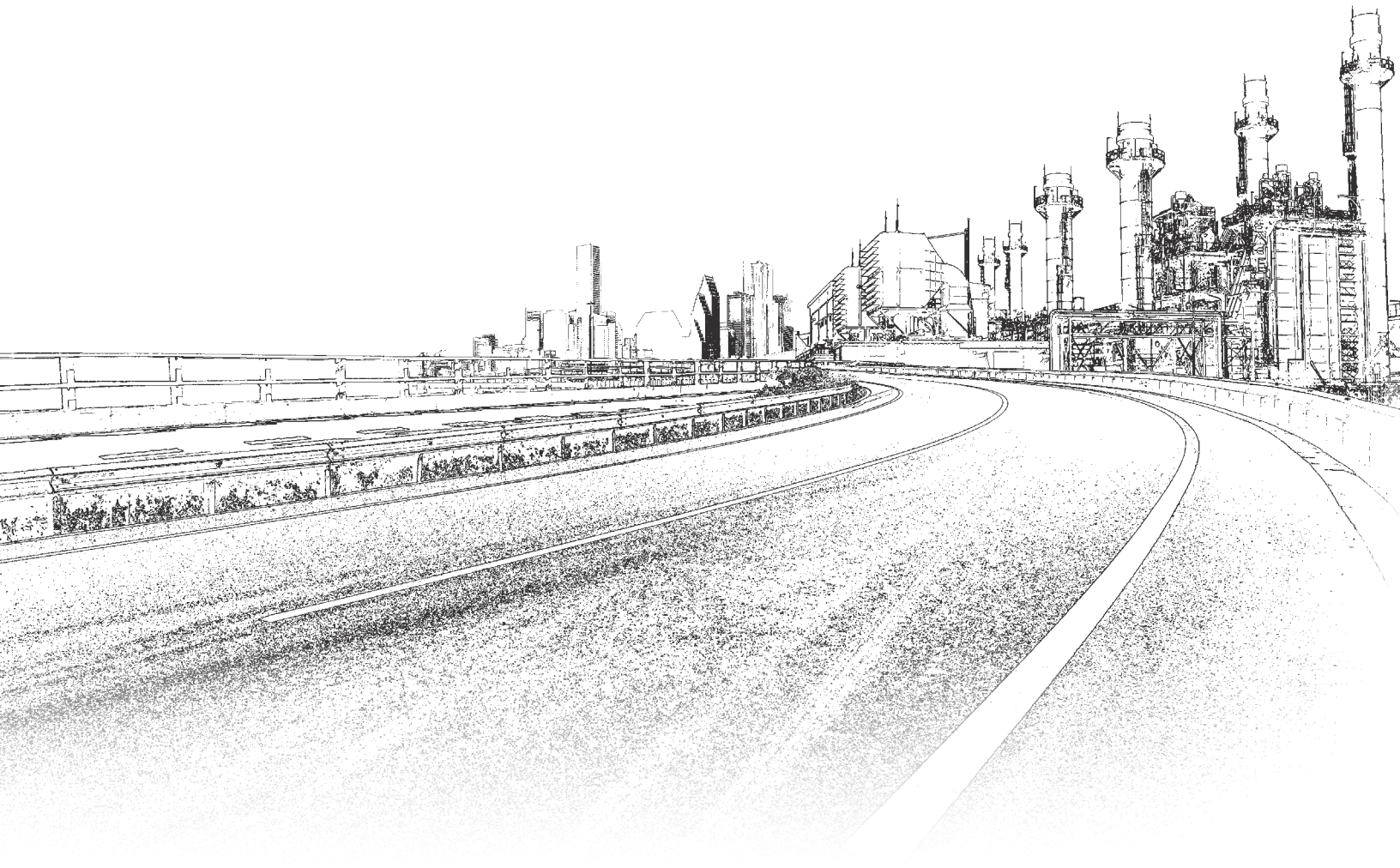




United States Energy Association

ANNUAL *Report* 2019



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's objective is to increase energy access globally and serve as a platform to share information about energy development and the realities of global energy issues in the 21st century.

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A MESSAGE FROM OUR CHAIRMAN



Dear USEA Members & Friends,

Though this 2019 Annual Report is a reflection of the great work of USEA over the past year, I want to begin by sharing my sympathy with fellow Board members, and our greater USEA family, staff and global energy stakeholders for all we've faced since the outbreak of the COVID-19 virus.

As we begin to rebuild, I think about the solid foundation our essential industry has laid, especially over the past year, to help us withstand the shocks of 2020.

Our industry has and will continue to adhere to sound principles of environmental protection, resource management, and efficient, reliable and affordable energy development and delivery.

2019 was an enormously successful year for the energy sector, for producers and consumers, from the renewable sector to the fossil fuel industry. We put ourselves on a trajectory.

As a country we celebrated emissions reductions, and the adoption of new technologies for emissions reductions for all types of energy production.

President Trump continued with policies that empowered the energy industry to produce and innovate. And the administration provided federal support to negotiate deals with our allies to export energy in unprecedented ways.

U.S. LNG thrived in 2019 as liquefied natural gas exports grew by about 60 percent and the country positioned itself as the third largest world supplier of LNG on a path to become number 1 by 2024.

We witnessed our government partners clearing bureaucratic hurdles to unveil a more streamlined efficient approval process for those LNG export terminals.

Meanwhile our USEA staff, federal and international partners, and industry volunteers, started new projects and completed older ones as we traversed the path to increase global energy access, recognizing its burgeoning role as a human right.

In this 2019 Annual Report, you'll read more about USEA programs, projects, and our growth. I hope you'll see what an impact this organization has and continues to make worldwide.

Our amazing staff continued to dedicate itself to our calling, convening and sharing massive amounts of technical, policy and other expertise around the world. We are paving the way for energy access, self-reliance and new alliances from Southeast Europe to sub-Saharan Africa.

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 U.S. Agency for International Development—28 years and counting—and the U.S. Energy Department, on projects to advance clean energy technology worldwide.

USEA has been around for nearly 100 years. But it was only 30 years ago when USEA Executive Director Barry Worthington took the helm with a vision.

He built partnerships with the federal government, and in 1991 led USEA into the former Soviet republics to help rebuild and restore critical electricity infrastructure. Barry assembled teams of utility volunteers, executives who donated their time, resources, and expertise for the greater global good.

You'll read more about that in this 2019 Annual Report.

So, in January 2019, our Board, staff and stakeholders kicked off the year celebrating the 30th anniversary of Executive Director, Barry Worthington. We rang the Opening Bell at the New York Stock Exchange.

It was a thrilling and rare experience whereby we created a new partnership for USEA with the NYSE, the financial sector and stakeholders in New York.

Cementing our USEA brand has been critical to our success.

Shortly thereafter, the Washington political machine was in high gear. Climate hearings began on Capitol Hill, and Barry Worthington was called twice to testify on energy, climate and national security before the House Energy and Commerce committee, and the House Foreign Affairs committee.

Being a congressional witness gave our executive director a chance to highlight USEA's international work and our successes overseas with our partner agencies—USAID and DOE.

It was a year of growth, more visibility for USEA, a stronger brand, all which yielded more opportunities and partnerships with our federal government. We were chosen as a federal partner with the State Department on the coveted Asia EDGE initiative to help create sustainable energy markets in the Indo-Pacific.

As I share these great stories with you, I feel privileged to serve as the Chairman of USEA, and I am honored to succeed, Vicky Bailey, USEA's longest-serving Chairman.

Vicky is a friend, a trailblazer in our energy world and a role model to so many of us who look to her leadership and accomplishments to drive our own. Her impact on the energy industry, and the policy and regulation affecting it worldwide is unparalleled.

On behalf of our entire organization, I want to thank Vicky, and you, for your continued support. USEA is at the core of all relevant high-level discussions and energy developments worldwide.

I expect 2020 will be a year of resilience, cooperation, restoration and yes, growth.

Sincerely,

Sheila Slocum Hollis

Chairman,
United States Energy Association

MERRIBEL S. AYRES



Principal
Lighthouse Consulting
Group, LLC

VICKY A. BAILEY



Founder
Anderson Stratton
International, LLC

JOHN BUCHOVECKY



Partner
Van Ness
Feldman, LLP

KARY CAUTHEN



*Vice President, Federal
Government Affairs*
Cheniere Energy, Inc.

