



2012  
**ANNUAL REPORT**  
UNITED STATES ENERGY ASSOCIATION

*Cover photos:*

*Left: (c) Penn State Marcellus Center for Research and Outreach (MCOR)*

*Right: (c) Anthony (Tony) Bitonti*

# TABLE OF CONTENTS

FROM THE DESK OF OUR CHAIRMAN	2
BOARD OF DIRECTORS	3
MEMBERSHIP	4-5
BROADENING ENERGY SECTOR RELATIONSHIPS	6
INCREASING THE UNDERSTANDING OF ENERGY ISSUES	7
FACILITATING BUSINESS IN THE U.S. AND ABROAD	8
PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS	9
IMPROVING RELIABILITY & EFFICIENCY	10-11
CLEAN ENERGY INTEGRATION	12-13
ENERGY SECURITY & TRADE	14-16
CONTRIBUTING TO STRATEGIC NATIONAL GOALS	17-18
SUPPORTING THE WORLD ENERGY COUNCIL	19
HONORING INDUSTRY LEADERS	20



# FROM THE DESK OF OUR CHAIRMAN

CHAIRMAN



May 30, 2013

Dear USEA Members & Friends,

Thank you for your continued support of the United States Energy Association. As we look back on 2012, USEA has again fulfilled its principal mission of serving as the U.S. Member Committee of the World Energy Council. In this capacity, USEA addressed growing regional energy demands at the 3<sup>rd</sup> Annual WEC North American and Latin America & Caribbean Bi-Regional Forum in Cancun, Mexico. We also advanced the agenda of the WEC Cleaner Fossil Fuels Systems Committee Secretariat, as well as other committees, through several meetings and workshops. USEA looks forward to contributing to the success of the 2013 WEC Congress in Daegu, South Korea.

USEA sustained its global reach through our enduring partnership with the United States Government on a variety of international energy issues. Among our cooperative programs with the U.S. Department of Energy, U.S. Agency for International Development, and the U.S. Trade and Development Agency, USEA advanced the interests of our members while supporting our nation's international energy objectives.

Domestically, USEA held 44 informational events on such topics as shale gas, carbon capture utilization and sequestration (CCUS) and clean energy technologies, among many others. These programs consistently contributed to a greater understanding among energy sector stakeholders of the complex web of issues impacting our industry.

Lastly, we continue to enjoy financial stability and a balanced budget – once again conducting our activities without increasing membership dues. USEA looks forward to a challenging but successful 2013.

Thank you for your continued support.

Sincerely,

Jack E. Futcher  
President – Oil, Gas & Chemicals  
Bechtel Corporation

VICE CHAIR



COUNSEL



TREASURER



# BOARD OF DIRECTORS



Gregory Aliff  
Vice Chairman, Senior Partner, Energy  
& Resources  
Deloitte LLP



Merribel Ayres  
President  
Lighthouse Consulting Group, LLC



Steven Bolze  
President & CEO  
GE Power & Water



Gerry Cauley  
President & CEO  
North American Electric Reliability  
Corporation



David Dunning  
Group President, Power  
Fluor Corporation



Marvin Fertel  
President & CEO  
Nuclear Energy Institute



Jack Gerard  
President & CEO  
American Petroleum Institute



Michael Howard  
President & CEO  
Electric Power Research Institute



Thomas Kuhn  
President  
Edison Electric Institute



Michael LeClair  
President & CEO  
Babcock Power, Inc.



David McCurdy  
President & CEO  
American Gas Association



Kevin Meyers  
Ret. Senior Vice President  
ConocoPhillips



Marvin Odum  
President & Upstream Americas Director  
Shell Oil Company



Bob Powers  
Chief Operating Officer  
American Electric Power



Hal Quinn  
President & CEO  
National Mining Association



Randall Roe  
Vice Chairman  
Burns & Roe



William (Bill) Rohner  
Vice President, Electric Power Division  
Caterpillar, Inc.



Lydia Thomas  
Ret. President & CEO  
Noblis



Barry Worthington  
Executive Director  
United States Energy Association



Daniel Yergin  
Chairman  
IHS Cambridge Energy Research Associates



Rhonda Zygocki  
Executive Vice President, Policy  
& Planning  
Chevron Corporation

# USEA MEMBERS

Advanced Engineering Associates International  
AECOM International Development, Inc.  
AEGIS Insurance Services, Inc.  
Alexandria Energy Associates, Inc.  
Alstom Power, Inc.  
American Coal Council  
American Council of Engineering Companies  
American Electric Power  
American Gas Association  
American Geological Institute  
American Petroleum Institute  
American Public Power Association  
America's Natural Gas Alliance  
AREVA  
ASME  
Association of Energy Engineers  
ASTM International  
Atlantic Council  
Ausenco Energy  
Babcock Power Inc.  
Baker Botts, LLP  
Battelle Pacific Northwest Laboratory  
Bechtel Group, Inc.  
BHMM Energy Services  
Black & Veatch Corporation  
Bluewave Resources  
BNL Clean Energy Inc.  
Bonneville Power Administration  
BP America  
Brookhaven National Laboratory  
Burns and Roe Enterprises, Inc.  
C5 Pension Administrators, Inc.  
Caterpillar, Inc. (Solar Turbines)  
CenterPoint Energy, Inc.  
CH2M Hill  
Chemonics  
Cheniere Energy, Inc.  
Chevron Corporation  
Clifton Larson Allen, LLP  
Combined Cycle Journal  
Conoco Phillips  
Contour Global  
CRA International  
DA3CO  
DAI  
Decker, Garman, Sullivan and Associates, LLP  
Deloitte & Touche, LLP  
Duane Morris LLP  
Duke Energy  
EDF Inc.  
Edison Electric Institute  
Electric Power Research Institute  
Electric Power Supply Association  
Energy & Mineral Law Foundation  
Energy Future Holdings  
Energy Markets Group, Inc.  
Energy Policy Institute of Australia  
Energy Resources International, Inc.  
Energy Systems & Technology  
Ernst & Young  
ESTA International  
ExxonMobil  
Fluor  
Gas Systems Engineering, Inc.  
Gas Technology Institute  
GDF Suez  
GE Power and Water  
Gee Strategies Group, LLC  
Global Development Opportunities, LLC  
Global Energy Strategies

