



FLORIDA SOLAR ENERGY CENTER

Creating Energy Independence Since 1975

*Florida's Solar Energy Workforce Development
Programs*

*PAB Meeting
December 11, 2009*

David Block

A Research Institute of the University of Central Florida





Talk Outline



- FSEC Training Program
- Banner Center Program
- DOE Solar Installers Training



History - FSEC Training Programs



- SWH – Began in late 70s – J. Ventre and Doug Root (deceased)
- PV – Began in early 80s – J. Ventre and J. Dunlop



Solar Water Heating Workshop



- Objective: 3-day training for solar water and pool heating installation
- Covers design, installation, troubleshooting, residential and commercial systems
- Offered: 2-3 times/year



PV Workshop



- Objective: Week long course for design and installation of PV systems and equipment.
- Offered: Once per month for past 7 years. Restricted to 25 individuals/course because of lab equipment.



PV Workshop



Manuals used:

- Florida Solar Energy Center. (2008, December). Installing photovoltaic systems. A workshop for electricians and contractors on fundamentals of solar photovoltaic system installation.
- Dunlop, J. (2007). Photovoltaic systems. Homewood, IL: American Technical Publishers, Inc.



PV Course Development Project



Work presently being conducted by J. Ventre:

- Compare existing course with NABCEP task analysis
 - Comparison completed and gaps identified.
- Develop new training modules for
 - 3, 8, 16, 20 and 105-hour programs
- Develop training objectives for train-the-trainer participants



Banner Center Program



- Funded by Workforce Florida, Inc.
- Required collaboration between industry and education
- Concept: PV and SWH Technologies
- Time Period: January 2008 – July 2009



Alternative Energy Banner Center



- Curriculum development with industry input. Center to be industry driven.
- Train-the-trainer program.
- Conduct student training at partner institutions.
- Develop program sustainability.
- Add more training partners.



Alternative Energy Banner Center



Six partners:

Tallahassee Community College

Brevard Community College

Broward College

Westside Technical School

Brevard Work Force Development Board

Florida Solar Energy Research and Education Fnd.



Alternative Energy Banner Center



Other community colleges trained:

- Indian River State College, Ft. Pierce
- Lely Construction Academy, Venice
- Valencia Community College, Orlando
- Florida Keys Community College, Key West



Training Results



Faculty Trained - 28

Westside Tech - 75

Tallahassee Community College - 78

Brevard Community College - 83

Broward College - 52

TOTAL - 316

And 28 faculty members now can train many more!



DOE Solar Installer Instructor Training for the Southeast



- Awarded October 2009
- Five year effort
- Part of national network
- Partner states and territories in Southeast



DOE Solar Installer Instructor Training for the Southeast



Eight Training Partners:

- Alabama
- Arkansas-?
- Florida
- Georgia
- Louisiana
- Tennessee
- Kentucky
- Puerto Rico
- U.S. Virgin Islands



DOE Solar Installer Instructor Training



National Network:

- Mid-Atlantic
- Northeast
- Southeast
- South Central
- Rocky Mountain states
- West Coast



DOE Planned Program Activities



- Establish Advisory Board
- Develop Curriculum
- Develop Lab Training Procedures
- Train-the-Trainer
- Train Students at Regional Sites
- Establish Communications
- Develop Portable Training Equipment



Regional and Community College Training Problems



- Equipment
- Equipment
- Equipment
- No funds for purchase of training equipment.



Training Equipment Needs



- Complete PV systems – modules, inverters, BOS components, batteries
- Differing vendor equipment
- Mounting hardware
- Tools
- Safety equipment
- Cost estimate = \$35,000 for one
- Multiple systems needed



Second Training Problem



- Industry and workforce recognized completion certificate

- Existing license/certification
 - State construction industry licensing board
 - NABCEP certificate
 - Industry certificate/apprenticeship or ??



Workforce Analysis Results



Results for Florida, Georgia, Alabama, Louisiana, Mississippi, Arkansas, Virgin Islands, Puerto Rico

- SE solar industry (present time)
 - 5,000 jobs and value of \$282 million
- SE solar industry (20 years)
 - 130,000 jobs and value of \$32 billion
- Total area population = 47 million



Florida Solar Energy Center



A Research Institute of the University of Central Florida