ROBERT GEE



President
Gee Strategies
Group, LLC

KAREN ALDERMAN HARBERT



President & CEO
American Gas
Association

DONALD R. HOFFMAN



President & CEO
EXCEL Services
Corporation

SHEILA SLOCUM HOLLIS



*Of Counsel and Chair,
Washington Office*
Duane Morris, LLP

MICHAEL W. HOWARD



Chief Executive Officer
Electric Power
Research Institute

BRIAN KEARNS



Chief Financial Officer
U.S. Energy Association

MARIA KORSNICK



President & CEO
Nuclear Energy Institute

THOMAS R. KUHN



President
Edison Electric Institute

MAJIDA MOURAD



*Vice President,
Government Relations*
Tellurian, Inc.

RICH NOLAN



President & CEO
National Mining Association

CHARLES PATTON



*Executive Vice President,
External Affairs*
American Electric Power

JAMES B. ROBB



President & CEO
North American Electric
Reliability Cooperation

RANDALL B. ROE



Vice Chairman (Ret.)
Burns & Roe

EDMUND O. SCHWEITZER III



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

ROGER SMITH



*Vice President, Business
Development & Strategy*
Fluor Corporation

MIKE SOMMERS



President & CEO
American Petroleum Institute

DALE WALSH



Vice President, Corporate Affairs
Chevron Corporation

DANIEL YERGIN



Vice Chairman
IHS Markit

BARRY K. WORTHINGTON



Executive Director
United States Energy Association

BOARD OF DIRECTORS

DECEMBER 31, 2019

USEA MEMBERS 2019

Advanced Engineering
Associates International, Inc.
AECOM
AEGIS Insurance Services, Inc.
American Coal Council
American Council of
Engineering Companies
American Electric Power
American Fuel &
Petrochemical Manufacturers
American Gas Association
American Petroleum Institute
American Public Power
Association
American Society of
Mechanical Engineers
Amsterdam & Partners LLP
Anderson Stratton
International, LLC
Association of Energy
Engineers
ASTM International
Baker Botts, LLP
Bechtel Corporation

Black & Veatch Corporation
Brookhaven National
Laboratory
Burns & Roe Enterprises, Inc.
Canary, LLC
Chemonics International, Inc.
Cheniere Energy, Inc.
Chevron Corporation
Clifton Larson Allen, LLP
Combined Cycle Journal
ConocoPhillips
ContourGlobal
CyberCon
DAI Global, LLC
Delaware Office of
Community Services
Duane Morris, LLP
ECODIT LLC
Edison Electric Institute
Electric Power Research
Institute
Enbridge

Enchant Energy Corporation
Energy & Mineral Law
Foundation
Energy Equipment &
Infrastructure Alliance
Energy Markets Group, Inc.
Energy Policy Institute of
Australia
ENGIE North America
Ernst & Young
ESS, Inc.
ESTA International
Excel Services Corporation
Exelon Corporation
Exxon Mobil Corporation
Fluor Corporation
Gas Systems Engineering, Inc.
Gas Technology Institute
Gee Strategies Group
Geothermal Resources Council
Global Development
Opportunities, LLC
Grant Thornton

Gorrellick, Tievy & Assoc.
Hunton Andrews Kurth, LLP
ICF International
Idaho National Laboratory
IHS Markit
INTEK Inc.
Interstate Natural Gas
Association of America
Johnson Controls, Inc.
Jordan Capital Management
K&M Advisors LLC
Kaiserwetter Energy Asset
Management
KPMG
Lawrence Livermore National
Laboratory
Lehigh University
Lighthouse Consulting Group,
LLC
LNG Allies
London Economics International
LLC
Lutron Electronics
Methanol Institute
Morgan Stanley
Morgan, Lewis & Bockius LLP
Mott MacDonald

National Energy Foundation
National Mining Association
National Ocean Industries
Association
National Rural Electric
Cooperative Association
Natural Gas Supply Association
Nexant, Inc.
North American Electric
Reliability Corporation
Nuclear Energy Institute
Oliver Wyman
OnGrid Options (Formerly
Bluewave Resources, LLC)
Peabody Energy Corporation
Petco International LLC.
Planning & Forecasting
Consultants
Power Engineers
PricewaterhouseCoopers LLP
RTI International
Sacramento Municipal Utility
District
Schweitzer Engineering
Laboratories, Inc.
Segura Consulting, LLC
Shell Corporation

Smart Electric Power Association
Solar Energy Industries
Association
Solar Turbines a Caterpillar
Company
Southern Company
Strategic Power Systems, Inc.
Summit Power Group, LLC
Synfuels Americas
Tellurian Inc.
Tennessee Valley Authority
Tetra Tech
The Abraham Group LLC
Tulane University
U.S. Agency for International
Development
U.S. Department of Energy
University of Florida
University of Minnesota Duluth
University of Southern California
Utilities Technology Council
VanNess Feldman
West Financial Services, Inc.
Westinghouse Electric Company
WorleyParsons

FLAGSHIP EVENTS

15TH ANNUAL STATE OF THE ENERGY INDUSTRY FORUM

January 24, 2019

In January, on the eve of President Trump’s State of the Union address, USEA brought together the country’s top energy industry executives, policymakers and influencers for its 15th Annual State of the Energy Industry Forum at the National Press Club in Washington, D.C.

Executives from across the sector, from fossil fuels to renewable energy, discussed the energy landscape from their unique vantage point. The good news is that all expected and planned for growth for their segment of the industry.

USEA structured the Forum in three main segments: *Challenges and Opportunities for the Energy Industry*; *Electric Issues 2019*; and, *2019 Oil & Gas Outlook*.

Abigail Ross Hopper, President & CEO, Solar Energy Industries Association, discussed the upcoming “Solar Energy Decade” that would begin in 2020. She told the audience that 76% of American energy consumers want their utility to invest more in solar power, both large and small-scale solar. USEA-member SEIA revealed by the end of 2019, that consumer demand was being met.

According to its fourth quarter report, more than 1.4 gigawatts of utility-scale installations came online by the end of the third quarter. And across all market segments, solar photovoltaics represented 39% of all new electricity-generating capacity additions.



Tom Kuhn, President of Edison Electric Institute (EEI), speaks during Session One of the Forum, “Challenges and Opportunities For the Energy Industry In 2019”.

The second session of the Forum, *Electric Issues 2019*, focused on the state of electricity generation, transmission, and distribution. Executives from the geothermal, coal, utility, and wind organizations delivered remarks.

Betsy Monseu, CEO, American Coal Council, highlighted the plight of coal plants in the United States in recent years. Coal’s share of national electric generation decreased from 45% in 2010, to 28% in 2018. However, she emphasized that coal is a sturdy source of electric generation, characterized by low cost and cost stability over time.

Fossil fuels took center stage at the final session of the day, *2019 Oil & Gas Outlook*. Leaders from gas and petroleum associations discussed the state of U.S. exports, innovation in the fossil fuel industry, advanced technology, and the need to protect the process of hydraulic fracturing that led the country to the shale revolution and positioned the U.S. as the largest oil and gas exporter.

Charlie Riedl, Executive Director, Center for Liquefied Natural Gas, talked U.S. LNG. At the beginning of 2019 during the Forum, Riedl predicted it would be one of the best years for U.S. LNG. Between expedited approvals for applications at the U.S. Energy Department to the Federal



Mike Sommers, President & CEO of American Petroleum Institute (API), discusses the 2019 outlook for the oil and gas industry.

“Give every man thy ear, but few thy voice.”

- William Shakespeare



Dena Wiggins (left), President & CEO of the Natural Gas Supply Association (NGSA), with former USEA Chairman Vicky Bailey.

Energy Regulatory Commission streamlining the siting and construction permitting process for LNG terminals, the industry is optimistic about its growth.

Reidl looked forward at global energy demand and how U.S. LNG could and would help meet that.

He also focused on the rapidly growing nature of LNG infrastructure and exports. The United States exported LNG to 28 countries in 2018, and three new LNG export facilities would begin construction during in 2019.

USEA Executive Director Barry Worthington said:

“Hearing the presentations and discussions among our members, executives, policymakers and others, I’m increasingly confident that 2019 will be a prosperous year for the energy sector. I’m also encouraged by the positive impact the Trump administration policies have had on the energy sector and our members overall.

“It’s clear that President Trump’s policies have encouraged American energy production and removed unnecessary and redundant barriers to development, delivery, technological innovation and exports. Policies that secure and expand U.S. energy supplies position our country as a world supplier which advances U.S. energy security and protects our allies.”