Gulf Lady  
Henneman Engineering, Inc.  
Hunton and Williams  
IBM Global Business Services  
ICF International  
IHS Cambridge Energy Research Associates  
International Resources Group (IRG)  
Interstate National Gas Association of America  
Johnson Controls, Inc.  
Jordan Capital Management  
K&M Engineering and Consulting, LLC  
King Publishing Group  
KPMG, LLP  
Lawrence Livermore National Laboratory  
Lighthouse Energy Group  
Midwest Reliability Organization  
Minnesota Public Utilities Commission  
Morgan Stanley Dean Witter  
Morgan, Lewis and Bockius, LLP  
National Energy Education Development Project  
National Energy Foundation  
National Mining Association  
National Rural Electric Cooperative Association  
Natural Gas Supply Association  
Nexant, Inc.  
Noblis  
North American Electric Reliability Corporation  
Northern California Power Agency  
Nuclear Energy Institute  
Oak Ridge National Laboratory  
Oliver Wyman Consulting  
Peabody Energy  
Pennsylvania State University  
Petco International LLC  
Planning & Forecasting Consultants  
Plug Power, Inc.  
PricewaterhouseCoopers, LLP  
Public Utilities Commission of Ohio  
Research Triangle Institute Int.  
Robert Donovan  
Sacramento Municipal Utility District  
Shell Oil Company  
Siemens Energy, Inc.  
Solar Electric Power Association  
Solar Energy Industries Association  
Solomon Associates  
Somes International  
Southern Company  
SPX  
SRA International, Inc.  
Strategic Power Systems, Inc  
Summit Energy Group, Ltd.  
Tennessee Valley Authority  
Tetra Tech  
The Abraham Group, LLC  
Total Gas & Power North America  
Triangle Consulting Group  
Troutman Sanders LLP  
U.S. Agency for International Development  
U.S. Department of Energy  
U.S. Geological Survey  
University of Florida - Public Utilities Research Center  
University of Minnesota Duluth  
University of Oklahoma College of Law  
University of San Francisco School of Law  
University of Southern California Energy Institute  
URS Corporation  
Van Ness Feldman, P.C.  
Vinson & Elkins LLP  
West Financial Services, Inc.  
Westinghouse Electric Company

# BROADENING ENERGY SECTOR RELATIONSHIPS



Keynote speaker: Hal Quinn, President & CEO, National Mining Association.



Shale gas panelists (from left): Majida Mourad, Cheniere Energy; Charles Ebinger, The Brookings Institution; Guy Caruso, Center for Strategic & International Studies.



(c) BrightSource Energy

As an educational nonprofit organization, USEA is committed to upholding its mandate as an unbiased forum for energy dialogue. USEA hosts dozens of large and small informational events throughout the year that engage industry experts on issues covering the waterfront of energy fuels, technologies and policies. These events allow USEA to highlight the groundbreaking work being conducted in the U.S. and overseas by its members. They also offer energy sector stakeholders from the Washington, D.C. area and beyond an opportunity to improve their understanding of critical issues facing their sector and the industry as a whole.

## 8<sup>TH</sup> ANNUAL STATE OF THE ENERGY INDUSTRY FORUM

USEA kicked off the year by inviting senior leaders from the energy industry's major trade associations to provide an overview of their priorities for 2012. With the impending election in November, speakers highlighted their organizations' efforts to put energy issues on the ballot. Speakers also addressed a range of cross-cutting subjects impacting numerous energy sectors, including expiring tax provisions, proposed EPA rulemakings, and the use of federal lands for energy development.

## 5<sup>TH</sup> ANNUAL ENERGY SUPPLY FORUM

Another of USEA's flagship events, the Energy Supply Forum offered members of the Washington energy community an opportunity to learn about a range of policy and technological developments affecting U.S. energy supplies. This year's forum focused heavily on technological innovation and energy supply security. Panelists from the oil & gas industry discussed their vision for North American energy security through increased conventional and unconventional resource production. Representatives from universities and research institutions addressed how government-funded energy R&D contributes to energy supply security. Joe Desmond, Senior Vice President of Government Affairs and Communications at BrightSource Energy, discussed how clear, consistent policy frameworks can lay the groundwork for high-tech clean energy investments like his company's Ivanpah concentrating solar power plant (photo at left courtesy of BrightSource Energy).



