FEATURED ACCOMPLISHMENTS FOR THE QUARTER

LAUNCH OF REGIONAL CENTRE FOR EXCELLENCE IN MICRO HYDRO, NEPAL

USAID’s SARI/Energy Program and the Nepalese Ministry of Environment’s Alternative Energy Promotion Centre (AEPC) launched the Regional Centre of Excellence in Micro Hydro (RCEMH) on 19 April 2010 in Kathmandu. RCEMH will draw on Nepal’s 25+ years of micro hydro experience and assemble experts from Afghanistan, Bangladesh, Bhutan, India, Maldives, Pakistan and Sri Lanka to promote micro hydro development throughout South Asia. For many years Nepal has been using micro hydro to provide energy to remote low-income populations with few conventional energy options. AEPC has installed some 607 projects that generate 7.2 MW benefiting 70,000 families. It has another 645 projects in the pipeline that will add 19.5 MW of installed capacity in Nepal.

Presiding over the launch ceremony were the Nepalese Ministers the Honourable Mr. Surendra Pandey, Ministry of Finance, and Honourable Mr. Thakur Sharma, Ministry of Environment. Dr. Kevin A. Rushing, Mission Director, USAID Nepal; Mr. S. Padmanaban, Regional Program Director, SARI/Energy, USAID India; and, Dr. Narayan Prasad Chaulagain, Executive Director, AEPC also participated. Before the ceremony, AEPC hosted an exhibition on micro hydro equipment featuring Pelton turbines, electric control panels, control and testing equipment. Literature and training materials were on display. More than 200 people visited the exhibition, which drew an enthusiastic response.

The RCEMH will operate on a self-sustaining basis, offering clients a proven methodology and a results-oriented management approach that incorporates high staff training levels, quality outputs and knowledge sharing. It will work to fulfil the knowledge and experience gap among policy makers and act as a knowledge centre for the micro hydro sector in the SARI/Energy region.

REGIONAL WORKSHOP ON MICRO HYDRO PROJECTS

Often, the successes in the micro hydro sector are not well known. Policy makers, project developers, investors, financing institutions and other stakeholders are not fully aware of the contribution micro hydro makes in the extension of energy availability to rural communities.

USAID’s SARI/Energy Program partnered with the Regional Centre of Excellence in Micro Hydro (RCEMH) for a four-day regional workshop. Sixteen participants from SARI/Energy countries learned about the latest developments in micro hydro power, the role of micro hydro in poverty remediation and rural electrification in Nepal, the establishment of micro hydro markets, and how to promote the development of micro hydro. A full-day site visit to micro hydro power plants enabled the participants to meet and interact with the local communities and helped them to understand the fundamentals of community mobilizations and the benefits reaped by such communities through micro hydro projects.
EXECUTIVE EXCHANGE ON CARBON CAPTURE AND STORAGE, AND CLEAN COAL TECHNOLOGY

As part of a new SARI/Energy Regional Clean Coal and Carbon Capture and Storage Partnership, four delegates from Bangladesh, Pakistan and Sri Lanka participated in an executive exchange focused on current carbon capture and storage (CCS) approaches for mitigating the contribution of fossil fuel emissions from power generation.

Delegates attended the Ninth Annual Carbon Capture and Sequestration Conference. Sponsored by Exchange Monitor Publications and Forums in partnership with the National Energy Technology Laboratory, the conference attracted a record crowd of more than 850 participants from 21 countries. Keynote speakers included US Assistant Secretary of Energy for Fossil Energy James Markowsky, Global Carbon Capture & Storage Institute CEO Nick Otter, Minnesota Public Utility Commission Chairman David Boyd, and Duke Energy Chief Technology Officer David Mohler. They explored the full range of issues facing CCS, from regulatory and transportation, to public outreach and financing. In addition, more than 300 technical papers were presented on the latest in CCS research and technology development.

Following the conference, the delegates visited American Electric Power’s (AEP’s) 1300 MW Mountaineer Power Station in West Virginia. In September 2009, the Mountaineer Power Station became the first U.S. project that both captures and sequesters carbon dioxide emissions from a coal-fired power plant. The Mountaineer CCS project demonstrates the effectiveness of the chilled ammonia process for carbon capture and the efficacy of sequestration in the local geology. The project is a critical industry milestone for electric utilities that need to dramatically reduce their carbon footprint.