OTHER EXECUTIVES FROM USEA-MEMBERS WHO SPOKE AT THE FORUM INCLUDE:

- **Mike Sommers**, President & CEO – American Petroleum Institute
- **Thomas Kuhn**, President – Edison Electric Institute
- **Dave McCurdy**, President & CEO – American Gas Association
- **Hal Quinn**, President & CEO – National Mining Association
- **Maria Korsnick**, President & CEO – Nuclear Energy Institute
- **Jim Matheson**, Chief Executive Officer – National Rural Electric Cooperative Association
- **Will Pettitt**, Executive Director – Geothermal Resources Council
- **Delia Patterson**, Sr. Vice President – Advocacy & Communications and General Council – American Public Power Association
- **Joy Ditto**, President & CEO – Utilities Technology Council
- **Arshad Mansoor**, Sr. Vice President, Research & Development – Electric Power Research Institute
- **John Hensley**, Senior Director of Research & Analytics – American Wind Energy Association
- **Dena Wiggins**, President & CEO – Natural Gas Supply Association
- **Donald Santa**, President & CEO – Interstate Natural Gas Association of America
- **Derrick Morgan, Sr.**, Vice President, Federal & Regulatory Affairs – American Fuel & Petrochemical Manufacturers

ANNUAL MEMBERSHIP MEETING & PUBLIC POLICY FORUM

May 23, 2019

On May 23rd USEA hosted its Annual Membership Meeting & Public Policy Forum. The mid-year meeting brought together USEA members and stakeholders to highlight industry achievements and international efforts, including success stories of improving global energy access.

USEA hosted a distinguished group of speakers from the Trump administration in 2019, which included Environmental Protection Agency Administrator Andrew Wheeler and Federal Energy Regulatory Commission Chairman Neil Chatterjee.

The star-studded line-up of influencers drew more than 100 participants from the public and private sectors, journalists, diplomats, and others.



Senator Joe Manchin (D-WV) delivers the opening keynote address and emphasizes the value of fossil fuels and his commitment to protecting the industry.

that because of the extensive use of coal by India and China, that even if the U.S. were to close all coal plants, the impact would be minimal on global coal use.

FERC Chairman Neil Chatterjee delivered the afternoon keynote remarks. He discussed FERC’s accomplishments in helping drive success in the energy sector, streamlining otherwise laborious bureaucratic processes, including the process to approve LNG terminal applications. The FERC Chairman said the U.S. was uniquely poised to help meet international demand for natural gas, and he stressed the need for new U.S. pipeline capacity. Chatterjee touted FERC’s work on energy storage, mentioning that a lot of foreign partners are reaching out to the agency to learn more about recent U.S. energy storage advancements. Chatterjee praised the work of USEA calling it “a powerful catalyst of information sharing.”

West Virginia Senator Joe Manchin kicked off the event with the opening keynote address.

The Democratic senator spoke extensively about the value of fossil fuels to our energy mix and our international efforts to meet a growing energy demand, and he talked about his commitment to protecting the industry.

He mentioned the fears that were raised when he was first elected Ranking Member of the U.S. Senate Committee on Energy and Natural Resources.

“You’re not going to eliminate fossil fuels and if you think we’re going to eliminate fossil anytime soon, you’re mistaken,” he told USEA.

West Virginia suffered incredible losses during the last administration when former President Obama promised to shrink the coal industry. Senator Manchin emphasized

that even if the U.S. were to close all coal plants, the impact would be minimal on global coal use.



FERC Chairman Neil Chatterjee discusses the successful year for the U.S. energy industry, including the U.S. LNG revolution and energy storage advancements.



DOE Under Secretary Mark Menezes tells USEA about energy innovation and energy security during the USEA Annual Meeting.



EPA Administrator Andrew Wheeler describes how Trump administration policies have helped the environment during the USEA Annual Meeting.

OTHER HIGH-LEVEL SPEAKERS INCLUDED:

- **Brock Bierman**, Assistant Administrator for Europe and Eurasia – U.S. Agency for International Development
- **Joe Balash**, Assistant Secretary for Land and Minerals – U.S. Department of the Interior
- **William Von Hoene**, Senior Executive Vice President and Chief Strategy Officer – Exelon Corporation



USEA Annual Membership Meeting, and passed it to then-Treasurer Sheila Slocum Hollis.

Bailey took the helm as USEA Chairman in 2013 and became the first female to lead our Board. She took over and led during a pivotal time of growth for our association and industry.

At the time of her departure, USEA Executive Director Barry Worthington called Bailey a strong leader, one whose experience and expertise were instrumental in the success of our international programs.

“We are deeply grateful for her leadership and her friendship,” Worthington said.

In 2016, USEA and USAID featured Bailey in their “Women in Energy” series. She spoke extensively about her experiences as a woman in the industry and the challenges she faced in her career, especially as a minority woman in a field dominated by men.

Bailey is well known for her time as an Assistant Secretary at the Department of Energy under former Energy Secretary Spencer Abraham. She also passed the landmark Order 888, the current rules of interstate electricity transmission while she was on the Federal Energy Regulatory Commission.

USEA THANKS FORMER BOARD CHAIRMAN VICKY BAILEY

USEA’s longest-serving Chairman, Vicky Bailey, brought her gavel down for the last time in May 2019, just before the

Bailey has been at the epicenter of energy development for decades.

Speaking about her time on the Indiana Utility Regulatory Commission, to which she was appointed in 1986, Bailey said:

“I was the only female Commissioner on the Board at the time and the first African American female to be on the Commission. At times, this made me wonder how do I fit in and what do I say that has substance, meaning, and will make an impact.

“You are so busy trying to choose your words so carefully that sometimes you end up saying nothing at all and the last thing you want is to not have a voice. So for women, I would say that it is so important to find your voice and be comfortable in participating. So that may mean getting out of your comfort zone and give voice to your thoughts and ideas and know they are important because you are there for a reason.”



During the USEA Annual Membership Meeting & Public Policy Forum, USEA announced the recipients of the 2019 USEA Volunteer Awards.

USEA applauds the spirit of volunteerism and recognizes outstanding individuals and organizations for their contributions to USEA activities that expand energy access globally. The International Volunteer Recognition Program highlights the extraordinary contributions of the U.S. energy industry to support U.S. government initiatives, demonstrate global corporate and social responsibilities, and contribute to worldwide sustainable development.

2019 USEA CORPORATE VOLUNTEER AWARDS



Edison Electric Institute

USEA honored Edison Electric Institute (EEI) for its contribution to the Utility Cyber Security Initiative, a project of the USAID/USEA Energy Technology and Governance Program (ETAG) which was created in response to cyber-attacks directed at transmission and distribution networks in Europe and Eurasia. Scott Aaronson accepted the award on behalf of EEI.

EEI is dramatically improving the capacity of utilities in Armenia, Georgia, Moldova and Ukraine to: identify threats; exchange threat information; adopt technical, procedural and institutional cyber security standards; implement a risk-based methodology to evaluate and prioritize threats; and create new strategies and corporate responsibilities for cyber security.



Chelan Public Utility District (Chelan PUD)

USEA recognized Chelan Public Utility District (Chelan PUD) for its contribution to the Uganda Utility Partnership under the USEA/USAID Energy Utility Partnership Program. Janel Ulrich & Garry Arseneault accepted the award on behalf of Chelan PUD.

Chelan PUD sent volunteer experts to Kampala, Uganda to share best practices in asset management and operations, and maintenance of hydropower plants. Later that year, Chelan PUD hosted a delegation of high-level UEGCL executives at its headquarters in Wenatchee, Washington.

This tripartite partnership has been immensely successful in helping Uganda develop its asset management strategy, improve operations and maintenance procedures, and certify its employees in ISO 55000.



2019 USEA INDIVIDUAL ENERGY VOLUNTEER AWARDS



Charles Bayless, Former CEO
Tucson Electric Power, Illinois Power

USEA is honored to recognize Charles Bayless for his contributions to the Electricity Market Initiative for Southeast Europe (EMI), a project of the USAID/USEA Energy Technology and Governance Program.

Bayless’ participation in the Electricity Market Initiative is changing the transmission planning and operation paradigm in Southeast Europe. He is helping electricity executives and regulators prepare for microgrids, electric vehicles, renewables on the transmission and distribution networks, and electricity storage, in a manner that few experts can.

Phillip Harris, Former CEO
PJM Interconnection

USEA recognized Phillip Harris for his contribution to the Electricity Market Initiative for Southeast Europe (EMI), a project of the USAID/USEA Energy Technology and Governance Program.

