



USEA 

United States Energy Association

ANNUAL
Report
2018

THE UNITED STATES ENERGY ASSOCIATION

The United States Energy Association helps expand energy infrastructure in developing countries with the U.S. Agency for International Development, and supports policy and technical discussions with the U.S. Department of Energy to expand the use of clean energy technology globally.

USEA is the U.S. member of the World Energy Council, the accredited energy body of the United Nations. Through its membership, USEA represents more than 100 companies and associations across the U.S. energy sector, from the largest Fortune 500 companies to small energy consulting firms.

USEA's objective is to convey information about the realities of global energy issues in the 21st century and to increase energy access globally.

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A MESSAGE FROM OUR CHAIRMAN

Dear USEA Members & Friends,

As I reflect on the accomplishments of USEA in 2018, I feel a great sense of pride.

This annual report captures our growth, accomplishments and the sense of renewal we feel as an organization and as a sector.

At USEA, we grew in our exposure, partnerships and our value to members. Our brand is stronger than ever. USEA is a wonderful organization that makes a real impact globally to increase energy access and educate the world on the realities of our robust and rugged industry. As a sector, we celebrated seminal moments in 2018 like the United States becoming the world's largest oil and gas producer.

Telling the world about the great work of USEA and its members requires many platforms and outlets and the relentless drive of our executive director, Barry Worthington, and his outstanding team. Each opportunity is a force multiplier, a way to reflect our brand, our values and a chance to help position our members among influencers. Each energy specialist at USEA contributes to our reputation, which supports the goals of our members. It's a great family.

We started off 2018 with our State of the Energy Industry Forum on the eve of President Trump's second State of the Union address. USEA honored members Edison Electric Institute President, Tom Kuhn, and American Petroleum Institute President and CEO, Jack Gerard with the annual U.S. Energy Award. And after years of planning with the International Gas Union, our industry and USEA welcomed the energy world to Washington, D.C. for the World Gas Conference. It was the first time the U.S. hosted the event in 30 years. We owe a great deal of gratitude to our own member Dave McCurdy, retiring President and CEO of the American Gas Association, for his tireless leadership in organizing the conference. USEA sponsored a VIP congressional luncheon at the Library of Congress with Sempra Energy, and USEA members—Tellurian Inc., Chevron, and Exxon Mobil. We had an impressive lineup of speakers from CEOs to lawmakers such as Senator Lisa Murkowski (R-AK), Chairman of the Senate Energy and Natural Resources Committee and Congressman

Greg Walden, (R-OR) then Chairman of the House Energy and Commerce Committee. USEA Executive Director Barry Worthington was among the World Gas Conference speakers and USEA was an active witness to this historic event.

Energy development continues to be central to U.S. and global economic growth, and I'm proud to say USEA is out front on its message among influencers, the media, our members, and our partners overseas about practical energy policy. Our industry continues to produce and deliver more energy to meet a growing global demand while reducing energy poverty, and emissions from industrial operations, power plants, and transportation. USEA members are meeting global climate change goals, reducing emissions, and increasing energy access.

We closed the year with a new partnership with the New York Stock Exchange. USEA sponsored the coveted, Energy Spotlight, a high-level energy discussion with executives who move energy markets. This partnership continues to grow and in 2019 USEA rang the Opening Bell at the NYSE.

USEA has built a brand for our country that represents reliability, economic development and prosperity for U.S. companies and the developing world. We continue to work around the globe with the United States Agency for International Development—27 years and counting—and with the U.S. Department of Energy on projects to advance clean energy technology worldwide.

It has been an honor and a privilege to serve as the Chairman of the United States Energy Association. On behalf of our entire organization, I want to thank you for your continued support. USEA is at the core of all relevant high-level discussions and energy developments worldwide. We look forward to all the opportunities and possibilities in 2019.

Vicky A. Bailey

Chairman,
United States Energy Association

MERRIBEL S. AYRES



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Lighthouse Consulting Group, LLC

VICKY A. BAILEY



President & Founder
Anderson Stratton International, LLC

JOHN J. BUCHOVECKY



Partner
VanNess Feldman

KHARY CAUTHEN



Vice President,
Federal Affairs
Cheniere Energy, Inc.

BRUCE CULPEPPER



U.S. Country Chair
& President
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Chief Operating Officer
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President & CEO
Excel Services Corporation

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Duane Morris, LLP

MICHAEL W. HOWARD



President & CEO
Electric Power
Research Institute

BRIAN KEARNS



Chief Financial Officer
U.S. Energy Association

MARIA G. KORSNICK



President & CEO
Nuclear Energy Institute

THOMAS R. KUHN



President
Edison Electric Institute

DAVE MCCURDY



President & CEO
American Gas Association

MAJIDA MOURAD



Vice President,
Government Relations
Tellurian, Inc.

JOSEPH M. NAYLOR



Vice President, Policy,
Government & Public Affairs
Chevron Corporation

CHARLES PATTON



Executive Vice President,
External Affairs
American Electric Power

HAL QUINN



President & CEO
National Mining Association

JIM ROBB



President & CEO
North American Electric Reliability Corporation

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Burns & Roe Enterprises, Inc.

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President, Chairman of the Board & Chief Technology Officer
Schweitzer Engineering Laboratories, Inc.

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Vice President,
Business Development
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Fluor Corporation

MIKE SOMMERS



President & CEO
American Petroleum Institute

RUSSELL STOKES



President & CEO
GE Power & Water

LYDIA THOMAS



President & CEO (Ret.)
Noblis

BARRY K. WORTHINGTON



Executive Director
U.S. Energy Association

DANIEL YERGIN



Vice Chairman
IHS Markit

BOARD OF DIRECTORS

December 31, 2018

USEA MEMBERS

2018

Advanced Engineering Associates International, Inc.	Bechtel Group, Inc.	Edison Electric Institute
AECOM ✦	Black & Veatch	Electric Power Research Institute
AEGIS Insurance Services, Inc.	Bluewave Resources, LLC	Enbridge
American Coal Council	BNL Clean Energy	Energy & Mineral Law Foundation
American Council of Engineering Companies	Brookhaven National Laboratory	Energy Equipment & Infrastructure Alliance
American Electric Power	Burns & Roe Enterprises, Inc.	Energy Markets Group, Inc.
American Fuel & Petrochemical Manufacturers	Canary, LLC ✦	Energy Policy Institute of Australia
American Gas Association	Chemonics International, Inc.	ENGIE North America
American Petroleum Institute	Cheniere Energy, Inc.	Ernst & Young, LLP
American Public Power Association	Chevron Corporation	ESTA International
American Society of Mechanical Engineers	Clifton Larson Allen, LLP	Excel Services Corporation
Anderson Stratton International, LLC	Combined Cycle Journal	Exelon Corporation
Association of Energy Engineers	ConocoPhillips	ExxonMobil Corporation
ASTM International	ContourGlobal	Fluor Corporation
Baker Botts LLP	Deloitte LLP	Gas Systems Engineering, Inc.
	Duane Morris, LLP	Gas Technology Institute
	ECODIT LLC ✦	

GE Power & Water	Mott MacDonald	Solar Energy Industries Association
Geothermal Energy Association	National Energy Foundation	Solar Turbines a Caterpillar Company
Geothermal Resources Council	National Mining Association	Southern Company
Global Development Opportunities, LLC	National Ocean Industries Association (NOIA)	Strategic Power Systems, Inc.
Correlick, Tievy & Associates	National Rural Electric Cooperative Association	Summit Power Group, LLC
Grant Thornton ✦	Natural Gas Supply Association	Synfuels Americas
Hunton & Williams LLP	Nexant, Inc.	Tellurian Inc.
ICF International	North American Electric Reliability Corporation	Tennessee Valley Authority
Idaho National Laboratory	Nuclear Energy Institute	Tetra Tech
IHS Markit	Oliver Wyman	The Abraham Group LLC
Interstate Natural Gas Association of America	Peabody Energy	The Gee Strategies Group
Johnson Controls Inc.	Pepco Holdings, Inc.	Tulane University
Jordan Capital Management	Petco International LLC.	U.S. Agency for International Development
K&M Advisors LLC	Planning & Forecasting Consultants	University of Florida
KPMG	Power Engineers ✦	University of Minnesota Duluth
Lawrence Livermore National Laboratory	PricewaterhouseCoopers LLP	University of Southern California
Lehigh University	Sacramento Municipal Utility District	Utilities Technology Council ✦
Lighthouse Consulting Group, LLC	Schweitzer Engineering Laboratories, Inc.	VanNess Feldman
London Economics International LLC ✦	Segura Consulting, LLC ✦	West Financial Services, Inc.
Lutron Electronics ✦	Shell Oil Company	Westinghouse Electric Company
Morgan Stanley	Smart Electric Power Association	WorleyParsons

✦ = *New in 2018*

FLAGSHIP EVENTS

14TH ANNUAL STATE OF THE ENERGY INDUSTRY FORUM

January 18, 2018

The 2018 State of the Energy Industry Forum marked one year into the Trump administration, and the first year into a pivoting energy policy marked by redundant regulation rollback, production and development increases and major investment in energy infrastructure.