# INCREASING THE UNDERSTANDING OF ENERGY ISSUES

## USEA BRIEFINGS

Throughout the year, USEA regularly organizes informational briefings on issues that are of interest to our members and the greater Washington, D.C. energy community. We draw from our domestic and international networks of industry experts to orchestrate timely programs on a wide variety of topics. In 2012, USEA hosted 44 informational events, including presentations from the following USEA members:

- Natural Gas
- Deloitte
  - Gas Technology Institute
  - Lawrence Livermore National Laboratory (LLNL)

- Carbon Capture Utilization & Storage
- GE
  - Shell
  - U.S. Department of Energy

- Electric Vehicles
- Electric Power Research Institute (EPRI)

- Renewable Energy
- AREVA Solar

## 23<sup>RD</sup> ANNUAL ENERGY EFFICIENCY FORUM

Hosted jointly by Johnson Controls and USEA for the 23rd consecutive year, the Energy Efficiency Forum convened public and private sector leaders to discuss legislation, policies and business strategies that lower energy consumption and reduce operating costs in buildings. Speakers touched on the value that building efficiency can provide to building owners and energy consumers, as well as the economic and policy drivers that encourage building efficiency. The Forum included a broad representation of government policy makers, including Senator Jeanne Shaheen, State Department Special Envoy and Coordinator for International Energy Affairs Ambassador Carlos Pascual, and White House Climate Change & Energy Advisor Heather Zichal.

**ENERGY  
EFFICIENCY  
FORUM 2012**  
NORTH AMERICA



*Ambassador Carlos Pascual, Special Envoy and Coordinator for International Energy Affairs, U.S. Department of State.*

# FACILITATING BUSINESS IN THE U.S. AND ABROAD

## U.S.-CHINA OIL & GAS INDUSTRY FORUM

Each year USEA supports the U.S. Department of Energy in organizing the U.S.-China Oil & Gas Industry Forum (OGIF). This exclusive annual event brings together government and industry officials from both countries for presentations and discussions on key topics in the oil and natural gas sectors. In 2012, the United States hosted OGIF in San Antonio, Texas. USEA members Chevron, ConocoPhillips, ExxonMobil, and GE sponsored the event and provided key presentations, in addition to Far East Energy, Anadarko, Halliburton, Hess, and Devon.



## FOREIGN DIRECT INVESTMENT FORUM

Given the overwhelming size and diversity of U.S. fossil energy reserves, the United States remains an attractive investment destination for foreign energy companies. The U.S. Department of Energy's Office of Fossil Energy has adopted a goal to work with the U.S. industrial sector and other partners to facilitate foreign investment in U.S. fossil energy projects. To assist DOE and other interested U.S. government agencies, USEA organized a Dialogue on Foreign Direct Investment in the U.S. Fossil Energy Sector. Companies representing the full fossil fuels spectrum participated in this forum, including AEP, Alstom, Duke Energy, GDF SUEZ Energy North America, GE, Global Energy Strategies LLC, Statoil and Unipet USA.

OGIF provides a unique annual venue for America's energy industry leaders to interact with their Chinese counterparts, discuss areas of mutual interest, and work toward improved production and delivery of oil and natural gas. In 2013, China's National Energy Administration will host OGIF in Xian, China. Companies interested in attendance should contact USEA's Andrew Palmateer at [apalmateer@usea.org](mailto:apalmateer@usea.org).

### The U.S. – A Hub for R&D Investment

- ▶ World's Largest Economy – Among the Best Educated and Most Productive Labor Pool
- ▶ Nearly 36% of Global R&D Spending
- ▶ DOE: Commitment to Developing Game-Changing Technologies
- ▶ Commitment to Creating a Global Field to Demonstrate Next Generation Technology
- ▶ Creating "Ground Floor" Opportunities for Collaboration on Advanced Technologies



FOSSIL.ENERGY.GOV 2

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS

To fulfill its obligation of promoting access to reliable and affordable energy worldwide, USEA manages two flagship international development programs:

## ENERGY UTILITY PARTNERSHIP PROGRAM

With funding from the U.S. Agency for International Development (USAID), USEA manages the Energy Utility Partnership Program (EUPP). This program assists developing countries with increasing environmentally sustainable energy production and use, as well as improving the operational efficiency and increased financial viability of their utilities and related institutions. The goal of EUPP is to increase access in USAID-assisted countries to environmentally sound energy services in the following ways:

1. Improving policy and legal frameworks to establish necessary market conditions for the private sector delivery of energy services and environmental management services;
2. Increasing institutional ability to provide or deliver energy and environmental management services in the new and enhanced markets;
3. Increasing public understanding of, and participation in, decisions regarding energy delivery and environmental management services; and
4. Transferring best practices and allowing developing country utilities to benchmark themselves against world standards.



*Participants from Workshop on Clean Energy Development Strategies in East Africa.*



*Jordanian distribution engineers inspecting protective equipment used in hot line maintenance.*



*SECI Working Group inspecting substation at pumped storage hydro plant in Bulgaria.*



*GSE engineers reviewing codes and standards for BPA's transmission towers.*

## ENERGY TECHNOLOGY & GOVERNANCE PROGRAM

USAID and USEA launched the two year Energy Technology and Governance (ETAG) Program for Europe and Eurasia with the following objectives:

1. Plan for robust, reliable cross border transmission interconnections as the backbone infrastructure for cross border trade and exchange of electricity generated by clean and innovative energy technologies;
2. Develop technical rules, guidelines, and network infrastructure assessments to accelerate integration of clean and innovative energy technologies;
3. Support utility commercialization, privatization and market transformation to improve overall network efficiency and support clean energy market development; and
4. Build capacity within regional transmission and distribution system operators to develop climate change adaptation and mitigation emergency response and disaster preparedness programs.

