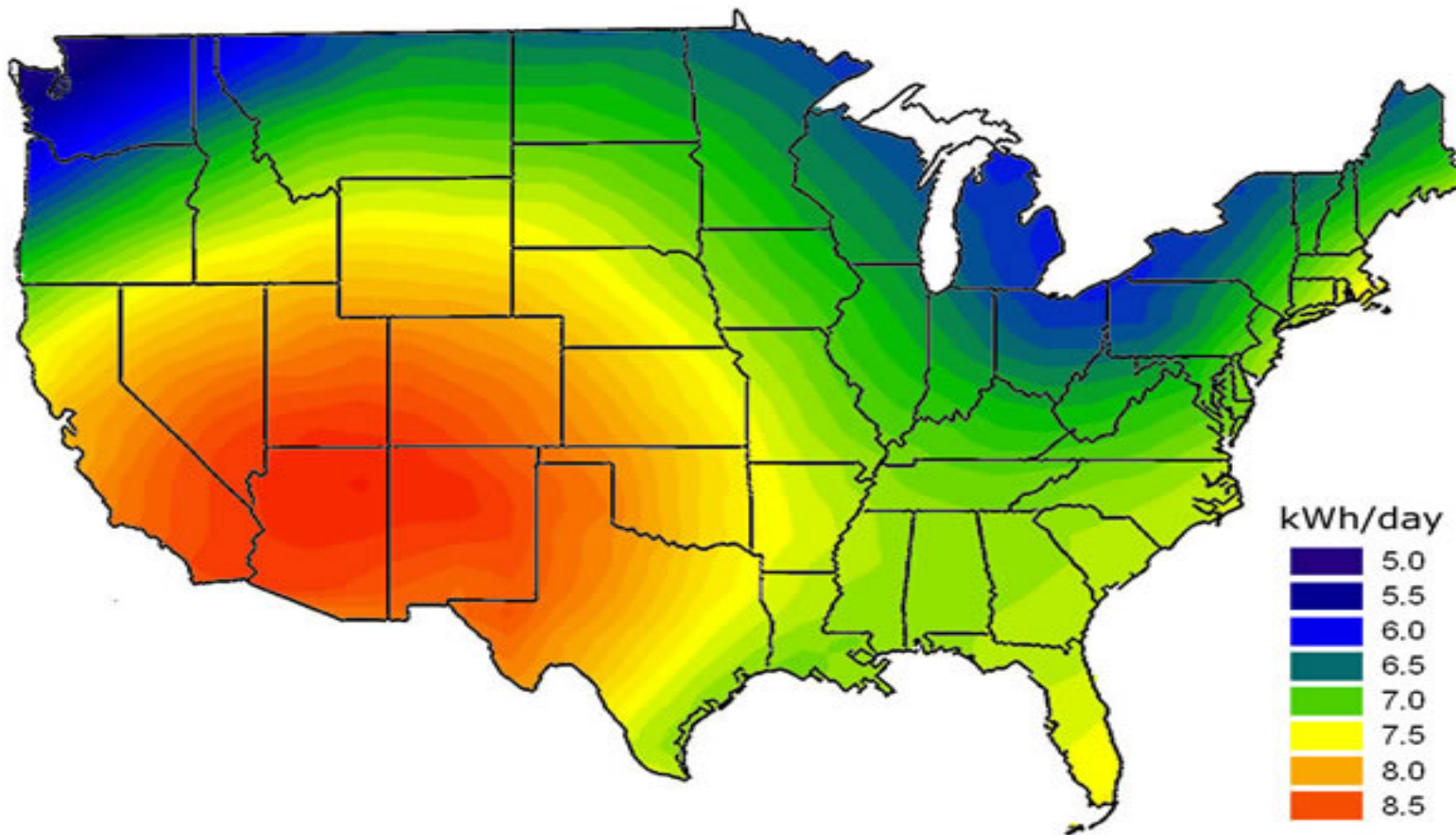
## 4. SERES FY09

### a) Anticipated Activities: *present PV SAC & PV R&D, plus:*

- 1) Solar America Cities: Tiger Team Lead for two cities, team member for other cities.
- 2) Solar America Cities: TT Support Specialties include Utility Interaction, Wind Loading, and creation of Municipal PV and Solar Hot Water utilities.
- 3) SAI TPP support: Module and Inverter testing (emphasis on hot, humid and lightning-heavy environment)
- 4) Test & Evaluation: Accelerated Aging validation and verification, performance, cost and reliability benchmarking for fielded systems and components, on-site performance evaluation
- 5) Codes and Standards: Continued support for various activities