On the eve of the President's first State of the Union address, the USEA Forum was the perfect opportunity for our members to take a quick pulse of the industry's sentiments toward the country's new energy policy and share their business developments.

Since its inception, this Forum has brought together energy executives and leaders across the energy supply chain to discuss challenges and opportunities facing the industry and the outlook for the year ahead.

Forum speakers who were optimistic in 2017 continued to be pleased with the President's energy policy developments a year later.

They were satisfied with what the Trump White House accomplished, though it was noted that Congress had not taken on any major energy legislation in 2017 or 2018.

2017 had ushered in the first substantial federal tax reform in over three decades, preserving vital capital recovery provisions. This was quickly followed by a wave of regulatory reforms that many felt would begin to restore some balance to the system.

While there was an overwhelming sense that the administration should build upon 2017 successes, many highlighted that the key to meaningful change was to focus on implementation of these new reforms.

During the Forum, industry executives touted service continuity and their ability to serve customers despite increasing severe weather events from Hurricane Harvey to the bomb cyclone. While energy prices spiked in the wake of Hurricane Katrina and Rita more than a decade ago, they remained relatively stable following Hurricane Harvey.

Energy leaders said diversity of resources has been critical. Energy abundance has presented enormous opportunities across the sector.

Dena Wiggins, President & CEO Natural Gas Supply Association and Susan Kelly, President & CEO, American Public Power Association give their outlook on 2018.



"We are excited about new opportunities in a changing industry, including behind-the-meter services and the convergence of electric and broadband services."

- Jim Matheson, Chief Executive Officer National Rural Electric Cooperative Association



From left to right: USEA Executive Director, Barry Worthington; Hal Quinn, President & CEO, National Mining Association; Jack Gerard, then-President & CEO, American Petroleum Institute



USEA Chairman Vicky Bailey kicked off the event

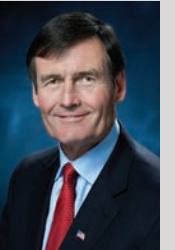
This year, the U.S. is set to become the third largest exporter of liquefied natural gas, according to the Center for Liquefied Natural Gas Executive Director, Charlie Riedl. The National Mining Association's President and CEO, and USEA Board member, Hal Quinn, was pleased to see coal production, employment, and exports increase over the year.

Former American Petroleum Institute chief, Jack Gerard, commented that oil and gas sector jobs pay \$50,000 more than the average wage in our economy and account for 10.3 million jobs. And the American Fuel & Petrochemical Manufacturers CEO, Chet Thompson, told the Forum that his industry was poised to invest \$150 billion in new projects in 2018.

Looking forward the speakers agreed that a focus on infrastructure development and grid modernization were key, but the clear takeaway from the 14th Annual State of the Energy Industry Forum was that the U.S. is entering a new and exciting age of abundance ripe with opportunity.

"The future for the electric power industry is incredibly exciting marked by cleaner energy, a more modernized grid, and advanced customer solutions."

- Tom Kuhn, President, Edison Electric Institute



Industry leaders share their thoughts on the new administration one-year in. From left to right: Jack Gerard, then-President & CEO, American Petroleum Institute; Tom Kuhn, President, Edison Electric Institute; Lori Trawweek, Vice President, Policy Strategy, American Gas Association; Hal Quinn, President & CEO, National Mining Association



ANNUAL MEMBERSHIP MEETING & PUBLIC POLICY FORUM

April 12, 2018

In the spirit of tradition, USEA hosts its Annual Membership Meeting & Public Policy Forum after its mid-year Board of Directors meeting.

Optimism reigned in 2018 as the Forum attracted more than 200 government and industry leaders eager to explore opportunities in what some hailed “the new energy renaissance.”

The 2018 Forum fostered a forward-thinking debate about the future of cybersecurity, competition among fuels, the next generation energy workforce, and advances in modern technology.

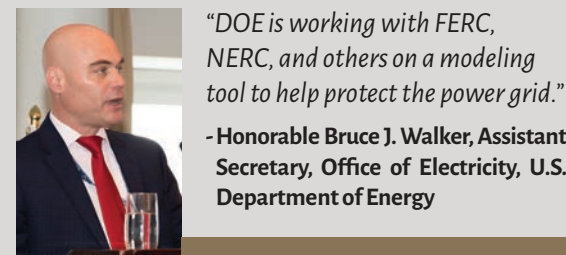
USEA featured 2 keynote speakers – Neil Chatterjee, Chairman of the Federal Energy Regulatory Commission and Bruce J. Walker, Assistant Secretary for the Energy Department’s Office of Electricity.

Chatterjee addressed the evolution of the energy market, his views on the regulatory landscape, cybersecurity issues, and potential changes to FERC’s policy statement on certificates for natural gas pipelines.

“The abundant and affordable natural gas supplies and renewable resources are fostering changes in the generation market and putting economic pressure on coal and nuclear power plants. The train has left the station on renewable energy and it is not going to stop, but regulators need to ensure that the train runs smoothly, with no impact on grid reliability, resilience or safety.”

“We’re in the midst of a rapid, exciting and accelerated transformation in our energy markets and our energy mix.”

- Honorable Neil Chatterjee, Chairman, Federal Energy Regulatory Commission



“DOE is working with FERC, NERC, and others on a modeling tool to help protect the power grid.”

- Honorable Bruce J. Walker, Assistant Secretary, Office of Electricity, U.S. Department of Energy

Pivoting to grid protections, Chatterjee said “there are steps that we can take to stay ahead of these ever-evolving cyber threats.”

Walker expanded on Chatterjee’s remarks. He highlighted DOE’s work on a reliability and resilience model for North America as a tool to aid in integrating renewables and enhancing energy security. “The model will benefit Mexico, Canada, and the U.S. by highlighting energy transfer points among the countries and identifying weaknesses where additional investment is needed,” Walker said.

During the Forum, USEA Executive Director Barry Worthington hosted a fireside chat with Edison Electric Institute President Tom Kuhn, and Jack Gerard, then-CEO of the American Petroleum Institute. Worthington and Kuhn spoke fondly of Gerard’s decade-long run with API and reflected on the future of API and the oil and gas industry after Gerard would retire in August 2018.



Merribel Ayers, USEA Board member and Principal, Lighthouse Consulting Group.



From Left: Kristen Madler, Clean Energy Coordinator at USAID, and Carrie Thompson, Senior Deputy Assistant Administrator at USAID look on as New Zealand’s Contact Energy and a Maori Land Owner Collective receive the prestigious Corporate Volunteer Award for helping KenGen and local Maasai communities establish a sustainable partnership to manage geothermal resources in Kenya.



American Gas Association President and CEO, Dave McCurdy, looks on as the Honorable Neil Chatterjee gives the opening keynote.



Tom Kuhn, President of Edison Electric Institute unveiled the showstopping robot Edison Tesla or ET.

Gerard said market changes can present opportunities for America to address societal challenges. With more than 1 billion people in energy poverty, without access to basic energy supply, U.S. resources and technology can be used to transform relationships in developing countries. Increasing energy access is USEA’s central mission.

“I think there are unlimited possibilities in the future,” with artificial intelligence, smart cities, electric vehicles, the growth of renewable resources and big data transforming the power grid and energy sector,” said Tom Kuhn.

Throughout the day speakers echoed a theme – energy should not be a partisan issue, and America’s abundant energy resources can bring nations together in a polarized world.



Tom Kuhn, Edison Electric Institute President, and Jack Gerard, then-President and CEO of the American Petroleum Institute talk before receiving the United States Energy Award.



USEA Executive Director Barry Worthington (far left) and USEA Chairman, Vicky Bailey (far right) present the United States Energy Award to Jack Gerard and Tom Kuhn.

UNITED STATES ENERGY AWARD 2018

In 2018, USEA selected Jack Gerard, then-President and CEO of the American Petroleum Institute (API), and Tom Kuhn, President of the Edison Electric Institute (EEI), to receive the 2018 United States Energy Award.

