

## Hearing Charter

### COMMITTEE ON SCIENCE AND TECHNOLOGY SUBCOMMITTEE ON ENERGY AND ENVIRONMENT U.S. HOUSE OF REPRESENTATIVES

#### Research, Education and Training Programs to Facilitate Adoption of Solar Energy Technologies

Tuesday, June 19, 2007  
10:00 a.m. – 12:00 a.m.  
2318 Rayburn House Office Building

#### Purpose

On Tuesday, June 19, 2007 the House Committee on Science & Technology, Subcommittee on Energy and Environment will hold a hearing to receive testimony on the Discussion Draft sponsored by Rep. Giffords which establishes several important research, education, and training programs to facilitate the adoption of solar energy technologies.

This bill addresses issues in solar research, education, and training not covered by the Energy Policy Act of 2005. These include a research and development program on thermal energy storage technologies for concentrating solar power, a study to determine the necessary steps to integrate concentrating solar power plants with the regional and national electric grid, a program to ensure that a sufficient number of people are properly trained to install and maintain solar energy equipment, and the establishment of a solar energy research and information program, modeled on similar such programs for the beef and dairy industries. The program is supported by pooling funds from the private sector for the research and promotion of the solar power industry as a whole.

This hearing will seek to address the following issues relating to the discussion Draft:

- Is thermal energy storage technology important to the viability of concentrating solar power? Would the increased research and development on thermal storage proposed significantly accelerate the advancement of this technology?
- Would a study on how to integrate concentrating solar power plants with the regional and national electric grid be useful?
- Is there a sufficient number of people trained to install and maintain solar energy equipment to meet the current and future needs of the solar industry? Are such programs necessary or useful for prospective solar panel installers and potential consumers?
- How would the solar research and information program for the solar industry authorized in the bill help to support research and promote the adoption of solar power across the nation?

## **Background**

The Discussion Draft contains 4 basic components, as described above. The first 2 are specifically related to concentrating solar power (CSP). A 2006 report by the Western Governors' Association assessed the overall near-term potential for CSP capacity in the American Southwest, taking into account areas of high solar ray intensity, near-level land, non-sensitivity to CSP use, and proximity to transmission. The resulting set of potential plant sites totaled 200 GW of potential power production. To put this in perspective, the electric generating capacity of the entire United States is currently about 1,000 GW. Some significant challenges remain to widespread implementation of CSP, however.

CSP plants produce electric power by converting the sun's energy into high-temperature heat using various mirror configurations. The heat is then channeled through a conventional generator. These plants consist of two parts: one that collects solar energy and converts it to heat, and another that converts heat energy to electricity. Thermal energy storage technology allows this heat to be retained for later use in generating electricity, such as during periods of passing clouds or into the evening. The Energy Policy Act of 2005 establishes a CSP research and development program, but storage is not included in the language. Section 3 of the Discussion Draft authorizes a program dedicated to advancing research and development in thermal energy storage for CSP. Section 4 of the Discussion Draft tasks the Department of Energy (DOE) with conducting a study on methods to integrate concentrating solar power with regional electricity transmission systems, and to identify new transmission or transmission upgrades needed to bring electricity from high concentrating solar power resource areas to growing electric power load centers throughout the United States. The results of this study will help define a roadmap for large-scale implementation of CSP to meet the nation's growing energy needs.

The other two components of Discussion Draft address the solar industry in general. Having a certified, well-trained workforce to install and maintain solar energy products is critical to the success of the industry. Some states, such as New York and Florida, working with local community colleges, businesses, the Interstate Renewable Energy Council (IREC), and the North American Board of Certified Energy Practitioners (NABCEP) have recently established successful programs to create a workforce to meet local demand, however there is currently no federal program to help establish or improve these training programs across the nation. Section 5 creates such a program, authorizing \$10 million in each year from FY08 through FY12. This section instructs DOE to ensure sufficient geographic distribution of training programs nationally, and to only award grants for programs certified by the Institute of Sustainable Power or equivalent industry-accepted quality-control certification institution, or for new and growing programs with a credible path to certification.

A successful model for promoting a particular U.S. commodity, rather than an individual brand, has been demonstrated by the agriculture industry. Funded entirely by a small portion of industry revenues and overseen by the USDA, organizations such as the Cattlemen's Beef Promotion and Research Board and the National Dairy Board were created to coordinate mutually beneficial research efforts and increase awareness of their industry as a whole, as well as ensure that consumers knew the proper certification standards to seek out before making a purchase. Modeled after these examples, Sections 6-13 create the Solar Industries Research and Promotion

Board, overseen by DOE, which would similarly plan and conduct mutually beneficial solar industry research efforts, increase awareness of solar as an energy option across the nation, and ensure that consumers know what certifications a technician should have for installation or maintenance of solar energy equipment. The Solar Energy Industries Association (SEIA) has expressed a strong interest in creating such a program.

### Witnesses

- **Mr. Herbert Hayden** is the Arizona Public Service (APS) Solar Technology Coordinator. Mr. Hayden will testify on how thermal storage research and development and the bill's proposed studies on grid integration and water usage will help advance the implementation of concentrating solar power.
- **Mr. Rhone Resch** is the President of the Solar Energy Industries Association (SEIA). Mr. Resch will testify on how the proposed research and information for the solar industry would help to support research and promote the adoption of solar power across the nation.
- **Ms. Jane Weissman** is the Executive Director of the Interstate Renewable Energy Council (IREC), and the Vice-Chair of the North American Board of Certified Energy Practitioners (NABCEP). Ms. Weissman will testify on the current status of workforce training in solar installation and maintenance across the country, and the need for a national solar workforce training program.
- **Prof. Joseph Sarubbi** is the Chair of the Building Systems Technology Department at Hudson Valley Community College. Prof. Sarubbi will testify on his ground-level experience in creating a solar workforce training program, including his partnership with local businesses and the State of New York in developing a successful curriculum.
- **Dr. David Arvizu** is the Director of the Department of Energy's National Renewable Energy Laboratory. Dr. Arvizu will testify on the DOE's current solar research and development activities, and on his views regarding the proposed legislation.