



SOUTH ASIAN EXECUTIVES MEET WITH U.S. REGULATORS & UTILITIES TO DISCUSS ELECTRICITY REGULATION BEST PRACTICES & PROMOTION OF RENEWABLE ENERGY & ENERGY EFFICIENCY

USEA EXECUTIVE EXCHANGE IN ALBANY, NEW YORK & WASHINGTON, D.C.

Under the South Asia Regional Initiative for Energy (SARI/Energy) Partnership Program, funded by the U.S. Agency for International Development (USAID), nine executives from Bangladesh, Nepal, Pakistan, and Sri Lanka met in Albany, New York and Washington, D.C., September 21 – 25, 2009, to participate in a South Asia Regional Regulation Partnership Executive Exchange. The exchange was organized and conducted by the U.S. Energy Association (USEA) to broaden the participants' understanding of best practices in (1) regulatory agency organizational structures and operations, (2) tariffs and rate setting mechanisms, (3) consumer affairs, and (4) policies and financing mechanisms that promote renewable energy, including renewable portfolio standards and other incentive programs.

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.

EXECUTIVE EXCHANGE HIGHLIGHTS

The South Asian regulators met with their counterparts at the New York and Delaware Public Service Commissions and the Federal Energy Regulatory Commission, as well as participated in a number of visits to discuss renewable energy and energy efficient programs, including hydro, solar, wind and biogas installations, and smart-grid connected residential properties.



Above: South Asian electricity officials visit the **New York State Public Energy Research & Development Authority (NYSERDA)**. NYSERDA is a public benefit corporation whose aim is to help New York meet its energy goals in reducing energy consumption, promoting the use of renewable energy sources, and protecting the environment. NYSERDA is primarily funded through a system benefits charge allocated towards **energy-efficiency programs, research and development initiatives, low-income energy programs, and environmental disclosure activities.**

Wind Energy



Left and below: Delegates visited the **Munnsville Wind Farm**, owned by **EON Climate and Renewables** and operated by **GE Energy**. The wind farm is composed of 23 turbines, each of 1.5 MW, for total of 34.5 MW total capacity. Start generating at 3.5 meters/second.

GE Energy in Schenectady, New York provided the delegates with an outline of their global operations, including renewable generation, and an overview of the U.S. power sector. GE Energy is one of the world's leading suppliers of power generation and renewable energy technologies, operating in 100 countries worldwide.



Off-Grid Distributed Generation



Left: **Plug Power** offers two GenSys **fuel cell systems** that provide continuous power in distinct applications. The low-temperature GenSys fuel cell system provides remote, off-grid, and primary power where grid power is unreliable or non-existent. Plug Power Energy India Pvt. Ltd. and SFO Technologies have begun the manufacturing and supplying of Plug Power's GenSys fuel cell systems in India.

Energy Efficient Lighting



Left: The **Lighting Research Center (LRC)**, an internationally recognized research center, hosted the delegation to discuss its state-of-the-art lighting technologies, programs and advance research. LRC, which is part of Rensselaer Polytechnic Institute, serves as a knowledge partner to the **South Asian Regional Center for Energy Efficient Lighting**, recently launched by **USAID's SARI/Energy program** and the **Sustainable Energy Authority of the Government of Sri Lanka**.

Solar Home in Arlington, Virginia

Scott Sklar, The Stella Group's founder and president, demonstrated his solar home in Arlington, Virginia which has solar water heating, passive solar building features (including double-paned, argon-filled windows, LO/MIT thermal barrier paint in the attic, R38 insulation), energy efficient fixtures and appliances (such as Whirlpool Cabrio washer), 1.2 kW of Solarex polycrystalline photovoltaics and 0.5 kW of UniSolar 'peal-and-stick' modules on a metal-seamed roof on the front porch, and a 24 gel cell battery bank tied to a Xantrex SWPlus inverter. The house boasts Virginia's first direct exchange (geothermal) ground-coupled heat pump. The Stella Group's Virginia office building has 1 kW of UniSolar photovoltaic roofing shingles, a 3.6 kW GridPoint smart battery bank, a 0.5 kW small wind turbine by Southwest Windpower, solar daylight tube, and has the first commercial lease of a 5 kW Plug Power fuel cell (running on recycled industrial hydrogen in canisters) tied to a dedicated Xantrex inverter.



Above: Scott Sklar demonstrates his **Plug Power hydrogen fuel cell**.



Left: House in Arlington, Virginia fitted with solar, geothermal, and wind.

Pumped Storage



Dr. Narayan Chaulagain, Executive Director of the Nepal Alternate Energy Promotion Center (AEPC) visited the Blenheim-Gilboa Pumped Storage Power Project, a facility owned and operated by the New York Power Authority. Pumped storage serves as a special type of hydroelectric facility that acts as a giant energy-storage device. Nestled beneath 2,000-foot-tall Brown Mountain, the project generates more than one million kilowatts of electricity in peak demand periods by drawing water from a nearby creek and recycling it between two huge reservoirs.