As an ETAG volunteer Harris applied his knowledge of electricity markets to Southeast Europe, where “Balkanized” national markets result in market seams and higher transaction costs for wholesale electricity trade.

Harris’ contributions to the Electricity Market Initiative are accelerating the development of the wholesale market, improving energy security and bringing reliable and affordable power to electricity consumers in the region.



Nelisiwe Magubane, Chairperson
Matleng Energy Solutions (Pty) Ltd.

USEA recognized Nelisiwe (Neli) Magubane for her contribution to the Energy Utility Partnership Program (EUPP). Magubane’s participation in EUPP activities was instrumental in the success of many USEA workshops and exchanges worldwide. Magubane is the Chairperson of Matleng Energy Solutions.

Matleng Energy Solutions is a South African black woman-owned company, led by Magubane, in association with Seleme Melato and Corrie van der Wath.

With Magubane’s vast expertise in all areas of the energy sector, USEA was grateful that she volunteered her expertise to assist in our partnership activities. Her contributions include participation in USEA workshops in several countries, including Tanzania, Ghana, and Thailand.

ADVANCED ENERGY TECHNOLOGY FORUM

July 17, 2019



Newly-elected USEA Chairman Sheila Hollis opens the inaugural Advanced Energy Technology Forum.

In the spring of 2019, USEA Executive Director Barry Worthington said there was an important policy discussion not happening in Washington, one that explores the nexus between energy policy and technology development.

By the summer of 2019, he had launched the inaugural Advanced Energy Technology Forum.

In July, USEA hosted more than 100 energy and technology executives from the government and private industry to explore how one affects the other and innovation on both fronts.

Energy Secretary Rick Perry delivered the keynote address at the Forum where he praised U.S. universities and national laboratories for developing some of the most promising new technologies that will transform the energy industry and the U.S. electric sector.



USEA Executive Director Barry Worthington hosts a "fireside chat" with Secretary of Energy Rick Perry.

"As U.S. Energy Secretary, I have a front row seat to the greatest incubators of innovation, our national laboratories. They are spearheading astonishing research on artificial intelligence and they've brought us breakthrough technologies that have unleashed multiple energy sources from renewables to fossil fuels and nuclear.

"Under President Trump's leadership, we have put innovation, not regulation squarely in the drivers' seat of our energy policy." –U.S. Energy Secretary Rick Perry

Perry's remarks at USEA came on the heels of President Trump's remarks at the White House in July where the administration celebrated with the energy industry American energy innovation and environmental policies that have made U.S. air and water among the cleanest in the world.

Two special panels anchored the afternoon itinerary—one on national labs and another on universities.

White House Chronicle host Llewellyn King moderated "What's New With The National Labs," where experts from Brookhaven, Lawrence Livermore, and Idaho national labs discussed the state of research and development in their respective facilities and showcased their work.

The second panel, "What's New With The Universities?," delved into the energy degree programs of major universities, including new energy curricula, overview of degrees offered, and the institutional goals of the energy programs.

The panel featured speakers from the University of Florida, University of Minnesota Duluth, Pennsylvania State University, and Lehigh University. Steve Mitnick, Public Utilities Fortnightly editor, moderated the discussion.



USEA Director of Communications and External Affairs Dipka Bhambhani introduces a panel with professors from universities with distinguished energy programs.

UNITED STATES ENERGY AWARD 2019



In 2019, Dr. Michael W. Howard, then-President and CEO of the Electric Power Research Institute, accepted the coveted United States Energy Award at the Advanced Energy Technology Forum in July.

Howard, arguably the country's foremost expert in electrical engineering and power systems, has more than 35 years of leadership experience overseeing operations, which includes finance, sales and marketing, product development, and strategic planning. Howard has a long history of providing technical consulting services and products to domestic and international electric utility companies.

Prior to his role as CEO of EPRI, Howard served as Senior Vice President for research and development, and President and CEO of EPRI Solutions, Inc., a wholly-owned subsidiary of EPRI that had been created by the merger of three companies, one of which was the EPRI Power Electronics Application Center Corporation, where he served as President and CEO.

Dr. Howard started his career in 1980 with Westinghouse Electric Corporation as an application engineer for the fossil and nuclear digital control systems group.

USEA Executive Director Barry Worthington said, "Mike Howard has demonstrated strong leadership in guiding EPRI to participate more fully in meeting the challenges of the global electric industry. This award recognizes EPRI's role in facilitating the use of new technologies to enable more people to have cleaner and affordable electricity."



In accepting the U.S. Energy Award, Howard said, "I am honored to receive this USEA award in recognition of EPRI's growing leadership in the global electric industry.

"I am most appreciative of the EPRI scientists and engineers who are actively sharing their talents and expertise with the goal of using technologies to strengthen the electric systems and provide access to electricity to more of the world's citizens."

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.

12TH ANNUAL ENERGY SUPPLY FORUM

October 2, 2019

USEA’s 12th Annual Energy Supply Forum featured dynamic presentations from high-level industry experts and policy leaders on the state of energy exploration and production, electricity generation, and energy fuel supply.

Speakers unearthed several great discussions among participants throughout the day about resource diversity, alternative energy, and cooperation between the public and private sector on meeting a growing energy demand.



Dr. Susan Hamm, Director of the Geothermal Technologies Office in DOE's Office of Energy Efficiency & Renewable Energy (EERE), discusses the progress and status of geothermal energy development.

USEA kicked off the Forum with a focus on clean and renewable energy.

Three officials from DOE's Office of Energy Efficiency and Renewable Energy (EERE)—**Dr. Susan Hamm**, Director, Geothermal Technologies Office; **Hoyt Battey**, Strategy and Analysis Program Manager, Water Power Technologies Office; and, **Dr. Becca Jones-Albertus**, Solar Energy Technologies Office—shared years of collected geothermal data and analysis and described the immense opportunity for U.S. expansion of geothermal and solar energy.

They said there is massive untapped renewable energy potential across the geothermal, water, and solar sectors. While the past two decades have witnessed unprecedented growth across these sectors, the technology to harvest this energy is becoming increasingly cheaper and more efficient.

“Solar capacity has grown by 50 times over the last 10 years. It now generates 2% of the electricity in the United States.” —Becca Jones-Albertus, DOE Office of EERE



Speakers highlighted EERE's critical role in developing these technologies during early-stage research and development. They said EERE develops a foundation of knowledge upon which advanced techniques and technologies can be built.

Just after USEA-member LNG Allies' President and CEO, Fred Hutchison, painted a rosy picture of U.S. liquified natural gas and a thriving export market, the audience was jarred out of the reverie with the luncheon keynote speaker, Robert McNally, Founder and President of the Rapidan Energy Group who packed the National Press Club ballroom.

On the heels of Iran's attack on Saudi oil facilities, McNally described in-depth the geopolitical turbulence in the Persian Gulf and its immediate and sustained impact on oil markets using vivid historical references.

McNally also announced that volatile price fluctuations would be “the new normal” with oil markets, since there is no longer a global swing producer that is able and willing to adjust oil supply quickly and legally in an effort to stabilize the global oil price.

OTHER SPEAKERS INCLUDED:

- **Jason Selch**, CEO – Enchant Energy
- **Donald Hoffman**, President and CEO – Excel Services Corporation
- **John Dabbar**, Vice President Government Affairs – ConocoPhillips
- **Marty Durbin**, President – Global Energy Institute



USEA Board Member Donald Hoffman, President & CEO of EXCEL Services Corporation, speaks about recent advancements in nuclear technology.



Marty Durbin, President of the Global Energy Institute of the U.S. Chamber of Commerce, delivers an update on the institute's role in facilitating U.S. energy growth.

BRIEFING SERIES 19

Throughout the year, USEA organizes informational briefings designed to inform our members and stakeholders of developments in energy technology, policy and market trends.