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: IMPROVING RELIABILITY & EFFICIENCY

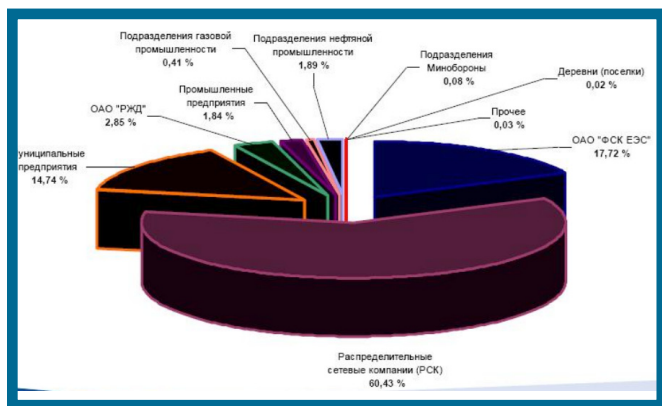


Representatives from the Georgian State Electrosystem tour the Big Eddy-Knight 500kV transmission line construction site near the John Day River Crossing.

## GEORGIA

Bonneville Power Administration (BPA) has entered into a utility partnership program under the guidance of USEA and USAID with the Georgian State Electrosystem to discuss the use and application of BPA's computer-generated design software for transmission tower construction.

In 2012, USEA conducted two exchange visits to BPA. These exchanges demonstrated the use and application of BPA's software, as well as their tower construction standards and techniques. The partnership between the GSE and BPA is designed to help GSE reconductor its network in anticipation of new hydroelectric projects being developed by private investors that will improve Georgia's energy security.



Electricity losses in the Russian power sector.

## RUSSIA

Under the framework of the U.S./Russia Bilateral Presidential Commission's Energy Efficiency Working Group, USEA and its counterparts in the Russian Energy Agency and Russian Energy Forecasting Agency completed the Joint Russian/American Study on Legal/Regulatory, Market, Consumer and Technical Impediments to Smart Grid Technology Deployment. The study used a common analytical framework to identify and assess smart grid impediments in nine key dimensions including: smart grid concepts; markets; efficiency; cross-subsidies; generation; consumer participation; behavioral norms; data and analytics; investment environment; education and grid modernization.



Distribution lines outside Tirana, Albania.

## SOUTHEAST EUROPE

USEA recently launched a new Southeast Europe Distribution System Operator Security of Supply Working Group as a component of the USAID and USEA Energy Technology and Governance (ETAG) program. The working group is modeled after our long running Southeast Europe Cooperation Initiative (SECI) Working Group for transmission system operators in the region. The Working Group is addressing issues of common concern to electric distribution utilities in the region with an emphasis on mutual assistance plans as a climate change mitigation strategy, as well as loss reduction programs, smart grid technology deployment and benchmarking of utility operational best practices.

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: *IMPROVING RELIABILITY & EFFICIENCY*

## JORDAN

In 2012, USEA concluded the four-year Electric Utility Distribution and Transmission Partnership Program, funded by USAID/Jordan. This partnership program aimed to enhance the efficiency of Jordan's transmission and distribution networks through improved planning processes, human resource management and energy efficiency programs. Over the course of the program, Jordan's electric utilities made significant improvements to their technical operations and managerial practices. For example, one distribution company began standardizing its equipment codes and specifications as a result of this partnership, which will lead to greater network efficiency.

In 2012, Jordan's national transmission company NEPCO conducted two executive exchanges to Arizona Public Service (APS) that further explored the issues of integrated resource planning, utility key performance indicators and human resource management.

Jordan's electric distribution companies, EDCO, IDECO and JEPKO, had two exchanges with the Sacramento Municipal Utility District (SMUD). The first exchange focused on best practices in system design and maintenance to improve overall efficiency. The final exchange was a workshop led by SMUD experts who guided Jordanian participants through the process of designing three energy efficiency programs.

## PAKISTAN

USEA implements the Utility Exchange Program component of USAID's Power Distribution Program (PDP) in Pakistan. PDP is a five-year project aimed at working with government-owned electric power distribution companies in Pakistan to improve their performance in the areas of loss reduction, revenue collection and customer service. USEA's utility exchanges enable U.S. and third-country utilities to share practical information, real-world case studies and best practices with their counterparts in Pakistan.

In 2012, USEA brought Pakistani delegations to Australia, the United Arab Emirates and the U.S. to meet with their utility counterparts. Topics included best practices for distribution utilities in engineering, operations and maintenance, commercial operations, customer service, human resources, staff training and change management.