# FY09 Goals and Hopes

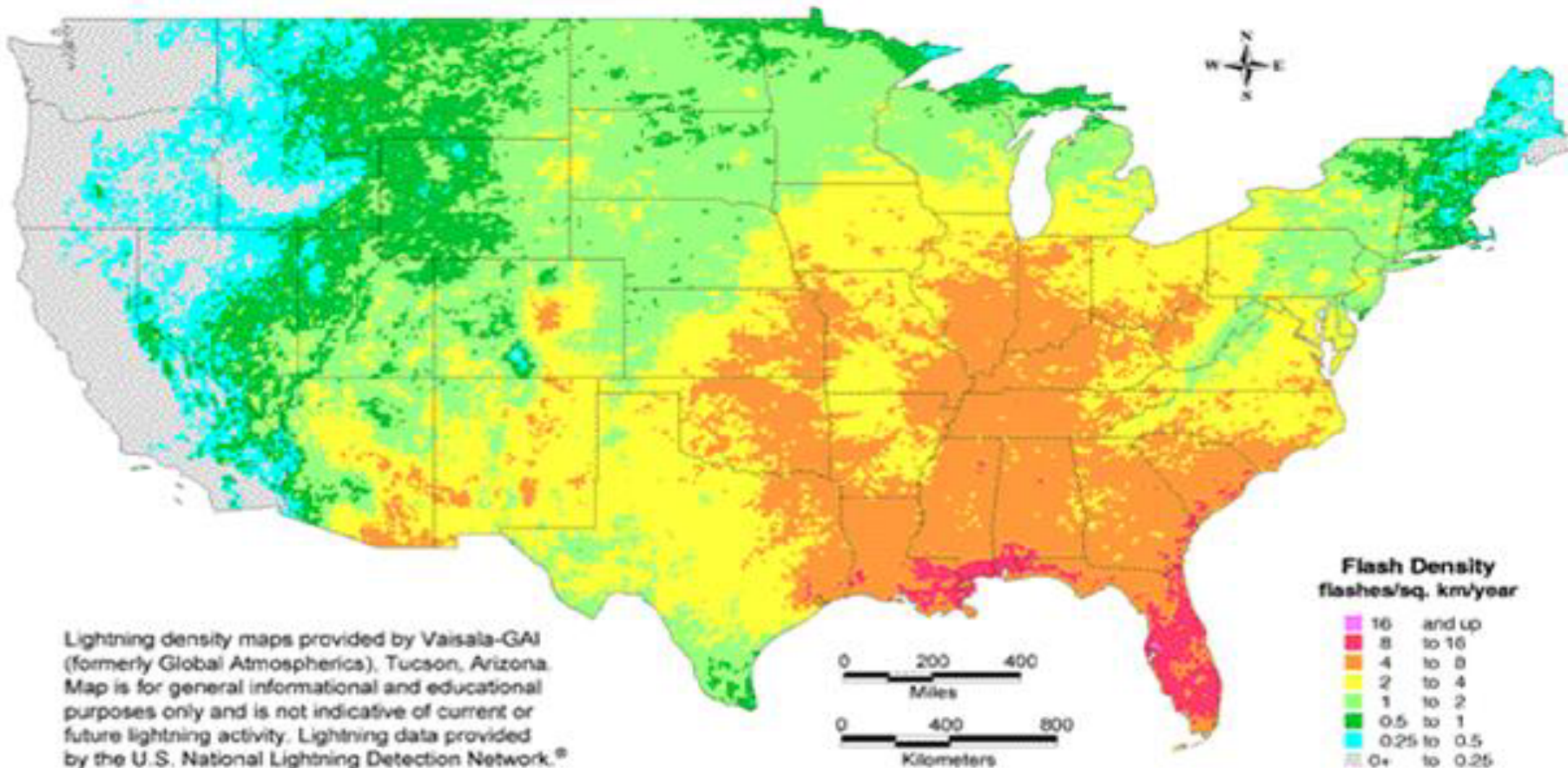




# FY09 Goals and Hopes



5-year Flash Density Map — U.S.  
(1996–2000)



Lightning density maps provided by Vaisala-GAI (formerly Global Atmospheric), Tucson, Arizona. Map is for general informational and educational purposes only and is not indicative of current or future lightning activity. Lightning data provided by the U.S. National Lightning Detection Network.®