The United States Energy Award was established in 1989 to recognize preeminent energy leadership initiatives and contributions to international understanding of energy issues.

The award selection committee is composed of national energy leaders who examine nominees for their contribution to the energy sector.

Gerard led API for a decade, expanding its membership and influence in all 50 states and globally, with offices in Dubai, Singapore, Beijing, and Rio de Janeiro.

As the oil and gas industry’s national trade association, API has more than 625 members.

Gerard has been recognized in the media and among his peers as one of Washington’s most influential advocates.

Washington Life magazine named him one of the city’s “Power 100.” Prior to joining API, Gerard served as president and CEO of the American Chemistry Council, and before that, he was at the helm of the National Mining Association, at which he also served on the USEA Board of Directors.

Gerard also spent close to a decade working on Capitol Hill after he arrived in Washington in 1981. He worked in the U.S. House and he worked for the chairman of the U.S. Senate Energy and Natural Resources Committee.

As President of EEI, Kuhn represents all U.S. investor-owned utilities which provide electricity for millions of Americans across the country. EEI also has 70 international electric companies under its umbrella.

Kuhn joined EEI in 1985 as executive vice president. He was named chief operating officer in 1988, and he was elected president in 1990.

Before joining EEI, Kuhn was president of the American Nuclear Energy Council, which subsequently merged with the U.S. Council on Energy Awareness which later became the Nuclear Energy Institute.

From 1972 to 1975, Kuhn led the energy division of Alex Brown and Sons.

Prior to that, from 1970 to 1972, he was White House Liaison Officer to the Secretary of the Navy.

Kuhn has served on the Secretary of Energy’s Advisory Board and the Board of the U.S. Chamber of Commerce.

USEA INTERNATIONAL VOLUNTEER RECOGNITION AWARD



In the spirit of volunteerism USEA created the International Volunteer Recognition Program to celebrate outstanding individuals and organizations for their contribution to USEA activities.

USEA honored members of the Ngati Tahu Land Owner Collective and Contact Energy for their volunteer efforts on a partnership to support indigenous community engagement during geothermal development in Kenya. Working with local partner KenGen, the Ngati Tahu LOC and Contact Energy team shared their experience with building mutually beneficial partnerships in New Zealand between public and private electric utilities and indigenous communities affected by infrastructure development.

With the help of Ngati Tahu and Contact Energy, KenGen developed a corporate strategy for community engagement for the Olkaria geothermal area and throughout the country near its power and infrastructure projects.

Pictured from left: Andrew Palmateer, Program Director, USEA; Aroha Campbell and Dorothy Raroa, Ngati Tahu Land Owner Collective; Tim Groser, New Zealand's Ambassador to the United States; Kaapua Smith and Jacqui Nelson, Contact Energy; Kristen Madler, Clean Energy Coordinator, USAID.

Mark Kellaher was named USEA's 2018 Individual Volunteer of the Year while working as a project manager with the Midcontinent Independent System Operator (MISO).

Kellaher has been an energetic and frequent contributor to the Power Africa initiative and the Energy Utility Partnership Program, frequently traveling overseas to share his knowledge and expertise with our global partners in the East Africa Power Pool. Kellaher presented and facilitated numerous workshops on project and contract management in Tanzania, Uganda, and Rwanda.

Bob Staton, Public Service Company of Colorado Control Room Manager at Xcel Energy, accepts the corporate volunteer award for Xcel Energy. Xcel Energy has been active in the EUPP for years, providing experts on topics such as grid codes, wind integration, control room operations, coal flexing, wind forecasting, and system flexibility. They have shared their expertise with utilities in Kenya, Colombia, India, Tanzania, Palestine, and Kazakhstan.



INAUGURAL ENERGY EFFICIENCY & SUPPLY FORUM

November 15, 2018

The Canadian Embassy in Washington hosted USEA and Johnson Control's Inaugural Energy Efficiency & Supply Forum in 2018. As the division between energy efficiency and supply has blurred, USEA and Johnson Controls executives decided to combine two of our flagship events—the Energy Efficiency Forum and the Annual Energy Supply Forum.

The day-long event explored the implications and practical applications of battery storage, distributed generation, smart microgrids, and combined heat and power.

The event kicked off with an overview of the emerging trends shaping the evolution of energy delivery followed by a deep dive into the concern of electrification for direct use sources. Leaders from Alabama, Alberta, Maryland and Pennsylvania shared how they've successfully implemented innovative energy system technologies and programs in their cities, states, and provinces.

Infrastructure was a central topic, and the forum addressed how traditional energy suppliers are evolving their business models and operating practices in response to changing customer expectations. Some are embracing purchasing and owning renewables, considering energy storage, looking at demand response options, reviewing distributed energy alternatives, and revisiting their own role in energy efficiency.

However, the overwhelming question during the forum was the direction of the 115th Congress post 2018 midterm elections. USEA was honored to have Senator Lisa Murkowski, (R-Alaska) Chairman of the U.S. Senate Energy and Natural Resources Committee.

"There is good news on how we produce, consume and deliver energy. After years of scarcity our production is setting records due to technological advancements. We are becoming more and more efficient."

- Senator Lisa Murkowski (R-Alaska), Chairman, Senate Energy and Natural Resources Committee



Murkowski told forum attendees that despite a divided Congress, the energy space could be one of most productive areas to advance policy on Capitol Hill. She highlighted how the private sector has been leading with significant gains in reducing the cost of production. Murkowski added that there is a definite role for Congress. She closed her remarks echoing some of the forum's emerging themes, "Supply, efficiency, and innovation are no-regrets energy policies, whether driven by energy security or climate change, these should be areas where we should be able to find consensus in Congress"

One of the key messages of the forum was an evolving role of efficiency in an era of abundance relative to the urgency of efficiency forty years ago during multiple energy crises. It was noted, for example, that every BTU of natural gas that can economically be saved is a BTU of natural gas that can be exported.



Charles Patton, Executive Vice President of External Affairs, American Electric Power discusses emerging trends in energy production and consumption.



USEA Executive Director Barry Worthington opens the inaugural forum.



Panel discusses 12th edition of the Global Energy Efficiency Indicator study. From left to right: Clay Nesler, Vice President, Global Sustainability and Industry Initiatives, Johnson Controls; Lisa Bate, Chair, World Green Building Council; Jeff Eckel, President & CEO, Hannon Armstrong; John Kliem, Executive Director, Resilient Energy Program Office, U.S. Navy; Dr. Robert Nachtrieb, Lead Scientist, Lutron Electronics



"We get better with every well we drill, which allows us to be more efficient and more environmentally effective. Infrastructure is the number one issue facing the oil and gas sector. We really need to solve the infrastructure deficit to make U.S. energy more competitive on the global market."

- Dan K. Eberhart, Chief Executive Officer, Canary, LLC



01 FEB 14, 2018

Congressional Breakfast Series with Representative Bill Johnson (R-OH)
U.S. House of Representatives



03 MAR 28, 2018

What Can the U.S. Learn from Europe About Integrating Intermittent Renewables?
PJM Interconnection LLC; Atlantic Council; North American Electric Reliability Corporation



05 APR 26, 2018

The Plains CO2 Reduction Partnership: Fostering the Deployment of CCUS Technologies
Energy & Environmental Research Center



07 MAY 10, 2018

Chemical Looping Prospective: An Advanced Approach to Coal Utilization
The Ohio State University



09 MAY 17, 2018

Midwest Regional Carbon Sequestration Partnership—One Million Metric Tons Storage
Battelle



11 JUNE 8, 2018

Kenyan Energy Minister Keter: Opportunities for Growth and International Partnerships in Kenya
Kenya Electricity Generating Company; Ministry of Energy, Kenya



13 JUNE 28, 2018

The Role of Fossil Energy in a Sustainable Energy Future, Ensuring Alignment with the 2030 Agenda for Sustainable Development
United Nations Economic Commission for Europe

MAR 13, 2018 02

Can Algae Really Do CCU? Status and Potential of Biological Carbon Capture and Use
Algae Biomass Organization



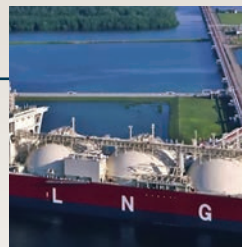
APR 11, 2018 04

Importance of Community Engagement in Geothermal Development - Insights from New Zealand and Kenya
Ngati Tahu Land Owner Collective; Contact Energy