Over the course of the exchange, the delegates discussed the policy, regulation, design, engineering, construction, logistics, and operations of CCS projects, including AEP’s Mountaineer project. The South Asian delegates were presented with the current successes as well as the challenges still facing the industry in the field of CCS – lessons that will assist the South Asian region’s efforts to develop effective carbon policy.
NATIONAL RENEWABLE ENERGY LABORATORY (NREL)

NREL is planning clean energy workshops to be held in Dhaka, Bangladesh and Kathmandu, Nepal in August 2010 to present, discuss, and obtain feedback from stakeholders on NREL’s activities under SARI/Energy for the 2010 fiscal year. These workshops will include official launches of the enhanced Geospatial Toolkits (GsTs) for Nepal and Bangladesh and a presentation of NREL’s analysis of available wind data for the identification of sites for future wind monitoring programs.

NREL’s GsT is a map-based software application that integrates resource data and geographic information systems (GIS) for integrated resource assessment for renewable energy applications. The GsT was developed with an aim of removing informational barriers to renewable energy deployment, and its intended user group ranges from policy makers to energy engineers. Under SARI/Energy, NREL has been redeveloping the GsT to improve the user-friendliness and usefulness of the tool in helping stakeholders make decisions about clean energy development. The Nepal and Bangladesh GsTs will house the solar and wind data developed for these countries under the Global Environment Facility’s Solar and Wind Energy Resource Assessment (SWERA) programme by the German Aerospace Institute (solar data) and Risø National Laboratory (wind data). The new GsT interface will increase accessibility to the underlying resource data and includes new analytical features, including expanded query options for both wind and solar. At the clean energy workshops, NREL will train clean energy stakeholders on how to use the GsT to plan for future renewable deployment. The GsT can be downloaded from http://www.nrel.gov/international/geospatial_toolkits.html

NREL’s wind resource assessment team has also been analyzing all wind data available for both countries to make recommendations for future wind programs. Wind monitoring is resource- and time-intensive but a requirement for large-scale wind development. NREL’s aim with this activity is to help in-country stakeholders identify sites with high potential for grid-quality wind resource. The findings from NREL’s analysis will be presented at the workshop and feedback will be solicited from the wind energy stakeholders in each country for further refinement.

Workshop dates are 19 and 20 August in Katmandu, Nepal and 23 and 24 August in Dhaka, Bangladesh.

AFGHANISTAN CAPACITY BUILDING PROGRAMS
TRAINING PROGRAM ON METERING TECHNOLOGIES AND SYSTEMS

SARI/Energy continued its capacity building work for the Afghanistan power sector with a two-week program designed for fifteen professionals from the DABS utility associated with metering and revenue management, operations, vigilance, and enforcement. The program on metering technologies and systems increased the knowledge and skills of the participants. The course emphasized metering technologies, calibration practices, metering standards, revenue protection practices, and metering information integration, analysis and application. The course was conducted at the campus of Yadav Measurements Pvt. Ltd (YMPL), Udaipur, India, from 17 through 30 May 2010.
The program covered the following topics:

1. Principles of electrical energy (both active and reactive) flow, measurement of power and energy in single- and three-phase circuits
2. Static (electronic) meter design and workings, software features and implementation
3. Various International standards applicable to energy meters, calibration and testing of energy meters, meter test systems and good laboratory management in meter test laboratories
4. Tampering and fraud issues, detection of tampers and recording of tamper data in meters, and how to use this information for billing and assessments
5. Installation practices for safe and reliable operation of meters and making metering systems less prone to tampering.

Two-thirds of the course was devoted to hands-on and practical sessions as per the desires of DABS. The course met its objective of imparting hands-on training to the professional of DABS.

AFGHANISTAN CAPACITY BUILDING PROGRAMS
SKILL-BASED DEVELOPMENT PROGRAM ON TRANSFORMERS

This two-week skill-based training course on transformers provided 10 participants from DABS, Afghanistan with hands-on experience with power distribution transformers at the premises of a transformer manufacturing company in India. The course was conducted by the Central Institute of Rural Electrification (CIRE), Hyderabad, in association with the Indian Electrical Equipment Manufacturers Association (IEEMA).

The objectives of the program were to:
- Familiarize the participants with the construction of power distribution transformers
- Emphasize the operation, maintenance and protection aspects of transformers
- Provide practical, hands-on training on the installation, commissioning and periodic testing of distribution transformers.
SMART GRID

The SARI/Energy Program sponsored 7 participants from Afghanistan, Bhutan, Maldives, and Nepal to attend the International Conference on Smart Grids that was organized by USAID India under its Distribution Reforms, Upgrade and Management Project (DRUM). The conference was held in Delhi, India on 1 and 2 June 2010. The conference focused on practical application of the smart grid. The peer discussions and exercises targeted the challenges and issues facing the smooth rolling out of smart grids world-wide. The conference focused on practical applications.