# FY09 Goals and Hopes

## 4. SERES FY09

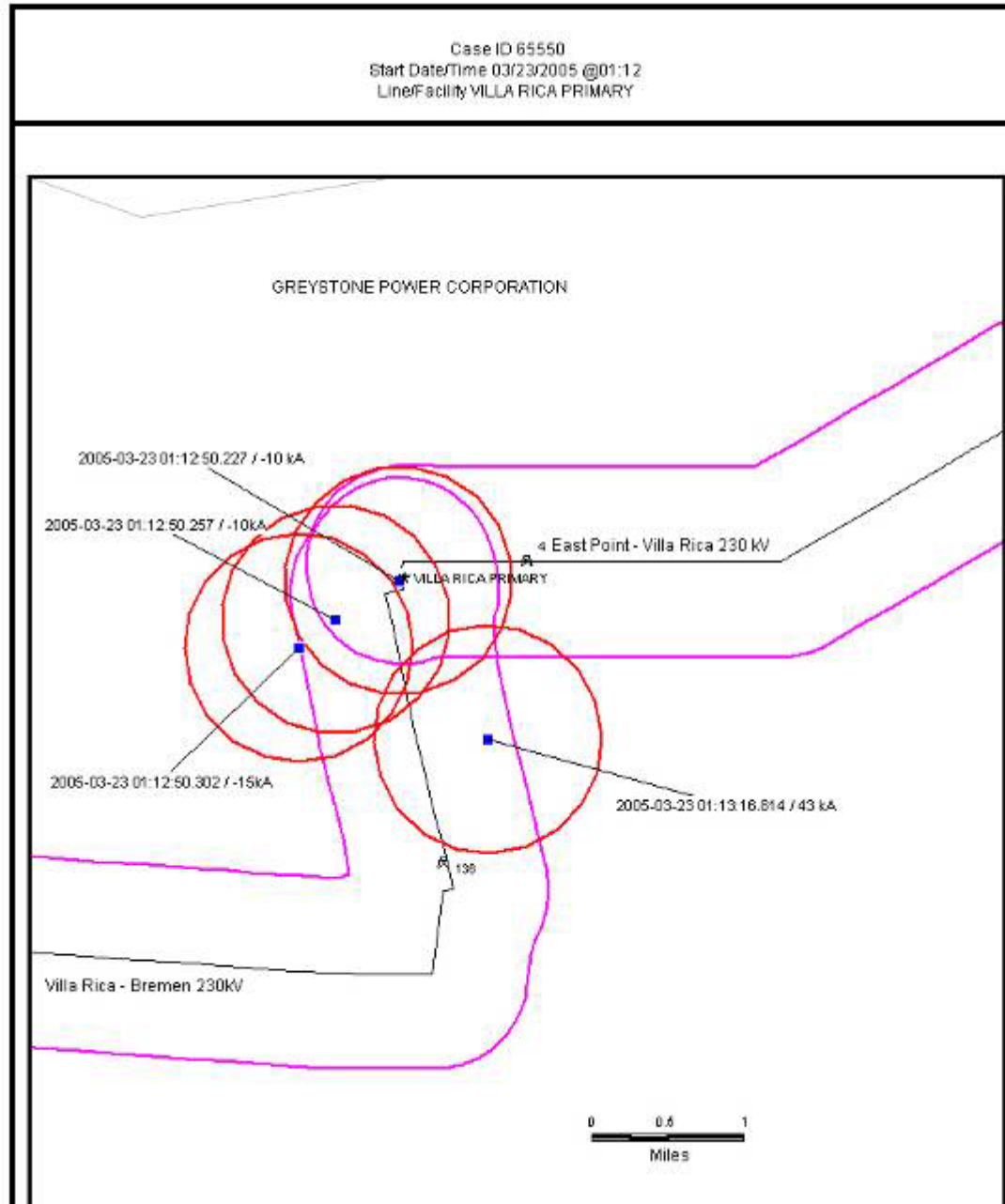
### b) Proposed New Activities:

- 1) Extensive evaluation of modules, inverters & systems in a high lightning environment
  - Failures vs lightning flash correlation
  - Correlation of time & location
  - Real-time data for large (MW+) arrays
  - Substitute TOD meters for small sys
  - Low capital cost scheme

a “Blinding Flash of The Obvious”...



# Highly Accurate Time and Location Correlation





# FY09 Goals and Hopes

## 4. SERES FY09

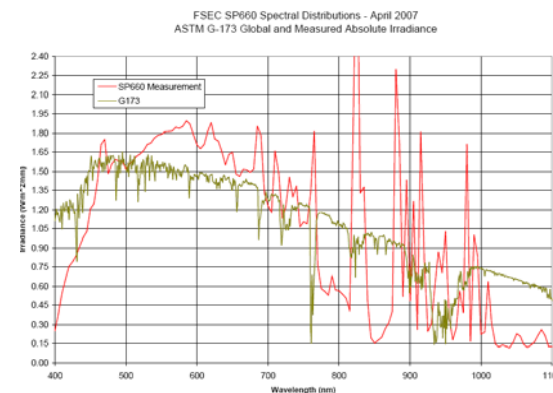
### b) Proposed New Activities:

- 1) Extensive evaluation of large area-systems in high lightning environments
- 2) Utility-scale aggregation of small systems as equivalent peaking units (real-time control/monitor)
- 3) Large-scale Ground-mount designs in land-constrained areas (the east) – linear PV farms on Transmission RoW and highway medians, airport perimeters, etc)
- 4) Automated remote site assessment and design (LIDAR techniques, etc)
- 5) Assessment of utility CSP projects in diffuse light conditions

### c) Proposed New Facilities:

#### 1) Continuous Simulator

- evaluate many junction/layer constructions
- evaluate antireflective/trapping optics
- correlation: module performance pulse vs continuous simulator





# FY09 Goals and Hopes

## 4. SERES FY09

### d) Obstacles and Barriers:

- Technical Staff Recruitment
- Technical Staff Retention

# ***Southeast Region Experiment Station***



Thank You



**Florida Solar Energy Center**



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*Creating Energy Independence Since 1975*



FSEC SP660 Spectral Distributions - April 2007  
ASTM G-173 Global and Measured Absolute Irradiance

