



SOUTH ASIAN ENERGY EXECUTIVES EVALUATE U.S. POLICIES, STRATEGIES, INCENTIVES & TECHNOLOGIES FOR RENEWABLE ENERGY

Under the South Asia Regional Initiative for Energy (SARI/Energy) Partnership Program, funded by the U.S. Agency for International Development (USAID), eleven executives from Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan & Sri Lanka met in the U.S, April 21 – 30, 2008 to review the use and integration of renewable energy in the U.S. power sector.

The USAID/SARI/Energy program promotes energy security in South Asia through three activities areas: (1) cross border energy trade, (2) energy market formation, and (3) regional clean energy development. Through these activities, SARI/Energy facilitates more efficient regional energy resource utilization, works toward transparent and profitable energy practices, mitigates the environmental impacts of energy production, and increases regional access to energy. SARI/Energy countries include: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.



Sacramento Municipal Utility District – U.S. Leader in Renewable Energy

Above: SMUD, the sixth largest publicly owned utility in the country in terms of customers served, provided the delegation with an overview of their technical integration of renewable technologies such as **wind, solar and biomass/landfill gas power** along with strategies implemented to promote of renewable energy. Delegates also visited SMUD’s **Solar Powered Hydrogen Fuel Station** used to fuel SMUD’s own vehicle fleet.



Delegates at the SMUD 80 MW Solano Wind Farm

During the eight-day exchange, the South Asian delegates visited with representatives from state and federal government agencies and advocacy organizations to discuss government policies, strategies and incentives for project financing, and the use of portfolio standards to expand renewable energy deployment, as well as commercially proven renewable energy technologies.



PG&E Energy Center

Above: Pacific Gas & Electric (PG & E), one of the largest combination natural gas and electric utilities in the United States, hosted the delegation to discuss **technical integration of renewable energy** into the system; challenges & strategies to meet **renewable energy standards; project development; and tactics to promote of renewable energy**. Delegates toured the **Pacific Energy Center**, funded by California utility ratepayers, and offers educational programs, building performance measurement equipment, design advice, electronic energy resources, and research assistance to building professionals.



Denver Federal Center Solar Park

Left: Douglas Porter, Project Manager of the Denver Federal Center offers a tour of the **1 MW photovoltaic park**, which provides approximately 1,600,000 kWh, or about the same amount of power as 145 homes per year.



U.S. Department of Energy's National Renewable Energy Laboratory

Left: SARI/Energy delegates tour the Solar Energy Research Facility.

Right: NREL's has conducted **solar and wind mapping** for a number of SARI/Energy countries, including Afghanistan (shown), Maldives, Pakistan, and Sri Lanka. Mapping for Bhutan will begin the summer of 2008.



Federal Energy Regulatory Commission

Right: FERC is an independent agency that regulates the interstate transmission of natural gas, oil, and electricity. FERC also regulates natural gas and hydropower projects. Discussion focused on FERC's role in regulation of renewable energy, strategies for removing regulatory barriers to renewable energy development, oversight for integrating new technologies, and formation of standardized regulation of non-synchronous energy sources.



Colorado Ethanol Production Facility

Left: Steve Wagner, Vice President, Energy Process Systems of Merrick & Company provides an overview of the ethanol recovery project. Merrick & Company partnered with Coors Brewing Company to purchase a brewing-residual waste stream from the brewery and upgrade it to fuel-grade ethanol under a long-term contract for Colorado's Front Range Clean Air Program. The plant produces **three million gallons per year of fuel-grade ethanol**.



Below: The CEC, the state's primary energy policy and planning agency, provided an overview of their aggressive **20% by 2010 renewable portfolio standard** and the various programs developed to help meet that goal, including the **California**

Solar Initiative for 3,000 MW of new solar by 2016 and the State Bioenergy Action Plan to meet a 20% target within the established state RPS goals.

California Energy Commission



California Public Utilities Commission

The California PUC described the **state's role in Renewable Portfolio Standard** policy and compliance, including the **California Solar Initiative**.

