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# Developing an Implementation Plan for the Arkansas MSRI Coalition Workshop Summary - Final Report

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# **Developing an Implementation Plan for the Arkansas MSRI Partnership**

## **Workshop Summary**

**Prepared by the  
Florida Solar Energy Center and Sandia National Laboratories**

**August 14, 2000**

### ***Workshop Information:***

Date: July 26, 2000  
Time: 8:30 a.m. – 4:30 p.m.  
Location: Little Rock Public Library  
100 Rock Street  
Little Rock, Arkansas

### ***Attendees:***

William Ball, Stellar Sun  
Chris Benson, Arkansas Energy Office  
Steve Eichorn, Little Rock Housing Authority  
Helen Franklin, City of Little Rock, Public Works Department  
Wendell Jones, City of Little Rock, Public Works Department, Chair and Host  
Karen McSpadden, National Center for Appropriate Technology  
Cindy Milazzo, University of Arkansas at Little Rock  
L. V. Moya, City of Little Rock, Public Works Department  
Gene Terry, American Institute of Architects  
Jessie Trigleth, City of Little Rock, Public Works Department  
Bob Turner, City of Little Rock, Director, Public Works Department

### ***U.S. Department of Energy Representative:***

Dwight Bailey, Atlanta Regional Office

### ***Instructors:***

Hal Post, Sandia National Laboratories  
Jennifer Skislak Szaro, Florida Solar Energy Center  
Jerry Ventre, Florida Solar Energy Center

### ***References/Workshop Materials:***

1. Workshop manual entitled *Implementing a State or Community Photovoltaic Buildings Program*, Florida Solar Energy Center, March 2000.

2. *Florida Photovoltaic Buildings Program: Status Report, Observations and Lessons Learned*, FSEC-CR-1150-00, prepared for Sandia National Laboratories, Florida Solar Energy Center, Cocoa, Florida, March 1, 2000.

## **Section 1. Introduction; Identifying the Needs of the Partnership**

### ***Topics Presented:***

- See reference 1, section 1, pp. 1-3, and reference 2, p. 7.

### ***Participant Responses:***

- Arkansas has relatively few utilities that will be affected by the program. Entergy is the largest. Others include Southwest Electric Power (AEP), Oklahoma Gas and Electric, Empire Electric, and 17 rural electric cooperatives.
- Utility concerns are primarily associated with reliability issues and deregulation.
- Higher fuel costs may spur increased levels of interest in solar and renewable technologies.
- The solar thermal market is relatively small and the grid-tied PV market has yet to develop.
- Natural gas is readily available for space heating and water heating.
- A need exists for consumer education and greater public awareness of the benefits of solar and renewable technologies.
- A need exists for state or other subsidies to accelerate the commercialization of solar systems. Currently there are none.
- Although rarely practiced, interrupting the supply of electricity to selected users is a demand-side management option available in Arkansas.
- Restructuring of utilities will begin in 2002.
- The threat of outside competition may cause Arkansas utilities to increase their activities in solar and renewable energy technologies.
- The MSRI partnership needs to be expanded throughout the entire state with Little Rock as the hub.
- An effective communication network needs to be established for a statewide MSRI partnership.
- Solar and renewable energy technologies must be viewed as high priorities within the state.
- Options for generating revenue need to be identified.

### ***Recommendations:***

- The State of Arkansas needs to take a strong position in terms of policy, funding and management in support of the Arkansas MSRI partnership.
- If possible, state funds should be allocated to kick start the partnership by subsidizing the installation of solar systems.
- The active participation of Arkansas utilities should be enlisted to facilitate the development of a grid-tied PV buildings market.

## **Section 2. Setting Goals**

***Topics Presented:***

- See reference 1, section 1, pp. 3-4, 36-37, and reference 2, pp. 7-8.

***Participant Responses:***

- Arkansas has established an MSRI goal of 500 system installations by 2010.
- Achieving passage of H.B. 2125, which is a renewable energy bill, is a goal of the Arkansas MSRI partnership.
- A discussion of PV system costs led to a breakdown of approximately \$4/watt for modules, \$1/watt for inverters, \$1/watt for other balance of system components, \$1/watt for small UPS battery subsystems, and \$2/watt for installation. In addition, transaction costs may be high (say typically \$2/watt), thus resulting in installed system prices of \$10/watt or higher. More generally, prices around the nation vary between \$7/watt to over \$15/watt for grid-tied systems. Because of relatively large battery subsystems, stand-alone PV systems are typically more expensive than grid-tied systems. A partnership goal is to expand markets by reducing prices without sacrificing industry profits.
- Other goals of the Arkansas MSRI Partnership are: increased public awareness of solar and renewable energy technologies, subsidies for solar installations, funding and incentives for solar education, solar education for city employees, solar demonstrations on public buildings, active utility participation in the partnership, state seed money for solar projects, state network of stakeholders and influential partners, funding for low-income solar applications, and definition of key partner roles and responsibilities.

***Recommendations:***

- Establish a realistic, achievable goal for solar installations over the next three years (say 40 - 100 systems) as a near-term focus for the partnership.
- Actively pursue utility support and participation in a solar for schools program, with assistance from a local school district, the Arkansas Energy Office and the Arkansas Department of Education.
- Identify and increase awareness of existing solar systems throughout the state.
- Develop strategically located solar showcase projects on government and/or public buildings to demonstrate government leadership in promoting solar applications.

### **Section 3. Identifying Applications**

***Topics Presented:***

- See reference 1, section 1, pp. 7-17, and reference 2, pp. 2-3, 8-14.