This conference created a new forum for and actively engaged and sensitized an entire community of regulators, utility providers, government bodies and technology providers that has, until now, lacked a focal point for smart grids. The conference provided an opportunity to interact with international experts and key industry thought leaders sharing their perspectives and opinions on the challenges in meeting increasing power demands and the business and technology issues facing the electric power industry. The conference also sensitized the audiences on a smart grid vision for India’s power sector.

Open forums and discussions were held on the possible next steps for development of road map.

WIND ENERGY EXCHANGE PROGRAM

A wind energy exchange program, along with a two-day of workshop on the Regulatory and Policy Framework for Market Development for Renewable Energy (MDRE), was organized on 8-11 June 2010. The workshop covered the policy frameworks, financial structuring and risk management instruments germane to the renewable energy sectors of the South Asia region. This program had twelve participants from six SARI/Energy countries: Afghanistan, Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka. Following the workshop, the participants were exposed to the Indian wind energy sector through visits to the following sites:

1. Participants were taken to the Suzlon wind energy site at Coimbatore (Southern India). At the site the participants saw the various versions of wind turbines and their integration into the local power grid.

2. The second site visit was to the Centre for Wind Energy Technology (C-WET) in Chennai. C-WET is a research and development institution of the Ministry of New and Renewable Energy (MNRE), Government of India. C-WET is a knowledge-based institution which offers a variety of services in the field of wind energy and seeks complete solutions for the entire spectrum of the wind energy sector by carrying out research and development on wind energy, wind resource assessments, testing of turbine units, standards and certification, training, and distributing the latest information on wind energy.
Through this two-day workshop and the two-day site visit, the participants became involved in the challenges and opportunities surrounding the renewable sector. The entire program was an educational experience on the development of the renewable sector, especially wind energy.

**QUANTUM LEAP IN WIND ENERGY**

SARI/Energy continued to support wind energy development in the region by sponsoring six participants to attend the Asian Development Bank’s clean energy conference, “Quantum Leap in Wind Power in Asia: A Structured Consultation,” held at the Bank’s headquarters in Metro Manila, Philippines from 21 through 25 June 2010. The main focus of the meetings between the SARI/Energy delegates and those from different organizations were to:

- Understand the current developments in wind power projects in Asia and build relationships with country policy makers, project stakeholders and developers
- Evaluate ways in which SARI/Energy and the Asian Development Bank can collaborate on wind energy development.

The objective of the conference was to foster networking between conference delegates and counterparts in ASEAN countries, other organizations, NGOs, and other stakeholders involved in wind power projects as well as overall clean energy delivery.

Several SARI/Energy countries are now interested in developing wind energy road maps as well as a series of joint consultative activities, capacity building and project support activities to increase the number and size of wind energy projects.

A SARI/Energy-sponsored regional workshop on wind energy project development, including road maps, is scheduled for 21 through 24 September 2010 in Colombo, Sri Lanka.

**WOMEN IN SUSTAINABLE ENERGY RESEARCH (WISER)**

WISER developed and submitted a concept proposal in response to a call for funding requested by US Secretary of State Hilary Clinton’s Foundation for empowering women and girls through innovative project and program ideas. The next step is to develop a full proposal for funding with appropriate budget, once the concept note receives an acceptance from the Rockefeller Foundation (RF). The RF is handling the proposal reviews on behalf of the Secretary’s office.

**SMALL GRANTS PROGRAM**

SARI/Energy continues to monitor the progress of projects undertaken by grantees during Rounds I and II. Round I is nearing closure and site visits for monitoring and evaluation are planned for the fall of 2010.
ISLAND / ATOLL INTERCONNECTION PRE-FEASIBILITY STUDY AND CARBON-NEUTRAL PLAN, MALDIVES

In the Maldives, the SARI/Energy Island/Atoll Interconnection Pre-Feasibility Study and Carbon Neutral Plan has been adopted by the National Planning Council. The local utility, STELCO, has established a project implementation unit. SARI/Energy will now develop an investment options study, draft tender documents, and provide ongoing technical assistance during the project development process. The report is available on the SARI/Energy web site.

LED LIGHTING SEMINAR FOR SOUTH ASIAN MANUFACTURERS

The Regional Centre for Lighting (RCL), along with its knowledge partner, the Lighting Research Centre (LRC) of Rensselaer Polytechnic Institute of Troy, NY, USA, successfully conducted a three-day seminar and training on LED (light emitting diode) technology, operation, and application for lighting system and electronic component manufacturers in South Asia during the period 29 June through 01 July 2010, in Colombo, Sri Lanka. The training was designed to meet the needs of engineers, technicians, product designers and developers concerning electrical, optical, thermal, and other issues involved in the design, development, and manufacture of LED lighting systems and subsystems.