MAY 8, 2018 06

Economic Benefits of US LNG Exports
ICF International; LNG Allies



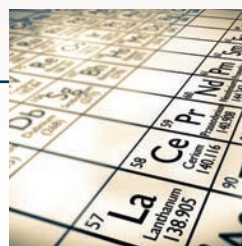
MAY 15, 2018 08

Using Best Practices to Design Power Sector Programs: Cases of Haiti and Central America
Center for International and Strategic Studies



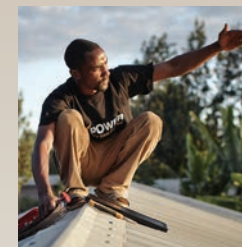
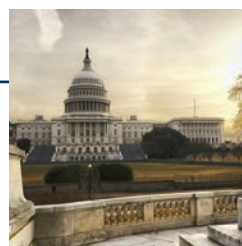
MAY 31, 2018 10

Coal Mine Drainage as a Domestic Source of Rare Earth Elements
West Virginia University



JUNE 12, 2018 12

"USE IT" Act and Prospects for Innovative Carbon Capture and Use Policy
Center for Carbon Removal; Center for Climate and Energy Solutions; Third Way; U.S. Department of Agriculture



14 JULY 24, 2018

Investing in the West African Energy Sector: Exploring Current Projects Within the Region and Investment Opportunities
West African Power Pool; Economic Community of West African States; Regional Electricity Regulatory Authority



16 AUG 7, 2018

Global Thermostat's Flexible CO2 Capture Technology
Global Thermostat



18 AUG 29, 2018

Trends in Energy and Energy Efficiency Employment
Energy Futures Initiative



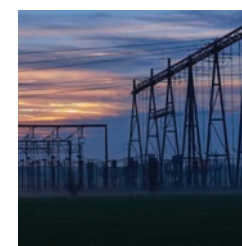
20 SEPT 12, 2018

Leading Across the Energy Sector: Stories and Takeaways from Women Who Paved the Way
Anderson Stratton International, LLC; Duane Morris, LLP



22 SEPT 27, 2018

Cyber Resilience for the Energy Sector
Marsh & McLennan Companies
Oliver Wyman



24 OCT 31, 2018

What Does "Resilience" of the Electric Power Sector Mean Today?
Electric Power Research Institute; North American Electric Reliability Corporation; Kleinman Center for Energy Policy

JULY 26, 2018 15

NET Power's 50MWth Demonstration Plant: An Update on the Testing and Development of a Novel, Emissions-Free Natural Gas Power System
8 Rivers Capital



AUG 9, 2018 17

Opportunities for Enabling the Use of Coal as a Precursor for Value-Added Products
Oak Ridge National Laboratory



SEPT 6, 2018 19

EPA Proposed Affordable Clean Energy Rule
Van Ness Feldman



SEPT 25, 2018 21

The State of Carbon Capture & Storage Technology and Policy
Massachusetts Institute of Technology



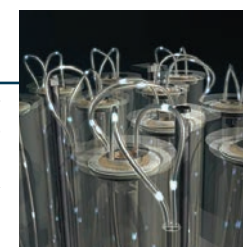
OCT 5, 2018 23

The Role of DER in Colombia
XM Colombia



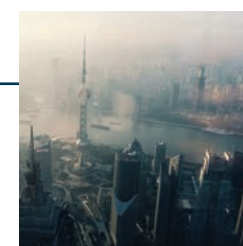
NOV 8, 2018 25

The U.S. Department of Energy's Office of Fossil Energy Solid Oxide Fuel Program
U.S. Department of Energy



DEC 11, 2018 26

China's Global Reach
Amsterdam & Partners LLP



BRIEFING SERIES 18

CONSENSUS PROGRAMS

PROMOTING DOMESTIC AND INTERNATIONAL CONSENSUS ON FOSSIL ENERGY TECHNOLOGIES: CARBON CAPTURE, UTILIZATION, AND STORAGE AND CLEAN ENERGY SYSTEM

To further understanding of energy issues domestically and internationally, USEA continued implementing a U.S. Department of Energy-funded program called "Promoting Domestic and International Consensus on Fossil Energy Technologies: Carbon Capture, Utilization, and Storage and Clean Energy Systems." While dramatic progress continues to be made in developing CCUS and clean energy technologies, neither the progress achieved to date nor the full capability of CCUS and clean energy systems is widely appreciated - yet it must be if CCUS and clean energy systems are to have a significant global impact. Highlights from past year's most successful endeavors are summarized below.

BRIEFING SERIES

USEA regularly organizes informational briefings on CCS and CES-related issues. These briefings provide USEA members and DC energy sector professionals with regular opportunities to exchange information, leading to a greater understanding among sector stakeholders of the developments impacting the CCS/CES community.

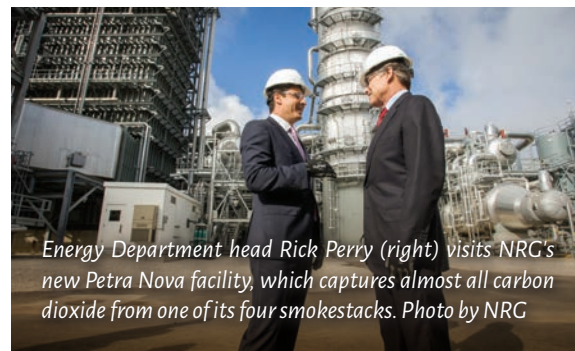
In 2018, USEA completed a total of 14 briefings related to CCUS/CES technology or policy. Some notable examples include:

- Can Algae Really Do CCU? Status and Potential of Biological Carbon Capture and Use
- Coal Mine Drainage as a Domestic Source of Rare Earth Elements
- Opportunities for Enabling the Use of Coal as a Precursor for Value Added Products
- The role of fossil energy in a sustainable energy future, ensuring alignment with the 2030 Agenda for Sustainable Development
- The State of Carbon Capture & Storage Technology and Policy
- "USE IT" Act and Prospects for Innovative Carbon Capture and Use Policy

CARBON SEQUESTRATION LEADERSHIP FORUM (CSLF)

USEA, in its role as Regional Stakeholder Champion for the Americas and Coordinator of Regional Champions, addressed the CSLF Policy Group in Melbourne, Australia in October 2018. USEA drafted a stakeholders statement and coordinated its editing and final approval by all regional champions in September. Discussions were also held on the structure, substance and scheduling of future regional stakeholder meetings as well as other outreach efforts.

USEA continued to participate in the development of a CCS/CCUS stakeholder study under the National Petroleum Council review of the status of CCS/CCUS.



Energy Department head Rick Perry (right) visits NRG's new Petra Nova facility, which captures almost all carbon dioxide from one of its four smokestacks. Photo by NRG



At the Petra Nova power plant in Texas, carbon capture technology reduces CO₂ emissions from one of four coal-fired units. Courtesy: NRG

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNECE)

USEA staff participated in discussions on collaboration between the Group of Experts on Cleaner Electricity Production and the Group of Experts on Coal Mine Methane. USEA initiated the creation of a document on "Carbon Management Considerations for New Coal Projects." Barry Worthington attended and addressed the UNECE Committee on Sustainable Energy meeting in Geneva, Switzerland on September 26, 2018 where he participated in the Pathways to Sustainable Energy panel discussion. He also attended and addressed the September 27th, Joint Session between the Committee on Sustainable Energy and the Experts Group on Cleaner Electricity Production from Fossil Fuels. USEA continued work on the UNECE statement regarding Leading Guidelines to Finance High Efficiency – Low Emissions Coal Plants.



Courtesy: NRG

SUPPORTING CCS AND CES THROUGH THE WORLD ENERGY COUNCIL

USEA worked to ensure that CCS was adequately represented in 2018. This included a February presentation at the Energy Council of Canada's annual meeting on U.S. Energy Policy, including CCS. Worthington presented in June at WEC's 7th European Energy Forum on the future U.S. energy mix, with an emphasis on coal and clean coal technologies.

BIG DATA AND MACHINE LEARNING FOR CLEAN COAL AND CARBON MANAGEMENT

In July, USEA co-hosted a strategic planning workshop with the U.S. Department of Energy. The subject of the workshop was Big Data and Machine Learning for Clean Coal and Carbon Management and it helped inform strategic initiatives in the Department of Energy's Office of Clean Coal and Carbon Management. The discussions helped identify how big data and machine learning can be better leveraged to enable advanced coal energy systems of the future. Additionally, the workshop helped answer how to maintain a competitive, resilient, and flexible existing fleet and how to develop new products and uses of coal and coal by-products to create new businesses and industries.