FEB 13, 2019

01

Central American Power Markets: Lessons Learned and Policy Recommendations With Particular Emphasis on Competitive Procurement
Center for International and Strategic Studies



FEB 28, 2019

02

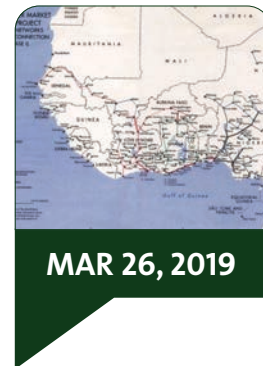
The Internet of Things As The Driving Force Minimizing Investment Risk & Maximizing Returns of Future Power Generation
Kaiserwetter Energy Asset Management



MAR 5, 2019

03

An Approach For Gigaton Scale Utilization of Co2 By The Construction Sector
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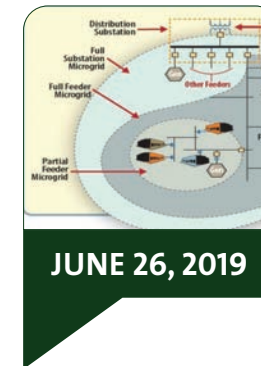
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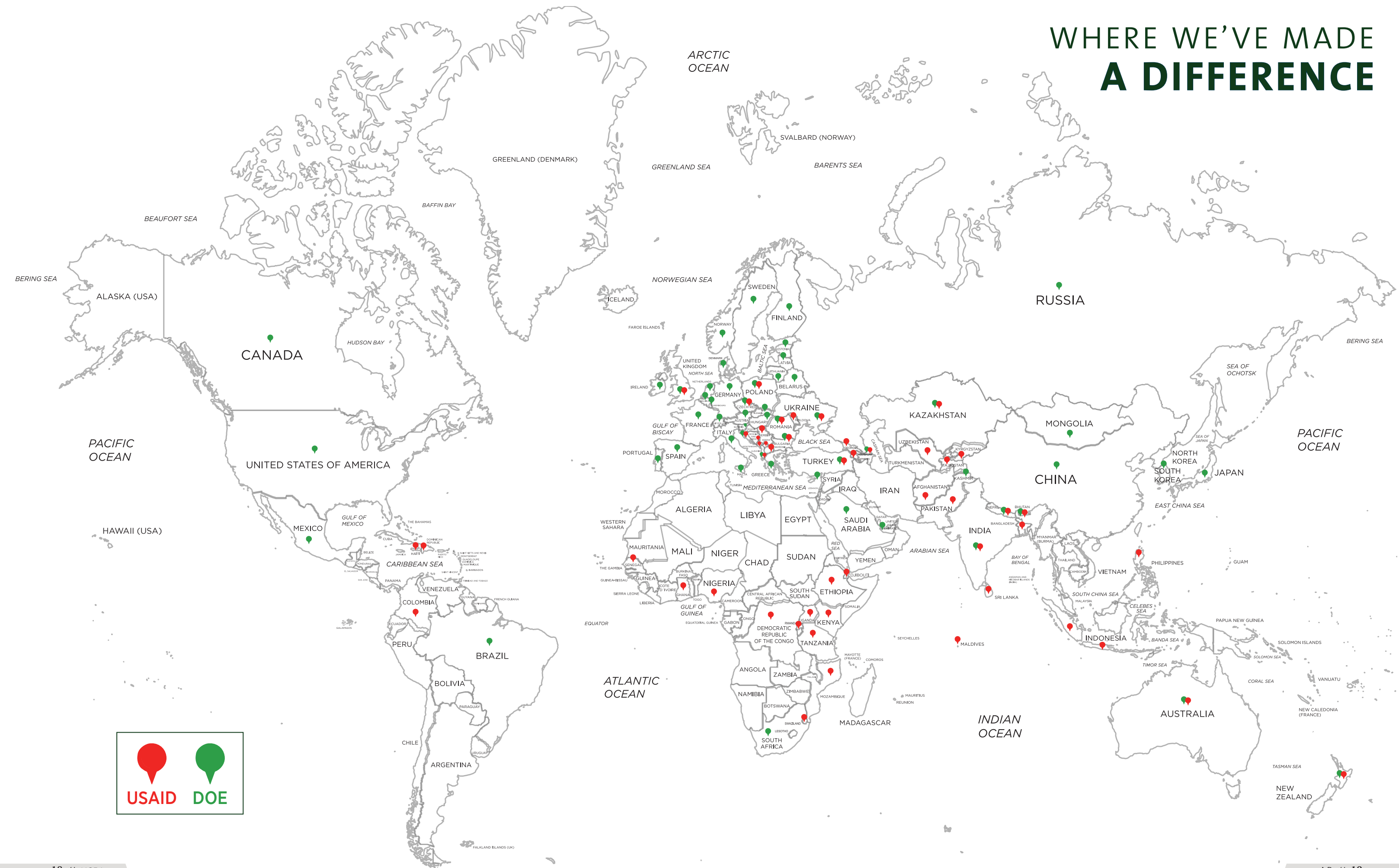


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Proving The Economic Viability of CCUS
Enchant Energy Corporation

WHERE WE'VE MADE A DIFFERENCE



CONSENSUS 2019

BUILDING INTERNATIONAL CONSENSUS ON OIL AND NATURAL GAS

In 2019, USEA continued to work with the U.S. Department of Energy's Office of Fossil Energy to increase support and education of the oil and natural gas sectors through the "Building International Consensus on Oil and Natural Gas" program.

Because of continuing U.S.-China trade negotiations in 2019, USEA and DOE postponed the hallmark U.S. China Oil and Gas Industry Forum until 2020.

The U.S. and China continued sideline conversations about energy cooperation as China looked to the U.S. to help it meet its growing energy demand for oil and natural gas.

According to the Energy Information Administration, the U.S. became the world's largest natural gas producer in 2015 and the world's largest petroleum producer in 2017.

The U.S. is now the largest energy exporter in the world, supplying oil and gas domestically and internationally to U.S. allies.

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.



U.S.-INDIA GAS TASK FORCE (GTF)

In 2019, India was a focal point as a critical U.S. energy partner and growth market for U.S. exports.

In 2018, the U.S. Department of Energy invited USEA to serve as Secretariat for the U.S.-India Gas Task Force (GTF) under the U.S.-India Strategic Energy Partnership.

Throughout 2019, USEA worked with DOE officials, U.S. industry, the Government of India and India's state-owned energy companies to expand the use of natural gas on the subcontinent and increase U.S. liquefied natural gas (LNG) exports to India.

The GTF supports the U.S. – India Strategic Energy Partnership 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

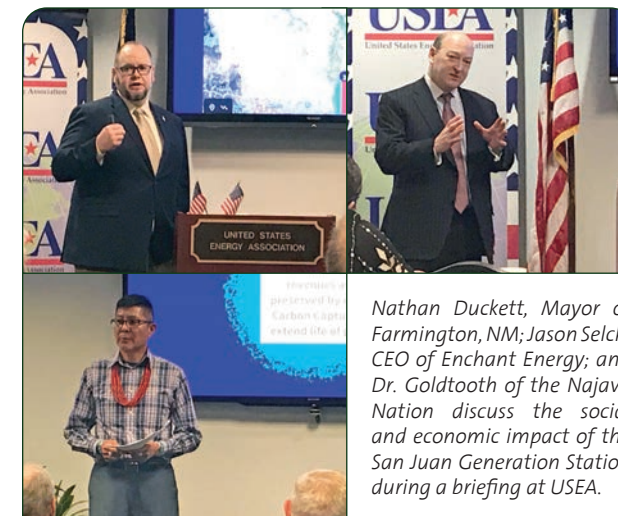
Under the agreement, the Indian government will meet its objectives of growing its natural gas economy, while the U.S. will meet its goal of promoting exports of natural gas and other goods and services.

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 gas needs. In 2019, several GTF members signed Memoranda of Understanding (MOUs) for commercial and technical cooperation in LNG. The GTF produced white papers on policy and commercial frameworks for successful development of a natural gas-based economy. GTF members have also developed several pilot projects to be implemented in 2020-2021 to prove the economic viability of natural gas-fueled industry in India.

COAL CONSENSUS

The U.S. Department of Energy (DOE) and USEA Promoting Domestic and International Consensus on Fossil Energy Technologies Program (CONSENSUS) conducts workshops, training programs, informational briefings and performs analyses to communicate the technical, environmental and societal benefits of fossil energy and clean coal technologies.



Nathan Duckett, Mayor of Farmington, NM; Jason Selch, CEO of Enchant Energy; and Dr. Goldtooth of the Navajo Nation discuss the social and economic impact of the San Juan Generation Station during a briefing at USEA.

WORKSHOPS

USEA hosted five workshops under DOE CONSENSUS

- Rare Earth Elements and Critical Mineral Production from Domestic Coal-Based Resources
- Direct Air Capture Technology Needs
- Future Paths of Emissions Reduction Technologies/Systems in the U.S.
- Intersection of Advanced Manufacturing and Clean Coal and Carbon Capture Technologies
- CCUS Deployment Training with a focus on 45Q for Western State Governor's Offices and congressional delegations

BRIEFINGS

USEA & DOE hosts a series of monthly briefings to improve the public's understanding of Carbon Capture, Utilization and Storage technology.