American Wind Energy Association

Below: AWEA is the national trade association for wind energy. Robert Gramlich, Policy Director & Mary Kate Francis, Policy & Legislative Associate of the AWEA met with the South Asians discuss its programs to **promote wind energy**, current challenges facing the wind sector and strategies to meet those challenges, and the role of industry associations play in developing renewable energy policies and markets.

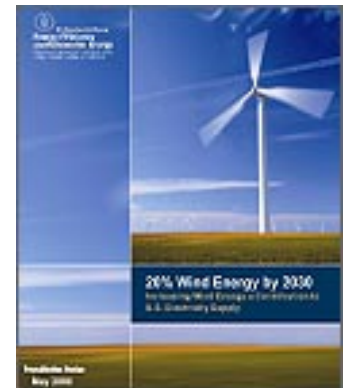


U.S. Department of Agriculture Renewable Energy

Above: South Asian executives meet with the USDA to discuss **current initiatives to promote the use of renewable energy to support rural development**.



The **U.S. Department of Energy Office of Energy Efficiency and Renewable Energy** provided an overview of current renewable energy legislation and initiatives, including the solar energy initiative designed to speed adoption of low-cost concentrating solar power (CSP) technologies into the marketplace.



The **Solar Energy Industries Association** is the national trade association for the solar industry. SEIA works to expand markets, strengthen research and development, remove market barriers, and improve education and outreach for solar. SEIA provided an overview of the current challenges facing the solar energy sector & strategies to meet those challenges.

Results:

The SARI/Energy executives will be able to apply numerous lessons-learned in the process of moving to a electricity market that encourages development of renewable power. Specific outcomes of the exchange are listed below:

- Afghanistan hopes to apply regulation practices of Building Integrated Photovoltaic Electric System (BIPVES) for small scale installation in Afghani urban areas, as well as adopting technical functions of Denver Federal Center's 1 MW grid-tied PV system for a similar installation to be built on a smaller scale, as well as
- Bhutan met with U.S. Department of Energy's National Renewable Energy Laboratory to finalize the technical scope of the upcoming USAID-funded wind and solar mapping of Bhutan.
- Bhutan hopes to adopt tax incentives measures used in the U.S. in their own renewable energy policies development, which is set to take place within the next year.
- The World Bank provided input into Sri Lanka's planned compact fluorescent lamp (CFL) program to reduce peak demand. The Bank expressed their willingness to assist Sri Lanka in establishing financing of the program through carbon financing. The World Bank also agreed to help Sri Lanka identify a partner to develop some of the capacity identified by the recent NREL wind mapping study.
- Sri Lanka hopes to adopt time-of-day tariffs as well take-up an accounting structure which applies different rates to different fuel sources.

SARI/E Executive Peer Exchange Participants:

Afghanistan

- Engr. Shakibullah Hedayat Rustaqi, Electrical Engineer, Renewable Energy Department, Ministry of Energy & Water

Bangladesh

- Mr. S. M. Formanul Islam, Director, Legal and Company Secretary, Infrastructure Development Company Limited
- Mr. Kaisar Ahmed, Director, Renewable Energy, Rural Electrification Board

Bhutan

- Mr. Mewang Gyeltshen, Officiating Head, Renewable Energy Division, Department of Energy, Ministry of Economic Affairs
- Mr. Karma Tshering, Officiating Head, Planning and Coordination Division, Department of Energy, Ministry of Economic Affairs

Maldives

- Mr. Shafeeq Ismail, Executive Director, Ministry of Finance and Treasury

Nepal

- Dr. Govind Raj Pokharel, Executive Director, Alternative Energy Promotion Center
- Dr. Jagan Nath Shrestha, Professor and Director, Center for Energy Studies, Institute of Engineering, Tribhuban University

Pakistan

- Dr. Akhtar Awan, Member Energy, Planning Commission, Government of Pakistan

Sri Lanka

- Mr. T.M. Herat, Additional Secretary (Technical), Ministry of Power and Energy
- Mr. K.K.A.C. Samarasinghe, Director General, Sri Lanka Sustainable Energy Authority

For more information, contact Sarah Blanford at sblanford@usea.org.