PROMOTING DOMESTIC AND INTERNATIONAL CONSENSUS ON FOSSIL ENERGY TECHNOLOGIES: OIL AND NATURAL GAS

To further understanding of energy issues domestically and internationally, USEA continued implementing a U.S. Department of Energy-funded program called "Promoting Domestic and International Consensus on Oil and Natural Gas." As the U.S. continues to develop its oil and natural gas resources, it has become the world's leading exporter of energy. With the advances in liquefied natural gas (LNG) technologies and commercial operations, this presents a unique opportunity to support global energy development and help meet U.S. goals of increasing exports and reducing trade deficits. USEA continued to work in partnership with the U.S. Department of Energy's Office of Fossil Energy to strengthen international energy relationships and promote the growth of U.S. LNG exports. Highlights from last year's most successful endeavors are summarized below.

THE 18TH U.S. - CHINA OIL & GAS INDUSTRY FORUM — SEPTEMBER 18 - 20, 2018 IN HOUSTON, TEXAS, USA

Against the backdrop of a U.S. – China trade war, with China poised to be one of the largest buyers of U.S. LNG, the U.S. Department of Energy, with USEA's assistance, hosted the U.S.-China Oil & Gas Industry Forum (OGIF) in Houston for only the second time in nearly two decades.

OGIF is a public-private partnership involving government and industry representatives from the United States and China. The Forum enables the two countries to discuss common goals, including the development of secure, reliable and economic sources of oil and natural gas while facilitating investment in the energy industry.



Steven Winberg, Assistant Secretary, Fossil Energy, U.S. Department of Energy kicks off the 18th OGIF at a reception at the Houston Museum Of Natural Science.

U.S. officials from the Department of Energy, the Department of Commerce, and the Trade and Development Agency hosted this year's event, and officials from China's National Energy Administration (NEA) once again served as the Chinese counterparts.

On the heels of a volley of tariffs, both sides had high hopes the two countries' top leaders would work out a trade agreement.

The 2018 forum focused on natural gas policies and regulations; maximizing the U.S. – China oil and gas relationship in a global context; cooperation and investment experience in the natural gas upstream, midstream, and downstream sectors; and LNG small-and large-scale trade between the U.S. and China.

Assistant Secretary for Fossil Energy (ASFE) Steven Winberg gave the opening and closing remarks for the United States, while Li Ye, the Executive Director General for Regulation from the NEA, gave the opening and closing remarks for China.

Winberg's remarks set a tone of optimism for U.S.-China energy trade moving forward. "As the world's largest economies, the United States and China share a common interest in ensuring a robust, transparent, and stable world energy market—an efficient, open international market with diverse sources of supply, which benefits both the United States and China," said ASFE Winberg in prepared remarks.

Winberg also noted the increase in U.S. liquefied natural gas (LNG) exports, by pointing out that the DOE has approved more than 21 billion cubic feet per day of LNG exports to various destinations around the world.



Steven Winberg, Assistant Secretary, Fossil Energy, U.S. Department of Energy with Li Ye, Executive Director General for Regulation, China National Energy Administration.

The United States remains the world's leading producer of natural gas, and last year became a net exporter of natural gas for the first time since 1957. Earlier this year, the U.S. also became the largest global producer of crude oil.

Winberg closed by echoing his sentiments about U.S. - China energy trade, "If there's one message I'd like you to take away today, it's this—when it comes to LNG, the United States is open for business and expects a strong long-term energy relationship with China."

The week ended as the U.S. hosted the Chinese delegation visit to Cheniere's Sabine Pass export facility in Louisiana.

U.S. – INDIA GAS TASK FORCE (GTF)



USEA was invited by the U.S. Department of Energy in 2018 to serve as Secretariat for the U.S.—India Gas Task Force (GTF) under the U.S.—India Strategic Energy Partnership.

Under the agreement, USEA works with DOE officials, the Government of India and India's state-owned energy companies to expand the use of natural gas on the subcontinent and U.S. liquefied natural gas (LNG) exports to India.

The GTF supports the Government of India in three strategic areas where the U.S. industry has expertise:

1. Natural Gas Markets and Regulation
2. Natural Gas Grid Strengthening
3. Stimulating Natural Gas Demand Growth

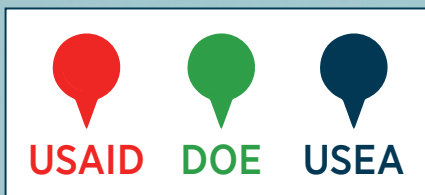
Under the agreement, the Indian government will meet its objectives of growing its natural gas economy while the U.S. will meet its goal of promoting exports of natural gas and other goods and services.

The Government of India meets six percent of its total energy consumption with natural gas; it seeks to increase that to 15 percent by 2030. Increasing natural gas use in power generation will help diversify fuel sources, improve air quality, and improve electricity system performance. As India moves to meet its renewable energy generation targets, flexible natural gas-fired power plants can provide critical balancing services to enhance grid stability. Making natural gas available in other sectors of the economy – industry, agriculture, transportation, and residential – can reduce hazardous emissions, with positive health benefits, and potentially lower energy costs for users.

Increased Indian demand for natural gas can promote increased bilateral trade between the U.S. and India as U.S. LNG exports will help India meet its energy needs.



WHERE WE MADE A DIFFERENCE IN 2018



ENERGY UTILITY PARTNERSHIP PROGRAM

Overview

The Energy Utility Partnership Program (EUPP) is a U.S. Agency for International Development (USAID)-funded program that assists overseas utilities in effectively managing and operating power systems, running financially viable businesses, and integrating different types of energy resources into their power grids. EUPP currently has partnerships with utilities in:

- Asia
- Africa
- Latin America and the Caribbean

These partnerships highlight U.S. best practices.

In 2018, EUPP held activities on a wide range of topics including financial modeling, substation maintenance, natural gas, competitive procurement, data management

for geothermal energy development, project/contract management, reverse auctions, and renewable energy integration.

Global Climate Change (GCC)

In 2018, the GCC Partnership focused on renewable energy integration and power system resilience. USEA supported the participation of Asian utility executives to attend the Asia Clean Energy Forum (ACEF) and assisted USAID with a deep-dive session on grid integration of renewables.

USEA also organized a workshop focused on ways to incorporate resilience into systems operations and planning for Caribbean and South American countries. Participants used knowledge gained to map a strategy that will improve flexibility in their respective countries.

AFRICA



TANZANIA

In 2018, USEA trained executives on the natural gas value chain with a focus on financial modeling and valuation for the natural gas sector. Participants have been implementing the skills learned, particularly in the taxation department and the natural gas task force in preparation for a new projected LNG liquefaction terminal.

After two years of EUPP activities on using reverse auctions as a strategy to increase renewable energy generation, Tanzania announced its first reverse auction in 2018 with plans to conduct the auction in 2019.

KENYA

At the request of the Kenya Power & Lighting Company (Kenya's sole distribution company), USEA organized a series of trainings on Power Purchase Agreements (PPA) and public-private partnerships (PPP). USEA conducted two training sessions on PPAs and PPPs for Kenya's transmission and distribution utilities' PPA task forces, Kenya Power's board of directors, and the commissioners of Kenya's regulatory agency. The trainings supported Kenya in reducing its long procedures and inconsistency in approving PPAs and gave them insight into the potential use of PPPs to improve the quality and quantity of the energy sector's infrastructure. Participants focused on strategies to improve their PPA auctions, negotiations, arbitration, and international enforcement, and on identifying areas where PPPs could be most useful in their sector.

EAGP trainers walk East African participants through a geothermal reservoir modeling exercise at the 7th African Rift Geothermal Conference in Kigali, Rwanda.



RWANDA

In a continuation of efforts to assist Rwanda in managing its energy needs, USEA provided capacity building on how to plan and execute new construction projects and perform network modeling to better integrate renewables and improve reliability. The capacity building programs resulted in the development of a national load flow model and increased staff's analytical capacity for planning and modeling. USEA consultants also reviewed the current status of cross-border transmission lines and proposed cost-effective measures for control of power flows into neighboring countries.

ETHIOPIA

The Ethiopian Electric Utility (EEU) identified substation maintenance and leadership development as key capacity building areas necessary to improve the company's overall management practices, reduce losses, expand access and strengthen reliability. USEA organized a series of leadership development and "Train the Trainer" substation maintenance trainings. To date, USEA has trained 25 substation employees and identified those who would be involved in EEU's "in-house" training program using the curriculum developed through the original series.