*NEPCO delegates tour an APS-owned 17MW solar photovoltaic plant southwest of Phoenix.*



*Jordanian distribution engineers review plans for reconducting an underground distribution line while accompanying a SMUD maintenance crew.*



*Dominion Virginia hosted senior managers from eight of Pakistan's electricity distribution utilities in Richmond, Virginia to review U.S. best practices in change management, human resource management and employee training.*



*Abu Dhabi Distribution Company hosted a PDP delegation in November 2012 to discuss high-impact, low-cost methods to improve customer service and enhance commercial operations.*

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: *CLEAN ENERGY INTEGRATION*



*Bangladesh Power Development Board members outside GE's turbine manufacturing plant in Greenville, SC.*



*The U.S.-East Africa Geothermal Partnership is currently concentrated on promoting geothermal energy development in Kenya, Ethiopia, Rwanda, Uganda and Tanzania.*

## BANGLADESH

USEA and the Bangladesh Power Development Board (BPDB) established the U.S.-Bangladesh Power Generation Partnership in 2012 with support from the U.S. Department of State and USAID.

The partnership shares best practices for gas turbine power generation operations and maintenance employed by the world's most successful utilities and equipment manufacturers. It augments the knowledge, skills and capacities of Bangladesh's senior-level managers, engineers and plant operators by providing them the opportunity to work with and learn directly from their peers at companies and organizations in the U.S. and internationally.

Expected results are the introduction and implementation of proven utility operations and maintenance best practices, training programs and diagnostic tools.

## EAST AFRICA

The U.S.-East Africa Geothermal Partnership (EAGP), a partnership between USAID and the Geothermal Energy Association (GEA) being implemented by USEA, was established in September 2012 to promote the development of geothermal energy resources in East Africa and to encourage and facilitate the involvement of U.S. geothermal companies and experts in the region.

EAGP sponsored a short course on "The Financing of Geothermal Projects" in November 2012 as part of the 4th African Rift Geothermal Conference (ARGeo-C4) in Nairobi, Kenya. The partnership also assisted in bringing six U.S. companies to Nairobi to make presentations at the conference.

EAGP is currently in the process of rolling out an 11-module training program for Kenya's Geothermal Development Company (GDC). The program will utilize U.S. industry experts to provide classroom training in geothermal project planning, development and implementation for East African geoscientists and engineers.



*U.S. and East African participants learn about planning, managing and financing geothermal projects at a short course from the November 2012 ARGeo Conference in Nairobi, Kenya.*

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: *CLEAN ENERGY INTEGRATION*

## SOUTHEAST EUROPE

The USAID/USEA Southeast Europe Cooperation Initiative (SECI) Transmission System Planning Project supports a regional approach to network planning within the Energy Community of Southeast Europe through the development of common transmission planning tools and methodologies.

Following the completion of the Preparation for Large Scale Wind Integration in Southeast European Power System Study, 18 engineers from SECI Transmission System Operators (TSOs) were trained on wind power plant (WPP) integration and PSS/E Software tools used for modeling wind power.

Currently the project is developing the Reliability Assessment of Southeast Europe Transmission Network study. The assessment measures the impact of ageing transmission network infrastructure on network reliability and the security of supply of electricity. It prioritizes critical transmission network elements needing refurbishment/replacement to ensure system reliability for system operators, regulators, IFIs and donors.



## GLOBAL & REGIONAL WORKSHOP

In 2012, USEA conducted a USAID-funded *Global Workshop on Clean Energy Development: Establishing a Foundation for Low Carbon Energy Systems*. The workshop focused on how energy companies can best integrate low carbon resources into their systems given financial constraints. Senior energy executives from Colombia, the Dominican Republic, El Salvador, Ghana, Indonesia, Mexico and South Africa learned how to formulate plans to address the growing demand for energy while meeting stringent financial, environmental and reliability requirements.

Also, USEA held a *Regional Workshop on Clean Energy Development Strategies* in cooperation with the East African Community Secretariat and with funding from USAID. Conducted in Arusha, Tanzania, the workshop focused on how utilities, regulators, and government agencies implement best practices for clean energy development. Participants and speakers discussed the integrated resource planning process used by electric utilities to plan capacity resources to meet future customer demand.



SECI visits a 375 MW pumped storage Hydro Power Plant Belmeken in Bulgaria.



Global Workshop with Allen Eisendrath, Energy Team Leader, USAID/E3 (4th from right) and Kristen Madler, Clean Energy Coordinator, USAID (2nd from right).

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: ENERGY SECURITY & TRADE



DA AFGHANISTAN BRESHNA SHERKHAT

## AFGHANISTAN

In 2012 USEA launched a U.S.-Afghanistan Utility Partnership for Da Afghanistan Breshna Sherkhata (DABS), Afghanistan's national government utility, in cooperation with USAID's Afghanistan Mission and Bureau of Economic Growth and Trade. The objective of the partnership is to share utility best practices in power generation, transmission, and distribution with DABS. Through a series of executives exchanges with utilities in the U.S. and Asia, the partnership will improve capacities in the Afghan power sector while establishing professional relationships for DABS to draw upon after the conclusion of the program.

## ARMENIA

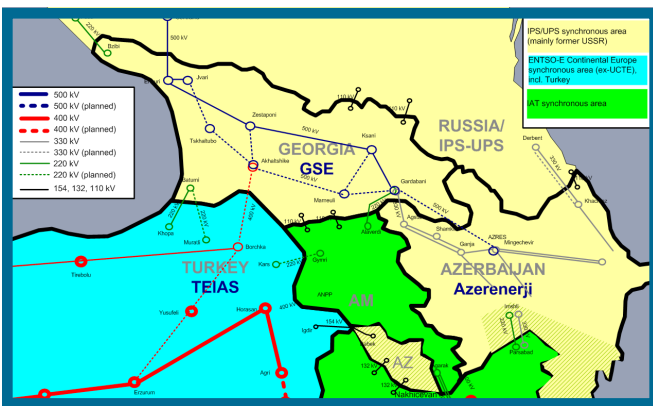
USAID and USEA commenced the new Energy Assistance Program (EAP) for Armenia, a USAID Mission funded initiative as a part of the USAID/USEA Energy Technology and Governance Program. The EAP works with the Government of Armenia to conduct planning studies on integrating its high voltage network with Georgia to take advantage of complementary generation portfolios. The EAP is also supporting Armenia's Ministry of Energy and Natural Resources to harmonize the planning and operating rules and standards governing its transmission network with those of Europe by developing a grid code consistent with European standards.