OTHER BRIEFINGS OF 2019:

- *Social and Economic Impacts of the San Juan CCUS Project*
- *Dry Forks Power Station Integrated Test Center, Model Research in Modern CCUS and the future of Coal-Fired Power*
- *Research Experience in Carbon Sequestration: Application of Brine Fluids for CO₂ Geologic Storage*
- *Opportunities in Carbon Utilization- A Vital Pathway for Decarbonization*
- *An Update on the Status of 45Q and How to Prepare for its Usage*
- *Providing the Economic Viability of CCUS*
- *Significant Low-Cost Opportunities for CCUS Deployment*
- *Economic Impacts of Carbon Capture and Sequestration*
- *CO₂ mineralization: An Approach for Gigaton Scale Utilization of CO₂ by the Construction Sector*



USEA hosted the first Western States Coal Strategies Forum in Moab, Utah, with DOE FE and Utah Governor Gary Herbert's Office of Energy Development to bring together industry, government, tribal leaders, trade and market partners to explore opportunities for coal deployment, CCUS technology, advanced research in coal technologies, and discuss opportunities to export coal through western ports.

EUPP

ENERGY UTILITY PARTNERSHIP PROGRAM

The Energy Utility Partnership Program (EUPP) is a U.S. Agency for International Development (USAID)-funded program that provides capacity building assistance to utilities and energy companies overseas to strengthen their ability to effectively manage, plan, and operate power systems, run financially viable businesses, and integrate different types of energy resources into their power grids.

EUPP conducts partnership activities with utilities of developing countries in Asia, Africa, and Latin America. These partnerships teach the staffs of the overseas utilities U.S. and international best practices and benchmarking. In 2019, partnership activities emphasized transmission topics such as system modeling, cross border energy exchange, and renewable energy integration. EUPP also continued to exchange information and conduct training on substation maintenance, competitive procurement, data management for geothermal, project/contract management, and system flexibility.

ETHIOPIA GEOTHERMAL PARTNERSHIP

The East Africa Geothermal Partnership (EAGP) team worked with Ethiopian Electric Power (EEP) to finalize and deliver a Geothermal Risk Mitigation Facility (GRMF) grant proposal to the African Union Commission. This was the final stage in the application process in which EEP is seeking \$7.7 million in drilling support and infrastructure costs. With the application submitted, EEP is able to enter



Ethiopian Electric Power (EEP), alongside USEA, formally submits their GRMF grant to the African Union Commission.

negotiation stages with the African Union Commission for an exploratory drilling grant for the Alalobeda geothermal site. The grant will be critical to developing a utility-scale geothermal plant that would add 70 MW of clean, reliable, baseload electricity.

The EAGP team continued supporting the development of a geothermal relational database for the country. Working with Geological Survey of Ethiopia (GSE), Ethiopian Electric Power (EEP) and Ethiopian Energy Authority (EEA), the EAGP team strengthened data management principles to build a reliable, accessible geothermal database. Reliable, accessible data on Ethiopia's geothermal prospects will provide both public and private developers the ability to analyze a resource and seek accurate data, decreasing the cost and time spent on the resource evaluation stage.

EAGP encouraged EEA's geothermal directorate staff to attend technical geothermal training at the African Geothermal Center of Excellence in Kenya. EEA is charged with granting exploration and development licenses in the power sector. For the new geothermal directorate, training staff on the development process of geothermal energy is critical to instilling the skillsets necessary to establish and maintain a positive enabling environment that will allow public and private geothermal developments to thrive.



KenGen engineers discuss the current reservoir model for Olkaria with a consultant.

KENYA GEOTHERMAL PARTNERSHIP

The Kenya Electricity Generating Company (KenGen) plans to add an additional 652 MW of geothermal energy by 2023 as part of Kenya's national "Good to Great" strategy. While preparing this rapid increase in production, proper management of their resource is critical. USEA's EAGP team supported KenGen in assessing and validating their current reservoir model for the Olkaria Geothermal Power Station. The accuracy of the model is central to ensuring KenGen can continue to develop and operate the country's premier power resource.

Over several years, EAGP developed a partnership between KenGen, Maasai community leaders, New Zealand's Contact Energy, and Maori partners from Ngati Tahu to share best practices for environmental and social engagement in geothermal power plant development. In 2019, this partnership led to the launch of a corporate-wide KenGen Community Engagement Strategy. The Community Engagement Strategy will now be enacted in all future generation projects across the country.

EAST AFRICA REGIONAL GEOTHERMAL PARTNERSHIP

EAGP convened geothermal leaders from across East Africa to attend the Geothermal Resource Conference and participate in a roundtable on geothermal industrial parks in East Africa. The event promoted strategies for the accelerated development of geothermal industrial parks in East Africa. Building long-distance transmission infrastructure from power plants to electricity load centers is a challenge in many East African countries. By promoting the development of industrial load centers near power generation centers, these countries will foster economic development while mitigating environmental impacts of projects.

KENYA

EUPP is assisting Kenya's power sector to improve its planning and grid operations through the implementation of a fully functional network simulation model that utilities can use to plan for future expansion of the transmission system. In 2019, the group completed the advanced power system modelling and contingency analysis, steady state security analysis, and network planning and analysis training. Upon completion of USEA's 18-month training and modeling project coordinated with Tractebel Engie, the Kenyans will be prepared to carry out power system planning and operational studies including analysis of requests for connection/integration to the high-voltage network of selected new power generation plant, renewable energy projects and other power system equipment.



Engineers from Kenya Power & Lighting Company, Kenya Electricity Generating Company, Kenya Electricity Transmission Company and the Energy Regulatory Commission work together to start the steady state modelling of the Kenya power system, to develop load flow scenarios, and to perform load flow analysis.



KENYA: LEADERSHIP TRAINING ON DISTRIBUTION BUSINESS STRATEGIES & OPERATIONS
USEA organized week-long executive exchanges to Spain and Brazil for members of the Board of Directors and senior management of Kenya Power & Lighting Company (KPLC). The visits served as benchmarking trips to discuss a range of issues critical to a distribution utility's modern management, including corporate governance, power/capacity acquisition best practices, loss reduction and efficiency methods, demand side management, integrated resource planning & cost/benefit analysis, emergency response, and the future role of battery storage for distribution utilities.

Endesa S.A. (the leading company in the Spanish electricity sector and the second largest operator in the Portuguese electricity market) provides a tour of their control center to the Kenya Power & Lighting Company Board of Directors and senior management.

UGANDA

Only 22% of Uganda's population has access to electricity with nearly 6.9 million households without power. The Government of Uganda has an ambitious goal of achieving 80% electricity access by 2040. In 2019, USEA helped the generation and distribution sectors of Uganda in minimizing technical and non-technical losses, installing smart meter solutions, improving asset management capacity, and implementing international best practices in dam safety and hydropower operations.

As a result of EUPP capacity building, the Uganda Electricity Generation Company Ltd. had 15 employees certified by the Institute of Asset Management and developed company-wide asset management policies. Later that year, UEGCL met with various U.S. utilities, government agencies, and energy companies to learn best practices in implementing dam safety procedures and hydropower operations at the Karuma, Isimba, and Nalubaale Dams.



Top Left: UEGCL is trained in the Asset Management Certification Course; Top Right: UEGCL visits Chelan Dam in Wenatchee, WA; Bottom Center: Uganda distribution sector stakeholders participate in Smart Metering & Loss Reduction workshop.



Senelec and CRSE participate in the Smart Grid Systems workshop.

SENEGAL

Senegal is one of the fastest growing economies in sub-Saharan Africa. Senelec, the national electricity company of Senegal, aims to meet this growing demand by fast-tracking generation, transmission, and distribution projects and hiring over 800 additional employees in just two years. While much of the hired staff are technical experts, there is a lack in project management experience.



Senelec managers participate in the Portfolio Management workshop.

USEA provided capacity building to Senelec's employees on project management and portfolio management. Because of this training, seven Senelec employees were certified as Project Management Professionals (PMP) and installed a new portfolio management information system by Oracle. USEA also trained Senelec and the electricity regulator, CRSE, in smart meter and smart grid technology to provide best practices in modernizing their grid system.



Ana Amazo of Navigant speaks with Tanzanian stakeholders during July's Global Best Practices: Competitive Procurement workshop.