SENEGAL

Senegal is rapidly expanding its electric generation capacity and has identified a need for strong managers to ensure all projects are on schedule and within budget. USEA held project management training for Senelec, the country's state-owned power utility, and discussed the need to standardize and harmonize project management practices throughout the organization. The team established a Project Management Office (PMO) based upon international best practices, and certified key utility staff.

UGANDA

In the coming years, Uganda will be an integral part of the energy expansion in East Africa. In 2018, the Uganda partnership focused on project/contract management, asset management, hydropower operations and maintenance to assist the generation utility improve reliability and operations.

As a result of EUPP capacity building, Uganda Electricity Generation Company Ltd. (UEGCL) created a strategic asset management plan to reach ISO 55000 standards and dedicated staff for an asset management team who will be certified by the international Institute of Asset Management (IAM).

The training has also prepared UEGCL to take control of operations and maintenance of its four hydropower dams.



Ugandan Electricity Generation Company Ltd. (UEGCL) Participants visit Chelan PUD's Rocky Reach Dam led by John Yale, Hydro Plant Engineering Manager.



Ugandan Electricity Generation Company Ltd. (UEGCL) Participants visit Chelan PUD's Rock Island Dam in Wenatchee, Washington



Afar nomadic herders gather around geothermal pools at the Alalobeda Geothermal site in Northern Ethiopia. A team from USEA and their Ethiopian counterparts carried out a site visit assessing the geothermal potential of the Alalobeda field.



ETHIOPIA GEOTHERMAL PARTNERSHIP

Under the Ethiopia geothermal partnership, the East Africa Geothermal Program (EAGP) team worked with the Geological Survey of Ethiopia (GSE) and Ethiopian Electric Power (EEP) to prepare and deliver a successful application for the 4th round of financing from the Geothermal Risk Mitigation Facility for East Africa (GRMF). The application process has completed two stages, an Expression of Interest and full application stage after which the proposal prepared by GSE, EEP, and a USEA-supported team was selected for a grant to fund exploratory drilling at the Alalobeda Geothermal Prospect.

To support the Alalobeda project, USEA held two activities in 2018. These activities led to the development of a water access plan to pursue withdrawal of water from behind the Tendaho Dam and pump the water 8-10 kilometers to the Alalobeda geothermal site. Once approved, EEP can sign a grant agreement for \$5.8M to support drilling and infrastructure costs.

EAGP supports KenGen's in ensuring the long-term sustainability of the Olkaria geothermal field in Naivasha, Kenya.



USEA's East Africa Geothermal Partnership assists KenGen finalize their community engagement strategy at the Olkaria Geothermal Plant.



KENYA ELECTRICITY GENERATING COMPANY (KENGEN) GEOTHERMAL PARTNERSHIP

As part of Kenya's "Good to Great" strategy, KenGen plans to commission an additional 500MW of geothermal energy generation at the Olkaria field by 2023. However, KenGen has recognized that the long-term sustainability of the Olkaria reservoir must be proactively managed as the new plants come online to avoid resource depletion. In partnership with KenGen, USEA supported a review and verification of past reservoir modeling work and provided the report to KenGen. Data analyzed in the report will be incorporated into KenGen's reservoir sustainability strategy to ensure the long-term viability of existing and planned power plants.

ARGEO COURSES

USEA partnered with the United Nations Environment Programme's African Rift Geothermal Development Facility (ARGeo) to ensure that utility staff and government workers in East Africa have the skills to properly collect and manage data related to their geothermal reservoirs through a series of training programs. These skills are critical in order to make informed decisions regarding locations for drilling and power plants. Teams successfully designed subsurface surveys, built conceptual resource models, and presented median models and optimistic variations to justify predrilling power capacity and well targeting assessments. These models are used by project developers to estimate resource capacity, power generation price, develop reservoir management strategies, and plan future drilling locations. All of the teams' models and power capacity estimates were sufficiently realistic to justify drilling and all would have discovered the resource with their first or their second proposed well target during the exercise.

ASIA



INDONESIA

USEA, in coordination with the USAID Indonesia Clean Energy Development (ICED) program, developed a series of executive exchanges to support Indonesia's clean energy objectives. In 2018, USEA conducted the final exchange with Indonesia's state electricity corporation PT PLN to learn about California's aggressive renewable energy portfolio and clean energy initiative. The delegation met with U.S. regulators, utilities, and Independent System Operators to continue the discussion on how Indonesia can effectively integrate more clean energy projects into their energy portfolio.

SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY INTEGRATION (SARI/EI)

USEA's 2018 SARI/EI activities focused on supporting the region's energy security through trade. USEA trained energy executives from Pakistan on the best practices in electricity markets, regulatory and economic policy, and the roles of different entities in power trading. These topics were tailored to the Central Power Purchasing Authority Guarantee Limited (CPPA-G) – the newly formed power trading entity in Pakistan.

Under SARI/EI, USEA also released a first-of-its-kind report titled "Linking South Asia with Burma & Southeast Asia to Advance Cross Border Electricity Trade: A Political Economy Study." The report serves as a roadmap to improve electricity trade between South and Southeast Asia and is the comprehensive review of the current political, economic, and institutional considerations in South Asia that need to be resolved if the prospects of cross-border energy trade are to be improved. The report traces benefits of political support for cross-border energy trade in the South Asia region and the political support for cross border electricity trade in Burma and Southeast Asian countries.

GREENING THE GRID: INDIA

To support India in reaching its goal to deploy unprecedented levels of renewable energy, USEA conducted three activities on the use of coal generation as a balancing source for variable renewable energy. The activities equipped load dispatch centers and coal generators with strategies to scale up renewable energy by operating coal power plants more flexibly. Since then, India's Central Energy Authority has developed a coal flexing working group to focus on policies and next steps for India's transition. The regulator is also reviewing its current mandate for state-owned coal generators' minimum operational load capacity to be more tailored to the capabilities of the particular generator. As a result of this program, many coal generators can significantly decrease their minimum capacity load levels.



US experts discuss coal flexing with Indian counterparts to enable more renewable energy to be added to the grid.

LATIN AMERICA AND THE CARIBBEAN



HAITI

Under the Haiti Energy Policy and Utility Partnership, USEA worked with the London Economics International (LEI) and the Haitian Institute for Energy (IHE) to provide technical assistance to Haiti's l'Autorité Nationale de Régulation du Secteur de l'Énergie (ANARSE) to bolster its human capacity as a newly established regulatory entity. The technical assistance focused on the development of a licensing framework, cost-reflective tariffs, and an assessment and gap analysis of the existing regulatory framework in Haiti. This assistance led to a strategic plan for the new regulatory entity, recommendations for its establishment and operation, and a power purchase agreement (PPA) framework to use as a template for future energy contracts.



Haitian energy stakeholders participate in setting electricity tariffs and regulation in Port-au-Prince, Haiti.

COLOMBIA

USEA has been working with the Colombian government to advance their plans to incorporate renewable energy onto its grid while maintaining or improving system reliability and accommodating expected growth. Partnership activities focused on human capacity-building activities to identify the needed changes in regulations and laws, as well as internal procedures and training, technical assistances on distributed energy resources integration, smart meters, demand response tariffs, reverse auctions, and intraday markets. USEA assisted Colombia in revising their existing grid code based on recommendations from U.S. independent system operators. Colombia also announced its first renewable energy auction, which is projected to bring in \$1.1 billion of private investment while reducing Colombia's reliance on hydro-power by bringing in lower-cost renewable alternatives.



Experts discuss Colombia's plan for reverse auctions for renewable energy.

ENERGY TECHNOLOGY & GOVERNANCE PROGRAM

The Energy Technology and Governance Program (ETAG) program is a partnership between USEA and the United States Agency for International Development designed to strengthen energy markets in Eastern Europe.

The program aims to strengthen interconnections, fortify cyber defense, improve distribution services, and transform regional electricity and natural gas markets.

Today's Europe and Eurasia (E&E) energy markets do not adequately stimulate the investment in production, transmission and distribution infrastructure necessary for secure, reliable, low-cost energy and transportation services critical to energy security and energy trade with Europe.

THE GOALS:

STRENGTHEN INTERCONNECTIONS

Though the countries in Europe and Eurasia have the potential to develop surpluses of energy, their gas, and electricity transmission networks are loosely connected and unable to trade with each other and supply the deficit countries in Southeast Europe. This leads to bottlenecks in trade and delays capital formation.

FORTIFY CYBER DEFENSE

Utilities in the region are challenged by increasingly virulent cyber-attacks threatening the security of natural gas and electric power supply. The region requires an information sharing clearinghouse and rapid response mechanism to share intelligence, assess threats, respond to attacks and restore service.