Professor N. Narendran, Mr. Jean Paul Freyssinier, Doctor Yiting Zhu, and Mr. Asiri Jayawardena from the Lighting Research Centre, and Professor Rahula Attalage of the University of Moratuwa, Colombo, presented an interactive seminar that included lectures, hands-on demonstrations of lighting technologies and workshop sessions. Fourteen participants representing the South Asian lighting industry took part in the seminar.

The Honourable Minister of Power and Energy of Sri Lanka, Mr. Patali Champika Ranawaka, was the chief guest for the closing ceremony. Other dignitaries included Mr. M.M.C. Ferdinanado, Secretary, Ministry of Power and Energy; Ms. Rebeca Cohn, Mission Director of USAID Sri Lanka; the Chairman, the Board of Directors, the Director General, and senior officials of the Sri Lanka Sustainable Energy Authority (SLSEA); the Chairman, the General Manager, and senior officials of the Ceylon Electricity Board (CEB); and heads of the lighting companies.

ONGOING AND FORTHCOMING ACTIVITES

Cross-Border Trade

PA continued to support regional cross-border trade with a full slate of activities this second quarter of 2010. In the Maldives, the SARI/Energy Island/Atoll Interconnection Pre-Feasibility Study and Carbon Neutral Plan has been adopted by the National Planning Council and STELCO has established a project implementation unit. PA now plans to complete an investment options study, draft tender documents, and provide ongoing technical assistance during the project development process. For Pakistan, PA continued with providing advisory
services to the Ministry of Water and Power (MOWP) Central Asia – South Asia (CASA 1000) working group.
For Sri-Lanka, PA has is making final plans for the training and development program in power systems simulation for Ceylon Electricity Board (CEB) staff.

Clean Energy Access


Capacity Building Program for Accounts (21st through 31st August, 2010): This is a program planned to help the participants from Maldives, Nepal and Sri Lanka understand the financial and accounting issues that arise in the unbundling and restructuring of a vertically-integrated electricity board into separate and autonomous business units for generation, transmission, and distribution. The program plan to have a series of structured consultations with leading electric companies in India that have previously completed such restructuring. The program is scheduled for 21st through 31st August, 2010.

500 kV Back-to-Back HVDC Training: The first week of this three week course is class room training on the basic principles and working of high voltage direct current (HVDC) systems, the advantages over AC transmission, costs and economics, rectifying and inverting, and configurations of HVDC substations and lines. The next two week will be hands-on training at actual, operating installations at two back to back HVDC systems at 500 kV substations.

Energy Markets


Afghanistan Capacity Building Program

The following courses are planned.

Program on Distribution Loss Reduction: This two week course on distribution loss reduction covers both the technical and the commercial losses in power distribution systems. The course is being conducted at the campus of the Central Institute for Rural Energy (CIRE), Hyderabad. CIRE has partnered with several utilities of Andhra Pradesh and in Uttar Pradesh to provide the participants a hands-on, practical experience of the distribution systems and its best practices with regards to loss reduction. This course will be held the 26th July though the 07th August, 2010 in Hyderabad.

Metering and Metering Systems: This four week metering course is conducted by the Yadav Measurements Pvt Ltd. The course will be held the 30th August through 11th September, 2010 in Udaipur.

The schedule for the following courses will be established in the near future.

- Switchgear
- Cables
- System Protection (Relaying)
- Distribution System Maintenance and Operations
ABOUT SARI/ENERGY

USAID’s SARI/Energy program promotes energy security in South Asia through three activity areas:

1) Cross-border energy trade
2) Energy markets
3) Regional clean energy access.

Through these activities SARI/Energy facilitates more efficient regional energy resource utilization, works towards 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. SARI/Energy implementing partners include PA Government Services, the United States Energy Association (USEA), and National Renewable Energy Laboratory. SARI/Energy provides support to partners and stakeholders on pre-feasibility studies, technical assistance, advisory services, training, peer exchanges, mapping and project development in each of the three core areas.

SARI/Energy Daily News Roundup

USEA distributes a daily bulletin of energy-related news from the SARI/Energy countries, along with notices of SARI/Energy activities and special events. The bulletin is distributed via email and includes web links to related articles. To receive the South Asia Energy Daily Online News Roundup contact: sarienews@usaid.org

SARI/Energy Web Page

For current information on SARI/Energy activities, please visit the web page: www.sari-energy.org

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