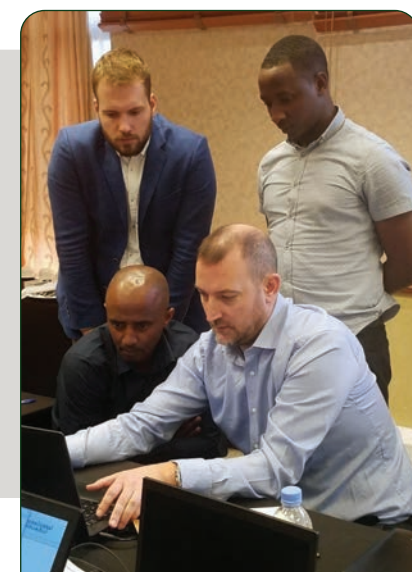
TANZANIA

USEA continues to provide capacity building support to the Tanzania Electric Supply Company (TANESCO), the Tanzania Petroleum Development Corporation (TPDC), and other in-country energy stakeholders through our information exchange programs. Tanzania has moved forward in developing a competitive procurement platform to optimize the submission of bids received for the fairest price. To assist in making this platform attractive to international bidders, USEA conducted two workshops in Tanzania on the development of this bidding framework for energy industry stakeholders and for senior-level policy makers from TANESCO and the Ministry of Energy.

At the request of the Members of Parliament, USEA conducted an "Energy 101" workshop designed to introduce Members of Parliament to energy policy, planning and governance to allow them to gain a better understanding of the energy sector.

RWANDA

In Rwanda, USEA provided capacity building assistance on long-term planning and advanced network modeling. This work will allow for expanded renewable generation to meet Rwanda's growing energy needs and allow greater regional interconnection to facilitate cross-border power trading, while improving reliability of the national grid. Based on assistance provided by USEA, Rwanda's utility introduced a new under-frequency load-shedding protection scheme that will prevent collapse of the system and minimize load shedding in case of large system disturbances. The utility has also implemented a measure that resolved a persistent high-voltage issue in Rwanda's grid during nightly low-load conditions. Over-voltage contributes to rapid aging of network equipment and outages to consumers.



EKC conducting advanced network modeling training with Rwandan engineers.



Ethiopian Electric Utility (EEU) engineers discuss substation maintenance with a Tata Power trainer.

engineers from various distribution substations across Ethiopia on issues of electrical safety. EEU is also establishing an Excellence Training Center to further expand their internal human resource capacity. A series of leadership development training, including visits to two leading American utilities – Duke Energy and Dominion Energy – led EEU executives to develop new safety policies to be introduced later this year.

ETHIOPIA

The Ethiopian Electric Utility (EEU) identified substation maintenance and leadership development as key capacity building areas necessary for improving the company's overall management practices, reducing losses and expanding access and reliability. Thanks to USEA's Substation Operation & Maintenance "Train-the-Trainers" Series for EEU, the utility senior substation personnel have already trained 534 substation supervisors, technicians, and



Participants at the “Transition to a Synchronous Grid Workshop” in New Delhi.

a three-day workshop for Bangladesh, Bhutan, India, Nepal and Sri Lanka on steps to improve reliability and permit the pooling of resources through a regional synchronous network. A synchronized grid reduces required generating capacity, allows more environmentally-friendly power to be employed, allows more diverse power generation schemes and permits economies of scale. Economic interchange is considered the main driver for a synchronous connection in the region and most of the workshop participants believe that the Bangladesh-Bhutan-India-Nepal (BBIN) subregion will become completely synchronous in 10 years or less.

GREENING THE GRID (GTG) INDIA

Under GTG, USEA focused its 2019 work on improving India’s coal generation flexibility to support the variability of wind and solar generation on the grid. India plans to deploy an unprecedented 175 GW of renewable energy onto its power grid by 2022 to greatly reduce the economy’s carbon intensity and strengthen energy security. However, this means a drastic change in how India’s main power supply operates. Luckily, U.S. utilities are going through a similar transition where traditional baseload coal plants have to transform their operations. USEA’s American partners are collaborating with their Indian counterparts to learn approaches to reach minimum loads that have not been seen since the 1950s – a necessity to accommodate peak solar and wind generation. Through the GTG partnership, Indian utilities are identifying a number of operational modifications they can make at no added cost and are building a case for market changes that can be made to incentivize flexible operation to traditional baseload suppliers.



Excel Energy’s Comanche Generating Station shares their “tricks of the trade” with engineers from India’s NTPC India Ltd. and Gujarat State Electricity Corporation Ltd.



Indian utilities, system operators, regulators, and policymakers gather to strategize on how India’s large coal generation fleet can be adapted to support wind and solar power to make a more secure grid.

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

USEA has been an implementing partner of USAID’s SARI/EI program since 2000. SARI/EI, which covers Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka, 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. In 2019, USEA conducted

AFGHANISTAN

USEA completed an Afghanistan Electricity Sector Governance and Management Assessment to identify, analyze, and provide actionable recommendations for future USAID programming in the country. This report will assist USAID as they determine how best to help Afghanistan improve utility operations, management, and business processes resulting in reduced losses, improved capital planning and management, and increased profitability.



USEA consultants meet with Afghan stakeholders to discuss energy sector needs in the country.

COLOMBIA

USEA’s work helped the Colombian Government achieve notable successes this year. The Colombian Ministry of Mines and Energy (MME) collaborated with USEA to adopt measures that ensured Colombia’s first successful renewable energy auction. The 2,250 MW of renewable energy awarded far exceeded the original goal of 1,500 MW. MME expects that by January 2022, at least 10% of power distributed by companies in the wholesale market will come from renewable sources.



Colombian engineers and U.S. experts discuss suitability of Electricaribe substation sites for battery storage.

In addition, CREG, Colombia’s regulatory body for the electricity sector, released regulations for using battery storage to relieve transmission congestion after attending USEA activities focused on the subject. Workshops and trainings during the year focused on distributed energy resources, microgrids for off-grid uses, and battery storage systems.

SYSTEM FLEXIBILITY FOR ASIA

USEA launched the regional System Flexibility for Asia (SFA) Partnership in 2019. The partnership draws best practices from India to improve grid flexibility. These lessons, which include policies, regulations, technical interventions, methods, and processes, are shared with other South Asia and Southeast Asia countries in hopes that they can be replicated regionally.

SFA’s first activity was a two-day workshop held in New Delhi, India on utilizing coal-powered generation as a flexible resource to balance variable renewable energy generation.

USEA also supported the participation of Asian utility executives to attend the Asia Clean Energy Forum (ACEF), a majority of which were women.

ETAG

ENERGY TECHNOLOGY AND GOVERNANCE PROGRAM

USEA's Energy Technology and Governance Program (ETAG) enables the countries of Europe and Eurasia to enhance their energy security and integrate energy markets on a regional basis.

In partnership with the United States Agency for International Development (USAID), ETAG programs serve to: support the maturing energy industry across southeast Europe on its journey to self-reliance; prevent malign geopolitical influence by reducing the region's dependence on Russia for energy supply; strengthen relationships across Europe to create a regional energy network; and establish markets across the region that benefits from price transparency and price stability.

ETAG programs lean on U.S. industry expertise and technology to provide capacity building for utilities and energy professionals in the regions of development. These programs offer training and professional development, teach technical modeling and engineering best practices, and provide software and tools necessary for mature utility operation.



USAID Assistant Administrator Brock Bierman Emphasizes Energy Independence as Vital to Securing Democracy at USEA Public Policy Forum.

"Energy independence is vital to securing democracy. Nations should be able to choose where their energy comes from and how much they are willing to pay for it."

- Brock Bierman, USAID Assistant Administrator



Dave Batz, Senior Director for Cyber and Infrastructure Security at EEI, was among US utility volunteers to share best practices with their Eastern European counterparts at USEA's Cybersecurity Summit in London.



ETAG DELIVERS FOR MOLDOVA

Underwritten by the generosity of the American people, USAID and USEA through ETAG delivered state-of-the-art network planning software to Moldova's state-owned electric power transmission system operator, Moldelectrica in Chisinau, Moldova. USEA staff and its consultants will use the software to accelerate Moldova's electrical interconnection with Europe as part of an ongoing effort to enhance the country's energy and national security.



UKRAINE EUROPEAN SYNCHRONIZATION MODEL DEVELOPMENT PROJECT

Ukrenerg, the national transmission system operator of Ukraine, signed a connection agreement with the European Network of Transmission System Operators of Electricity (ENTSO-E) in 2017. The agreement requires Ukrenerg to meet legal, regulatory, market and technical requirements before it connects to the European synchronous grid.