IMPROVE DISTRIBUTION SERVICES

Characterized by aging and outdated system architecture, distribution networks in the region suffer from a frequent outages caused by weather and equipment failure. As such, providing reliable electricity and natural gas distribution network services is a principal challenge to energy security.

TRANSFORM THE MARKET

Though the pace of electricity and natural gas market transformation varies from country to country, markets in the region are generally incompatible with European market models, rules and regulations. Seams between markets drive up transaction costs, reduce transparency and enable corruption.

The BSTP Working Group conducts a site visit to the 750 kV Ukrenergo Substation on June 14, 2018.



BLACK SEA REGIONAL TRANSMISSION SYSTEM PLANNING PROJECT (BSTP)

The BSTP develops a sustainable and regional network planning capacity among the transmission system operators of the Black Sea littoral states. Using a common network planning model, transmission system operators in Armenia, Bulgaria, Georgia, Moldova, Romania and Ukraine, can identify network infrastructure investment required to connect the Black Sea region to Europe's transmission network and expand electricity trade.

This year, the BSTP transferred the System Adequacy forecasting methodology practiced by European transmission companies to the Black Sea region. The methodology supports future grid integration with Europe while strengthening regional network security.

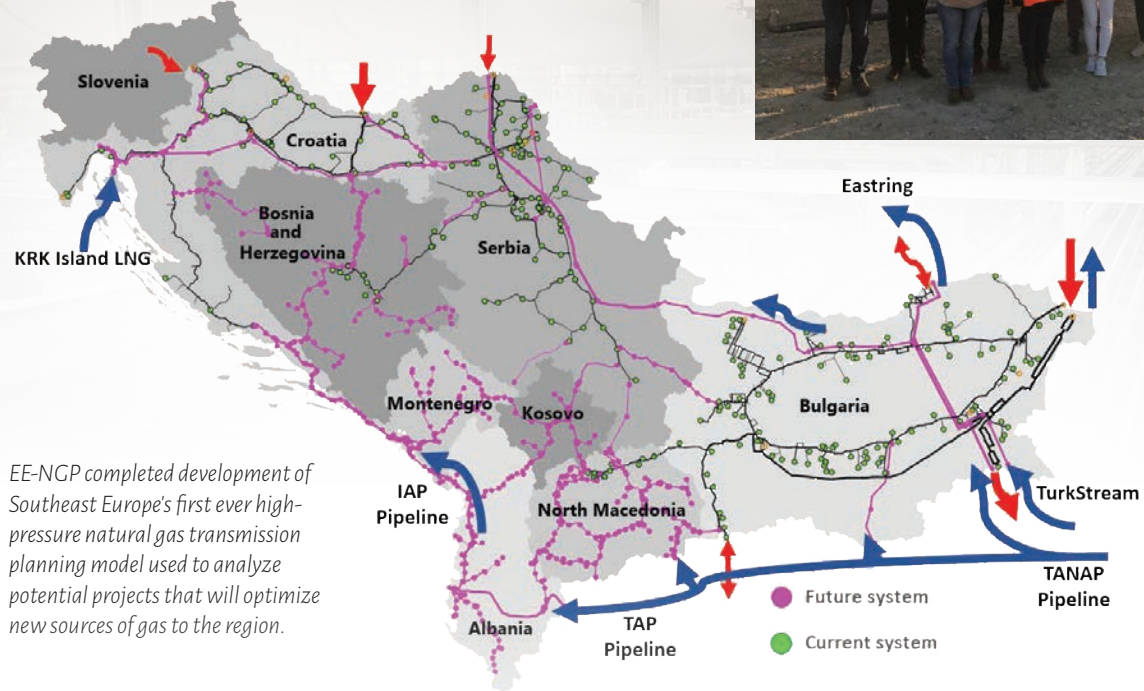
SOUTHEAST EUROPE DISTRIBUTION SYSTEM OPERATOR SECURITY OF SUPPLY WORKING GROUP (DSO)

The DSO Working Group improves the security of supply on the distribution system.

In 2018, DSO members adopted a common way to calculate technical and non-technical electricity losses. Members are using the methodology to benchmark loss reduction across the region to reduce electricity theft and diversion.

The DSO Working Group tour the new 72 MW Krnovo Wind Farm in Montenegro, supplied by 26 General Electric wind turbines. The turbines will have a nominal capacity of 2.8 MW each and will produce 200 GWh of electricity annually.





EASTERN EUROPE NATURAL GAS PARTNERSHIP (EE-NGP)

The EE-NGP is developing an interconnected regional natural gas network model to prepare for new sources of natural gas reaching Southeast Europe via the Trans Adriatic and Ionian Adriatic pipelines. In 2018, the EE-NGP developed the MAX 2040 model, which forecasts natural gas loads and network development for the year 2025 in Albania, Bulgaria, Bosnia-Herzegovina, Croatia, Kosovo, North Macedonia, Montenegro, Serbia, Slovakia, and Slovenia. Natural gas transmission system operators (TSOs) in these countries use the model to plan for new pipeline interconnections, storage and LNG import facilities to diversify supply.

UTILITY CYBER SECURITY INITIATIVE (UCSI)

The UCSI improves cyber security in electric and natural gas companies in the Europe and Eurasia (E&E) region. In 2018, UCSI began developing the region's first cyber security risk assessment template to assist members to prioritize cyber security investment, change policies and procedures and identify training needs. In cooperation with the Edison Electric Institute, UCSI organized a cyber security summit focused on the role of the C-Suite in fostering effective cyber security operating environment. The summit featured the participation of Chief Information Officers from:

- Avangrid
- Eversource
- Exelon
- North American Electric Reliability Corporation and
- Southern Company



L to R: Steve Burns, Chief, Office of Infrastructure, USAID; Margot Ellis, Senior Deputy Assistant Administrator USAID; William Polen, Senior Director, USEA; Scott Aaronson, Vice President EEI; David Batz, Executive Director, EEI at Energy Utilities Cyber Security Summit in December 2018



On July 16, ETAG launched the Electricity Market Initiative with the signing of the Podgorica Memorandum of Understanding pledging Southeast European electricity market operators to reduce "seams" between domestic electricity markets, encourage deep and liquid wholesale electricity trade and accelerate development of clean and efficient generation.

ELECTRICITY MARKET INITIATIVE (EMI)

Electricity Market Initiative (EMI) enhances the integration and operation of power markets in Southeast Europe. Under the EMI, transmission system operators (TSOs) are working to reduce seams between national electricity markets, develop regional system balancing markets, integrate clean energy technologies and couple electricity markets and power exchanges.

UKRAINE POWER SYSTEM SUPPORT PROJECT (UPSSP)

Ukraine's energy security is intrinsically tied to its national security. The country's resource interconnection with Russia make it vulnerable to energy supply disruptions. With its gas transit agreement with Russia expiring in December 2019 and its inability to access coal from eastern Ukraine, the country's energy future lies in integration with European energy markets.

The UPSSP is developing simulation models to study the technical requirements for Ukraine to connect its high voltage electricity network to the European network. This continues USEA's legacy established in the early 1990s, when it supported the integration of Hungary, Poland, the Czech Republic, and Slovakia, into the Western European grid.



Boiler inspection as part of a test of a Ukrainian generator to determine its capability to provide reserves when connected to the European grid.



USEA develops a detailed model of the Ukrainian transmission network based on tests conducted on the Ukrainian generation fleet.

WORLD GAS CONFERENCE

In June 2018, the United States hosted the World Gas Conference (WGC) for the first time in more than 30 years at the Walter E. Washington Convention Center in downtown Washington, D.C.

About 12,000 high-level energy executives, government officials, ministers, and influencers from around the world descended on D.C. to discuss natural gas and its prominent place in world energy markets.

The U.S. announced it was the largest gas producer in the world for the first time and executives celebrated the upward trajectory of U.S. liquefied natural gas (LNG) exports.

Hundreds of speakers and concurrent panel discussions at the event downtown unearthed a common theme—natural gas would be critical to meeting a rising global energy demand hereafter.

During the week, USEA Executive Director Barry Worthington spoke at two events—a U.S. Energy Department side-workshop, and a panel about natural gas development and demand in the Americas with a focus on the Caribbean with energy ministers.

USEA and U.S. Energy Secretary Rick Perry announced support for the U.S. to host the World Energy Congress 2022 in Houston with the Houston First Corporation and VisitHouston.

USEA also joined the 350 exhibitions on the floor of the convention center and was proud to work with the International Gas Union and its events and communications team to amplify the historic event.