## AZERBAIJAN-GEORGIA-TURKEY (AGT)

The AGT Project is a sub-regional transmission component of the USAID and USEA Energy Technology and Governance Program supporting clean energy trade and energy security. Recognizing that transparent calculation and publication of cross border transmission capacity, or net transfer capacity (NTC), is the technical foundation needed for investors, electricity traders, TSOs and other wholesale market participants to engage in sub-regional trade of clean electricity, the project is developing a Business Process Manual (BPM) for calculating NTC. The BPM will prescribe a common methodology for calculating and allocating transmission capacity at the border between Azerbaijan and Georgia and at the border between Georgia and Turkey. The methodology is based upon principles already practiced within the Energy Community of Southeast Europe, supporting the integration of the Caucasus with Turkish and European energy markets.



Armenia's transmission network.



AGT Project regional transmission system network.



# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: *ENERGY SECURITY & TRADE*

## BLACK SEA

The Black Sea Regional Transmission System Planning Project (BSTP) supports a regional approach to network planning and optimization among the littoral nations of the Black Sea. It is a program component of the Energy Technology and Governance Program of USAID and USEA. In 2012, the BSTP Project updated its Optimal Power Flow (OPF) Model, which contains the most accurate network forecast model of clean energy development available to the region. Equipped with the OPF model, transmission system operators (TSOs) are working to simulate the economic and technical effects of adding clean energy generators to the regional network generation mix. The model assists TSOs to identify investment required to overcome technical challenges to clean electricity production and trade. TSOs are using the model to prepare studies needed to license and site new projects, assess network investments needed to remove transmission constraints and calculate back-up reserves required to compensate for the intermittent nature of wind and photovoltaic generators.



## ROMANIA-UKRAINE- MOLDOVA

The RUM sub-regional transmission planning project is a component of the USAID and USEA Energy Technology and Governance Program focused on integrating Ukraine and Moldova with the Energy Community of Southeast Europe. The project is conducting the Romania-Ukraine-Moldova Interconnection Study that will provide recommendations for the optimal configuration for the existing, but out of service, 750 kV Soviet era transmission corridor that once connected Ukraine and Romania via a flyover in Moldova. The study evaluates asynchronous, synchronous and island connection scenarios at 750 kV, 440 kV and 220 kV assuming different locations for asynchronous substations in Ukraine, Moldova and Romania. In all scenarios Moldova is interconnected. A significant factor being evaluated is the effect of interconnecting the area of Romania experiencing rapid growth of wind generation.



*RUM Project transmission corridor.*



*BSTP Working Group Meeting in Sofia, Bulgaria, June 2012.*

# PROMOTING RELIABLE & AFFORDABLE ENERGY ACCESS: *ENERGY SECURITY & TRADE*



Group photo from the “South Asia Regional Conference on Policies and Regulation to Increase Cross Border Energy Trade.”



SAPP delegates visit a solar PV rooftop facility at PG&E's Pacific Energy Center.



SAPP delegate reviews electric vehicle charging station at National Grid in Massachusetts.

## SOUTH ASIA

USEA has been an implementing partner and major contributor to the USAID South Asia Regional Initiative for Energy (SARI/Energy) program since its inception in 2000. The SARI/Energy program promotes energy security in South Asia through three focus areas: 1) cross border energy trade, 2) energy market formation, and 3) regional clean energy development. Since 2000, USEA has provided training to over 2,000 South Asian participants from over 750 organizations through 11 Regional Energy Partnership programs focusing on best practices.

USEA's South Asia Regional Energy Partnership Program developed and strengthened long-term relationships among key stakeholders and decision-makers in South Asia. It provided forums to discuss and resolve issues in regional energy development. The partnerships also encouraged the development of policies, regulations and investment frameworks that encourage private sector investment in the region. They assisted in improving operations and management both nationally and regionally. The program was implemented through a series of executive exchanges and conferences held in South Asia and internationally.

In 2012, USEA organized two regional conferences on cross border energy trade for almost 150 delegates from Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

## SOUTHERN AFRICA

Through funding from USAID/Southern African Region, USEA began a partnership with the Southern African Power Pool (SAPP).

The objective of the partnership is to build capacity among senior representatives from SAPP country utilities through training programs in the U.S. and other countries on transmission system operations. The USEA – SAPP partnership will encompass executive exchanges focusing on energy efficiency, ancillary markets and transmission pricing.

The initial activity was an “Executive Exchange on Energy Efficiency and Demand Side Management” held for the members of the SAPP Demand Side Management Working Group. The exchange involved a week of activities hosted by energy utilities and companies in Boston and San Francisco from July 29 to August 4, 2012.