***Participant Responses:***

- Applications identified included bus shelter lighting, schools, government buildings, low-income housing, and model homes.

***Recommendations:***

- Arkansas should pursue applications involving solar on schools because of the high visibility and because of the value added by the curriculum component that can be introduced into the classroom. Utilities and private industries in other states have been receptive to supporting these applications. Curricula, teaching materials, and teacher training opportunities are readily available.
- Arkansas and Little Rock government agencies should take the lead in pursuing solar installations on public buildings. This sends a clear message to the public of the importance and high priority associated with pursuing clean, renewable energy.

**Section 4. Matching Applications with Customers and End Users**

***Topics Presented:***

- See reference 1, section 1, pp. 18-25, and reference 2, pp. 2-3, 8-14.

***Participant Responses:***

- Suggested end users for solar applications included utilities, schools, government agencies (federal, state, local), and builders.

***Recommendations:***

- Application should be made for FEMP funds for solar installations on federal buildings and facilities. The DOE Atlanta Regional Office can offer assistance in this area.
- Utilities should be strongly encouraged to buy, install, operate and maintain PV systems on buildings as part of distributed generation experiments.

**Section 5. Assigning Partnership Roles and Responsibilities**

***Topics Presented:***

- See reference 1, section 1, pp. 4-7, 36-37, section 2 (entire), and reference 2, pp. 3-4, 14-17.

***Participant Responses:***

- Bill Ball offered to provide technical support to the partnership.
- The University of Arkansas at Little Rock offered to investigate funding to support projects and subsidize installations.
- The AIA and the Arkansas Energy Office offered to take lead roles in education and marketing.
- The City of Little Rock and the Arkansas Energy Office agreed to share responsibilities in organizing and managing the partnership.

***Recommendations:***

- Arkansas should take advantage of the large number of materials that have been developed by

various organizations to help educate the public about solar energy and market solar thermal and electric systems.

- The Atlanta Regional Office of DOE should be consulted about opportunities for receiving FEMP funds for solar projects on government buildings and in national parks.
- The Arkansas Energy Office should pursue state funds to buy down a portion of the costs of solar systems. This will help to kick start the program.
- Representatives of the Arkansas partnership should attend one of the DOE-sponsored financing workshops.
- The solar industry in Arkansas should play an active and organized role in marketing the MSRI partnership.

## **Section 6. Identifying Key Issues and Overcoming Barriers**

### ***Topics Presented:***

- See reference 1, section 1, pp. 9-11, 36-37, section 3 (entire), and reference 2, pp. 4-5, 17.

### ***Participant Responses:***

- The following issues and barriers were discussed: net metering, interconnection requirements, system prices, utility acceptance and participation, lack of familiarity with solar technologies, fear of change, and the need for education on the benefits of solar applications among the dispersed rural population.

### ***Recommendations:***

- Because of the early stage of development of the grid-tied PV market, the Arkansas partnership may want to pursue a joint venture relationship involving the utility company and a PV manufacturer. Some of the manufacturers have developed packaged systems together with marketing programs specifically for utility partners. This approach avoids many problems associated with establishing a new industry infrastructure.

## **Section 7. Ensuring and Improving Quality**

### ***Topics Presented:***

- See reference 1, section 1, pp. 26-28, sections 4, 5, 6, 7 and 9 (entire), and reference 2, pp. 5-6, 17-19.

### ***Participant Responses:***

- Quality measures discussed included: module testing and rating, system design review and approval, installer training and certification, acceptance testing, code official training, site surveys and analyses, technical specifications for procurement, and system inspection and troubleshooting.

***Recommendations:***

- The Arkansas partnership should establish quality requirements consistent with those being implemented in other states and viewed favorably by the national laboratories.
- Arkansas should take advantage of system approvals being performed by other states for packaged PV systems.

**Section 8. Collecting Information and Data for Planning and Decision Making**

***Topics Presented:***

- See reference 1, section 1, pp. 29-33, section 8 (entire), and reference 2, pp. 6, 19-20.

***Participant Response:***

- Topics discussed included monitoring performance and collecting reliability and cost data.

***Recommendations:***

- To provide utilities, businesses and the general public with data they need to plan and make prudent decisions, the Arkansas partnership should include a simple approach to performance monitoring in their program plan. For example, installing simple watt-hour meters on the ac output of the inverters provides information needed to assess the value of the PV system over time.
- More comprehensive data from other states may be used to complement the data collected from Arkansas installations. Together, the data should be useful to prospective buyers, end users and investors.

**Section 9. Sharing, Learning and Improving**

***Topics Presented:***

- See reference 1, section 1, pp. 33-37, section 10 (entire), and reference 2, pp. 6-7, pp. 20-21.

***Participant Responses:***

- Topics discussed included the use of databases, web pages and the Internet to make information more readily accessible and usable to larger audiences.

***Recommendations:***

- Arkansas should consider developing a web site for the partnership to facilitate networking and sharing information and lessons learned.
- In the interim, information and data from web sites such as those for the federal Million Solar Roofs Initiative ([www.eren.doe.gov/millionroofs](http://www.eren.doe.gov/millionroofs)), Sandia National Laboratories ([www.sandia.gov](http://www.sandia.gov)), the National Renewable Energy Laboratory ([www.nrel.gov](http://www.nrel.gov)), the Interstate Renewable Energy Council ([www.irecusa.org](http://www.irecusa.org)), the Florida Solar Energy Center ([www.fsec.ucf.edu](http://www.fsec.ucf.edu)), and other solar energy research and education institutions may prove useful to the partnership.