Optimizing Power in the Grid through Smart Grid Technologies



Right: **Current Group** provided the delegation with a tour of a residential home retrofitted with Smart Grid technologies. Smart Grid applications optimize power in the grid flow through communication with end users to impact their consumption decisions, thus leading to the most efficient and reliable delivery of electricity and lower electricity bills.



Federal & State Electricity Regulation



Delegates met with representatives from the **Federal Energy Regulatory Commission (FERC)**. The Federal Energy Regulatory Commission, or FERC, is an independent agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines as well as licensing hydropower projects. Following discussions on the role of regulation in the promotion of renewable energy and energy efficiency, regulation of independent power producers & regional transmission operators, and arbitration and dispute resolution, the delegation toured the Market Monitoring Center.



Left: **New York State Public Service Commission** hosted the delegation to review the PSC’s organization and functions, the dichotomy of authority between federal and state regulation, as well as its energy efficiency and renewable energy measures. New York state has a renewable portfolio standard of 24% by 2015.



Left: David Bonar, Government Services Administrator/Ombudsman for the **Delaware Public Service Commission** met with the delegates to discuss the Commission’s role in ensuring safe, reliable and reasonably priced cable, electric, natural gas, wastewater, water and telecommunications services for Delaware consumers. Mr. Bonar also highlighted policies promoting renewable energy, energy efficiency and energy conservation to meet its Renewable Portfolio Standard of 20% by 2019.

Grid Operation

Right: Delegates met with the **New York Independent System Operator (NYISO)** – manager of New York’s electricity transmission grid – a 10,775-mile network of high-voltage lines that carry electricity throughout the state and serves 19.2 million New Yorkers and overseer of the wholesale electricity markets. The state’s geographic location means that the NYISO serves as the pivot point for the cross-border transfer of electricity to and from the Northeastern U.S. and Canada.



PARTICIPATING ORGANIZATIONS

- Current Group
- Delaware Public Service Commission
- Federal Energy Regulatory Commission
- GE
- New York Independent System Operator
- New York Power Authority's Blenheim-Gilboa Pumped Storage Power Project
- New York State Public Energy Research & Development Authority
- New York State Public Service Commission
- Plug Power Inc.
- Rensselaer Polytechnic Institute (RPI) Lighting Research Center
- The Stella Group, Ltd.

RESULTS

- Pakistan delegates expressed interest in learning more about the potential use of **GE Energy's** LMS100 gas turbine. GE's Dubai office is working with Pakistan to see how they can best assist the country in meeting their generation demands.
- At the request of the SARI/E participants, **NYSERDA** shared their recent draft energy plan for greater energy efficiency and renewable energy integration.
- Mr. Maqbool Ahmad Khawaja, Member, National Electric Regulatory Authority (NEPRA) requested **Current Group** to provide a demonstration on the potential applications and benefits of smart grid technology, particularly on the distribution level, in Pakistan's electricity sector to Karachi Electric Supply Company or NEPRA. Mr. Khawaja also requested Current Group's assistance in establishing a smart grid pilot project in Pakistan, to assist the country in overcoming their enormous energy demand gap.
- Bangladesh delegates also requested **Current Group** to meet with Bangladesh utility representatives to discuss potential applications and benefits of smart grid technology to their country.
- The Sri Lankan delegates conducted a three-day concentrated study tour of the **Rensselaer Polytechnic Institute (RPI) Lighting Research Center (LRC)** to examine other potential programs for the Regional Centre for Energy Efficient Lighting in Colombo.
- The **Rensselaer Polytechnic Institute (RPI) Lighting Research Center (LRC)** showcased energy efficient lighting systems, including public lighting (i.e. street lighting), that could be applied in the South Asian countries relatively easily and provide large-scale impacts in energy efficiency and cost savings.
- Pakistan and Bangladesh plan to initiate discussion on the potential application of **Plug Power fuel cells** for off-grid and unreliable grid areas to replace diesel generators as a power source to save money and lower GHG emissions.

SARI/E EXECUTIVE EXCHANGE PARTICIPANTS

Bangladesh

- Mr. Zaved Choudhury, Director (Gas), Bangladesh Energy Regulatory Commission
- Mr. Md. Haronur Rashid, Deputy Director (Power), Bangladesh Energy Regulatory Commission

Nepal

- Dr. Narayan Chaulagain, Executive Director, Alternate Energy Promotion Center (AEPC)
- Mr. Iswar Singh Thapa, Joint Secretary, Water and Energy Commission Secretariat

Pakistan

- Mr. Maqbool Ahmad Khawaja, Member, National Electric Regulatory Authority (NEPRA)
- Mr. Yawar Ali, Chairman, Lahore Electric Supply Company (LESCO)

Sri Lanka

- Mr. MMC Ferdinando, Secretary, Ministry of Power & Energy
- Mr. Upali Daranagama, Additional Secretary (Planning & Development), Ministry of Power & Energy

USAID

- Mr. Sher Khan, SARI/Energy Country Coordinator, USAID/Bangladesh

For more information, contact Sarah Blanford at sblanford@usea.org or visit www.sari-energy.org.