# CONTRIBUTING TO STRATEGIC NATIONAL GOALS

## DOMESTIC FOSSIL ENERGY COOPERATION

### *CCUS IN CALIFORNIA*

USEA, with support from the U.S. Department of Energy, the Global CCS Institute, the U.S. Carbon Sequestration Council and the California CCS Coalition, hosted a workshop on “California Opportunities for Carbon Capture, Utilization and Storage and Enhanced Oil Recovery: Challenges & Policy Requirements.” The purpose of the workshop was to discuss policy and regulatory issues concerning carbon capture, utilization and storage and the role of CO<sub>2</sub> in enhanced oil recovery.

### *TEACHER TRAINING ON CCUS*

Since 2009, USEA has collaborated with the National Energy Education Development (NEED) Project to develop a curriculum on carbon capture and storage for primary and secondary school teachers. With support from the U.S. Department of Energy, USEA and NEED have developed teaching modules and course materials for science teachers to introduce students to the science behind CCUS. In 2012, USEA supported 7 workshops across the U.S. for teachers to be trained to teach the above mentioned CCUS curriculum.

## INTERNATIONAL FOSSIL ENERGY COOPERATION

### *U.S.-CHINA FOSSIL ENERGY PROTOCOL*

Established by an official protocol signed by the U.S. and Chinese governments in the year 2000, the U.S.-China Fossil Energy Protocol is an executive-level bilateral meeting between the U.S. Department of Energy and China’s Ministry of Science and Technology. This annual event serves as an opportunity for U.S. and Chinese fossil energy stakeholders to report back to present progress reports on joint research and development programs aimed at reducing emissions from fossil energy, developing new power system technologies and developing unproved resources.

### *U.S.-NORWAY MEMORANDUM OF UNDERSTANDING*

In August 2012, USEA hosted the U.S. Department of Energy and the Royal Norwegian Ministry of Petroleum and Energy for a workshop used to outline future areas of bilateral collaboration between the U.S. and Norway on fossil energy research. Representatives of both governments provided overviews on current projects being undertaken by private and public entities in each country. Major topics discussed included enhanced oil recovery, large-scale carbon capture and storage and mapping of stored CO<sub>2</sub>.



*California CCUS Workshop.*



*Science teachers participating in CCUS training.*



*U.S.-China Fossil Energy Protocol.*



*U.S.-Norway MOU Workshop.*

# CONTRIBUTING TO STRATEGIC NATIONAL GOALS



## CARBON SEQUESTRATION LEADERSHIP FORUM (CSLF)

As part of the Carbon Sequestration Leadership Forum (CSLF) Capacity Building Task Force, USEA offered assistance to countries that had been approved for capacity building activities. The requests were submitted by CSLF member countries for approval by the Task Force and funding by the Capacity Building Governing Council. USEA assisted in managing three activities in Brazil, three activities in China and two activities in Mexico.

### BRAZIL

USEA sponsored the following training courses throughout 2012:

1. Carbon Capture and Geological Storage in an Offshore Environment (conducted by PETROBRAS);
2. Capacity Building on Monitoring and Environmental Impacts Assessments of CCS Projects in Developing Countries [conducted by Pontificia Universidade Catolica do Rio Grande do Sul (PUCRS)]; and
3. Carbon Capture Applied to Mineral Coal Combustion and Gasification Process [conducted by the Associacao Brasileira do Carvao Mineral (SATC)].



Carlos Henrique Araujo, PETROBRAS, presenting on offshore CCS activities being conducted by his company.

### CHINA

All three activities in China will be managed and conducted by the Administrative Center for China's Agenda 21 (ACCA21). The first activity was to establish the first bilingual website in China focusing on Carbon Capture, Utilization, and Storage Technology. It will be used as a platform to share knowledge and experiences. The website went live in September 2012 and can be accessed at: <http://www.ccuschina.org.cn/English/Default.aspx>.

Following the establishment of the website, ACCA21 conducted two workshops in China on Experience Sharing among Main CCS Demos and Pilots and Regulatory and Legal Issues for CCS Technology Development.



Chinese homepage of ACCA21's website on CCUS Technology.

### MEXICO

To facilitate the introduction of CCS into the curriculum offered by the Institute of Engineering at the National University of Mexico (UNAM), the Electric Research Institute (IIE) conducted two workshops for graduate students and professors on CO<sub>2</sub> Geological Storage, enhanced oil recovery (EOR) and CO<sub>2</sub> Storage.

IIE submitted an additional request to the Task Force to sponsor the attendance of three individuals to the GHGT-11 conference in Japan. Their attendance at the conference afforded them the opportunity to gain a better perspective on the worldwide efforts being made in CCS.

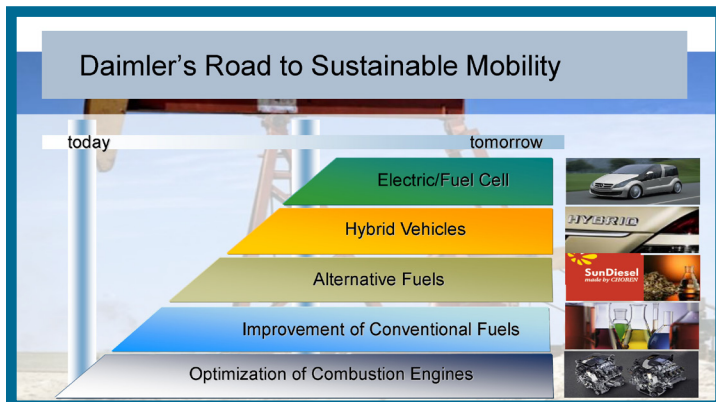
# SUPPORTING THE WORLD ENERGY COUNCIL

USEA is the U.S. Member Committee of the World Energy Council, the world's foremost multi-energy organization. With members representing 94 countries and over 3,000 organizations, including most major energy consumers and producers, WEC is the preeminent forum for international discussion and dialogue on global energy affairs. Its mission is "to promote the sustainable supply and use of energy for the greatest benefit of all people."