The event was held at the House Members Room thanks to the help of Congressman Bill Johnson (R-OH)



WGC CONGRESSIONAL LUNCHEON

USEA sponsored a VIP congressional luncheon at the Library of Congress with Sempra Energy, and USEA members – Tellurian Inc., Chevron, and Exxon Mobil.

The Honorable Francis Fannon, Assistant Secretary for Energy Resources at the U.S. Department of State opened the luncheon with a speech underscoring State's ardent interest in helping U.S. companies access new international markets and helping countries looking for reliable and affordable energy resources. He emphasized the need to work together to build the necessary infrastructure.

The Honorable Greg Walden, then-Chairman of the House Energy and Commerce Committee, and the Honorable Lisa Murkowski, Chairman of the Senate Energy and Natural Resources Committee, also spoke, echoing support for a U.S.-led global gas market.



Charif Souki, founder and chairman, Tellurian Inc. addresses the audience at USEA's WGC congressional luncheon.



Senator Lisa Murkowski (R-Alaska) delivers a keynote address at USEA's WGC congressional luncheon.



From left: Tellurian's Vice President of Government Relations and USEA Board member, Majida Mourad; USEA Chairman, Vicky Bailey; USEA Executive Director, Barry Worthington; the Late Honorable Kevin J. McIntyre, FERC Chairman; and USEA Communications Director, Dipka Bhambhani attend USEA's WGC's congressional luncheon



USEA Executive Director Barry Worthington tells WGC about Regional Challenges and Opportunities in the Americas

USEA ON HEMISPHERIC PANEL

USEA Executive Director Barry Worthington participated at WGC to address how American natural gas would help meet a growing global energy demand and reduce energy poverty.

The panel, Regional Challenges and Opportunities in the Americas, moderated by Dr. Neil Parsan, former ambassador to Trinidad & Tobago, now managing director of ParsanCross, brought to light that natural gas supplies in the region are ample, and desire to bring more natural gas to market exists, but so do hurdles—more frequent and powerful hurricanes that threaten infrastructure, natural gas delivery logistics, transportation and economics.

Panelists included: Hector Castro Vizcarra, Minister for Energy Affairs at the Embassy of Mexico in Washington; Victor Carlos Urrutia Guardia, Panama's Secretary of its National Secretariat of Energy; Mark Loquan, President of the National Gas Company of Trinidad & Tobago; and, Salvador Escobedo, President & CEO of Pemex Procurement International.

USEA Executive Director Barry Worthington also addressed a side workshop titled "Opportunities for U.S. LNG and Gas to Power Development in Sub-Saharan Africa"—organized by USEA in cooperation with the U.S. Energy Department—where he spoke about key opportunities and challenges for LNG and import fueled gas-to power markets in sub-Saharan Africa.



USEA Executive Director Barry Worthington discusses opportunities for U.S. LNG and gas to power development in Sub-Saharan Africa at World Gas Conference side workshop.



At WGC, Secretary Perry supports USEA, Houston First Corp. and VisitHouston bid to host WEC 2022 in Houston.



U.S. ENERGY SECRETARY PERRY IS FRONT AND CENTER AT WORLD GAS CONFERENCE 2018

During WGC, Energy Secretary Rick Perry joined USEA, Houston First Corporation and VisitHouston to support USEA's bid to host the World Energy Congress in 2022 in Houston, Texas. Secretary Perry delivered an encouraging message of support that USEA shared with the international energy community.

COMMUNICATIONS

BECOMING A TOP INDUSTRY THOUGHT LEADER

As the U.S. became the world's largest oil and natural gas producer in 2018, discourse was changing about our country's role in the new age of abundance as a world supplier. USEA Executive Director Barry Worthington was once again part of high-level discussions worldwide about meeting domestic and global demand, reducing energy poverty, and deploying clean energy technology.

Worthington celebrated his 30th anniversary at the helm of USEA in September 2018. Over 30 years, USEA's core values remain steadfast. They are the seeds of our brand. Opportunities to share our brand and our message grow exponentially as we increase our exposure. We embrace opportunities, but we also create them.

We believe communications, creatively communicating, is central to this effort. It is participating on panel discussions, designing them, networking, outreach and sharing our message across diverse groups to create great opportunities. For almost 100 years, USEA has been a source of sound advice and practical information on energy. We cut through the noise, which is ever more important in our digital age.

USEA is steeped in energy policy discussions online, from Twitter to Facebook, Linked In, to Instagram. Everyone wants to be witness to the world, and USEA has adapted its messaging to new mediums to stay ahead, to be out front of news and information that is easily marred in the new digital age. Analog strategies have become marginal. 2018 reflected USEA's enhanced digital presence. We are an educational organization, and our engagement through our digital platforms has become critical. On our social platforms alone, our mission and message was amplified in ways unseen. The number of influencers following @USEnergyAssn exposed our brand to more than a million followers.



USEA Executive Director, Barry Worthington, expresses optimism for a U.S.-China trade agreement at the International Energy Forum in Beijing, China.

Barry Worthington and Dipka Bhabhani join Nobel Peace Prize winner, Rajendra Pachuaru, during World Sustainable Development Forum in Mexico City.

USEA Executive Director, Barry Worthington, chairs the Small-Mid Scale LNG Summit in Schiphol, Netherlands

In 2018, Barry Worthington traveled around the world to explain and laud the value of the new Trump administration energy policy. Marked by redundant regulation rollback, untying the hands of the U.S. energy industry, increasing production and development of energy resources to meet our U.S. and global energy demand. 2018 ushered in a conversation about how U.S. energy security impacts national security and security for our allies around the world.

Increased exposure bred opportunity; USAID renewed its partnership with several USEA international programs and DOE expanded its partnership with USEA.

Worthington continued to advance global policy through his work on the United Nations Economic Commission for Europe Committee on Sustainable Energy, and USEA communications continued to find new ways to tell the story in traditional and alternative ways. Worthington spoke to audiences globally and to the press on the nexus between delivering increasingly safe, affordable, reliable energy while achieving sustainable development goals.

With so much to offer the energy community, we wanted to take the opportunity to bring greater attention to our work.



USEA's communications team got ahead of the news in 2018 breaking several major industry stories and becoming an even stronger resource to the media.

USEA U.S. Energy Association
@USEnergyAssn

@NationalMining CEO Hal Quinn tells @NYSE Energy Spotlight: We are exporting 120 million tons of #coal. Market overseas is incredible & #China is installing 40,000 MW next year. That will probably increase at a rate of 3% annually with new clean #coal plants #COP24Katowice

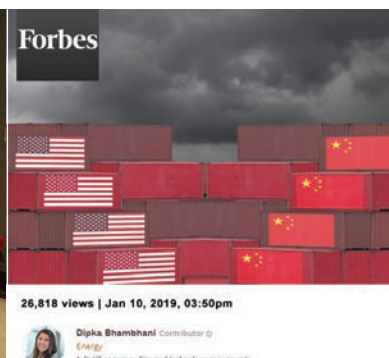
1.957K Reach 17 Engagement

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The number of followers on USEA Twitter grew 10,000% by the end of 2018.



USEA hosts the 2018 Energy Spotlight at the NYSE. USEA Executive Director Barry Worthington moderates a discussion with Ralph Izzo, Chairman and CEO, PSEG, Hal Quinn, President and CEO, National Mining Association, and Dena Wiggins, President, Natural Gas Supply Association.



An executive from Pennsylvania lighting technology giant Lutron Electronics says Chinese customs policies are turning the U.S.-China trade war into a scrappy knife fight aimed at incapacitating American businesses trying to supply critical energy infrastructure and components to the Chinese economy.
USEA Communications Director, Dipka Bhabhani's Forbes column brings increased exposure to USEA's brand and expertise



USEA Executive Director, Barry Worthington, discusses global energy trends with Fox Business host Liz Claman



USEA Communications Director Dipka Bhabhani speaks on "Beyond the Light Bulb" panel at the Africa Energy Indaba



USEA Communications Director Dipka Bhabhani and Nelson Mandela Foundation Chief Executive, Sello Hatang attend the Africa Energy Indaba in Johannesburg, South Africa.



USEA Executive Director, Barry Worthington, tells energy and environment graduate students at Johns Hopkins School of Advanced and International Studies that the U.S. energy industry is a dynamic and inclusive place to work

BARRY K. WORTHINGTON



Executive Director

BRIAN KEARNS



Chief Financial Officer

WILL POLEN



Senior Director

MARJORIE JEAN-PIERRE



Program Director

ALBERT DOUB



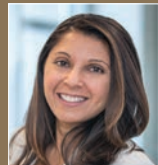
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