In 2012, USEA co-organized the World Energy Council Bi-Regional Forum in Cancun, Mexico with support from the Energy Council of Canada and the WEC Mexico Committee. The Bi-Regional Forum fostered an exchange of ideas on cross-cutting topics being debated in the Americas, such as end-use energy efficiency and conservation, alternative energy integration, energy transport networks and the future of fossil fuels. Participants from the United States included representatives from Alstom Power Inc., USA, Black & Veatch, CenterPoint Energy, Daimler, the Electric Power Research Institute, GDF SUEZ Energy North America, Johnson Controls and VHB Engineering.

During 2012, the World Energy Council Cleaner Fossil Fuels Systems (CFFS) Knowledge Network continued their objective of promoting the cleaner and more efficient use of fossil fuels, including unconventional hydrocarbon resources, and the development and deployment of carbon capture and storage.

The Knowledge Network held their annual meetings to identify clear ways of promoting public awareness of critical regional and global issues and collaborating with national and multilateral organizations. The Knowledge Network, in collaboration with APEC, conducted a workshop on "Carbon Capture Utilization and Storage for Enhanced Oil Recovery" on August 1 – 2, 2012 in China.



Slide from presentation by Bill Craven, Daimler AG



## WORLD ENERGY COUNCIL CONSEIL MONDIAL DE L'ÉNERGIE For sustainable energy.

**U.S. / Canada Shale Resources**

- Last year, ICF doubled their U.S. / Canada shale resource estimate to 1,900 tcf
- ICF concluded that 1,500 tcf can be developed at or below \$5 per MMBtu

The slide includes a map of North America highlighting shale gas basins (dark red) and the Devonian/Mississippi Shale Fairway (orange). A VHB logo is in the bottom left corner.

Slide from presentation by David Manning, VHB Engineering

**Alstom-Schlumberger Partnership**

Combining two experts to cover the CO<sub>2</sub> Capture, Transport and Storage chain

The slide features logos for Schlumberger and ALSTOM, along with a technical diagram of a CO<sub>2</sub> capture and storage system.

Slide from presentation by David Elkins, ALSTOM Power Inc., USA

# HONORING INDUSTRY LEADERS: *JOHN W. ROWE*

## The United States Energy Award

John W. Rowe, Chairman Emeritus of Exelon Corporation, is the 2012 recipient of the United States Energy Award, an honor given annually to an outstanding energy leader in recognition of their leadership initiatives and contributions to the global understanding of energy issues.

Rowe led Exelon since its formation in 2000 through the merger of PECO Energy and the parent of Commonwealth Edison. John Rowe retired as Chairman and Chief Executive Officer of Exelon on March 12, 2012, following the merger of Exelon with Constellation Energy. Rowe previously held Chief Executive Officer positions at the New England Electric System and Central Maine Power Company, served as general counsel of Consolidated Rail Corporation, and was a partner in the law firm of Isham, Lincoln & Beale. Rowe is the past chairman of the Nuclear Energy Institute and the Edison Electric Institute. He was co-chairman of the National Commission on Energy Policy and serves on the Secretary of Energy's Blue Ribbon Commission on America's Nuclear Future. He is the lead independent director of the Northern Trust Company and a member of the board of directors of Allstate.

Under Rowe's leadership, New England Electric System became one of the original four U.S. investor-owned electric utilities to participate in the U.S. Agency for International Development/United States Energy Association Utility Partnership Program. New England Electric System was a partner with the Hungarian utility, then known as MVMRT. Later, at Commonwealth Edison, Rowe was instrumental in continuing that company's partnership with the Polish Power Grid.

Rowe has been widely recognized for his civic and professional leadership. Recent awards include the Misericordia Heart of Mercy Award (2010), the Edison Electric Institute Distinguished Leadership Award (2009), election as a Fellow of the American Academy of Arts & Sciences (2009), the Chicago Council on Global Affairs Global Leadership Award (2009), the Chicagoland Chamber of Commerce's Daniel H. Burnham Award for Business and Civic Leadership (2008), the Junior Achievement's Chicago Business Hall of Fame (2008), Illinois Holocaust Museum's Humanitarian award (2008), Civic Federation of Chicago's Lyman Gage Award for Outstanding Civic Leadership (2008) and the National Latino Education Institute Corporate Leadership Award (2008).

### Previous Honorees:

2011: Michael G. Morris, Chairman & CEO, American Electric Power Company

2010: Peter Robertson, Vice Chairman (Retired), Chevron

2009: Bob Catell, Chairman, National Grid, U.S.

2008: Don Hodel, Former Secretary of Energy & Interior and Chairman, Summit Group







1300 Pennsylvania Avenue, NW  
Suite 550, Mailbox 142  
Washington, DC 20004

[www.usea.org](http://www.usea.org)