Among the technical requirements is proof that Ukraine will not export instability to the ENTSO-E network in the event of a disturbance on the Ukrainian grid. Ukrenerg and ENTSO-E will conduct a series of stability studies to make this determination using mathematical network simulation models being developed under the Energy Technology and Governance Program (ETAG).

In partnership with Ukrenerg and the Ukrainian generation companies, USEA travelled to generation stations in Kiev, Krivy Rog, Zaporzhye, Trypilkska, Lviv, and Kharkiv to collect data needed to assemble the models.



BLACK SEA TRANSMISSION PLANNING PROJECT (BSTP)

Sharing best network planning and operations practices with the Black Sea Region

The BSTP introduced a new transmission planning methodology to the Black Sea region from North America and Europe. This year, members used the European Network of Transmission System Operators for Electricity's Mid-Term Adequacy Forecast methodology to determine the regional network's capacity to meet electricity demand in 2025 and identified investments needed to ensure network security in each of the seven BSTP member networks.



A BSTP Working Group Meeting and Antares Software workshop in Tbilisi, Georgia in October. The ENTSO-E forecast methodology was the focus of the training.



ELECTRICITY MARKET INITIATIVE (EMI)

Accelerating regional electricity market integration



In Athens, the Electricity Market Initiative (EMI) Working Group and Steve Burns, Chief of the USAID Bureau for Europe and Eurasia's Office of Energy and Infrastructure, commended its members for their work to integrate Southeast European electricity markets.

EMI conducted a multi-scenario study market simulation identifying the benefits of integrating national electricity markets on a regional basis. The results were shared with policy makers, regulators and electricity traders and other stakeholders in an effort to build support for wholesale electricity market integration.

Through its market simulations and regional analyses, the EMI working group quantitatively makes a case to policy makers, regulators, Transmission System Operator executives and potential investors who could benefit from regional integration.

It identifies infrastructure investments and recommends policy changes required to do so. By providing training to its working group members, the EMI is building a regional planning capacity to sustain market integration over the next decade.



UTILITY CYBER SECURITY INITIATIVE (UCSI)

Cyber security is energy security

The USAID/USEA Utility Cyber Security Initiative (UCSI) conducted its sixth working group meeting in Chisinau, Moldova from November 11-14 to advance development of its Utility Cyber Risk Assessment Template. Scott Hocklander, USAID Mission Director for Moldova, emphasized the importance of cyber security to energy security in Europe and Eurasia as regional electricity networks become increasingly connected to each other and with Europe.



A DigSilent PowerFactory Training workshop in Tirana, Albania.

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

Building resilience in the regional distribution network

The DSO working group provided distribution system operators in Southeast Europe with training and powerful network planning software. They will use it in cooperation with ETAG to improve network resilience and to plan for the integration of distributed generation.



An EE-NGP Working Group meeting and workshop on utilizing the Max 2040 EE-NGP Regional Model for Project-Specific Analysis in Athens.

EASTERN EUROPE NATURAL GAS PARTNERSHIP (EE-NGP)

Diversifying natural gas supply in Southeast Europe

Using the region's first multinational planning model (MAX 2040), the EE-NGP completed a hydraulic and economic analysis identifying the most cost effective configuration of pipeline infrastructure, LNG import terminals and natural storage facilities needed to maximize the diversity of the region's natural gas supply.



USEA

COMMUNICATIONS

Visibility creates opportunity and access for the greater good. For USEA in 2019 that meant building on previous years' brand development, expanding our reach on social platforms, becoming a stronger source for the media, integrating members into new projects, events and weaving their perspective into the press. It meant continued outreach and engagement with lawmakers and the Executive Branch.

Visibility has helped USEA expand international programs, develop new partnerships, attract new members, diversify voices at our forums and events and elevate the brand among domestic and international audiences. In 2020, USEA expects to grow its staff to support the new programs and projects, and USEA communications efforts expect to support that growth.

All of this rests on the strong leadership and support of our executive director, Barry Worthington, an energy stalwart.



USEA kicked off 2019 ringing the Opening Bell of the New York Stock Exchange. January was a moment to celebrate all that Worthington had built over 30 years and his contribution to the industry that underpins the entire economy.

Barry Worthington's brand underscores the value of USEA, its progress in increasing energy access globally, in assembling stakeholders. That brand reflects sound energy policy with a holistic view of the industry.

Thus, promoting and supporting Barry Worthington, is a focus for USEA Communications.

These are a few examples where Worthington's brand and USEA's logo were on full display.

Sometimes our communications strategy is to be bold, visible, on the dais, or in front of the camera.

Sometimes it's subtle.

For example, in 2019, USEA was asked to pen a letter to Trump administration cabinet members and the White House that highlights the value of the Navajo Generating Station. This was a contentious issue where USEA would otherwise not be involved. We are not lobbyists, and we are not advocates, which makes USEA very attractive to those who are.

Barry Worthington sent a persuasive letter that spoke of energy access for thousands of Arizona residents, the Navajo and Hopi tribes. USEA provided value to our long-time member, Peabody, through those efforts.

In the same way, The White House asked USEA if we might support the nomination of Deputy Energy Secretary Dan Brouillette to become Secretary of Energy with a letter that would appear in a packet the administration would send to Capitol Hill for Brouillette's Senate confirmation. Barry Worthington wrote a fair, supportive letter on behalf of Secretary Brouillette.



In May, USEA hosted a dozen German journalists through the U.S. State Department's Foreign Press Center for the German Diversity & Security Tour. In early 2019 USEA Communications helped coordinate the effort to connect the journalists with U.S. energy sources. USEA Executive Director was a key resource and appeared in dozens of published stories on energy policy and industry development.

"The single biggest problem in communication is the illusion that it has taken place."

- George Bernard Shaw



USEA's Dipka Bhambhani moderated a panel about how US LNG can lift people out of poverty globally at an event hosted by USEA-members—LNG Allies, The Center for LNG, and the American Petroleum Institute.

Panelists included: Federica Barr, Director of Global Natural Gas Strategy, ExxonMobil; Stephen Renna, Chief Banking Officer, Export-Import Bank; Ian Steff, Deputy Assistant Secretary, Manufacturing, U.S. Commerce Department; Thomas Hardy, Acting Director, U.S. Trade Development Agency.

Trump Administration Harvests Record Royalties From America's Oil Boom

Dipka Bhambhani Senior Contributor
I draft energy policy and technology news.

By most economic indicators—unemployment, the stock market, the housing market—the \$20 trillion U.S. economy is strong.

But this month, it became apparent that President Trump's Interior and Energy departments are underpinning this record economic growth.

Earlier this month, in the East Room in the White House, Trump and energy leaders from his administration announced that his environmental policies, support of innovation and energy development have led the country to have the cleanest air and best access to clean water in the world.



In July 2019, USEA was invited to the planning of, and participation in President Trump's East Wing event celebrating US energy security, abundance and environmental protection. Worthington was among only a handful of national stakeholders invited.

As we look to the future, success of our communications strategy requires diverse tactics and an artful approach as we face changes to our industry--new global alliances, an evolving new world order, a thriving global LNG trade, decarbonization initiatives, growth of a carbon capture sequestration technology market, and a new Congress armed with its own ideas and thoughts on developing our industry.

2019 WALL STREET GREEN SUMMIT

Your One-Stop Shop For The Latest In Green Innovation & Finance

Founder & Chairman

Peter C. Fusaro
Chairman,
Global Change Associates Inc.

Moderated by

Dipka Bhambhani
Director of Communications,
U.S. Energy Association

With featured speakers
Toussaint Aravaj, Co-Founder and CEO, Per Street
Mark Austin, Venture Partner, Bright Capital
Nick Bitterwey, Founder & CEO, IGE
Julie Cornell, CEO and Co-Founder, Initiafy
Nick Davis, CEO, GridMarket
Bob Kinschert, Executive Director, Constellation
David Manning, Program Director, Brookhaven National Lab
Rajiv Mathu, Founder & CEO, AuralChips
Les Neumann, Managing Director, ICANN
Gemma Sanders, Co-Founder, Social Solar
Tony Saxton, Co-Founder & CEO, Terra Sustainable Technologies
Nathalie Walker, Program Director, National Wildlife Federation
Fred Winters, CEO, Urban Resilient Energy
And many more...

March 18, 2019, Princeton Club, NYC



We continue to be part of those conversations in traditional forums and on digital ones. USEA is present and engaged.

As we continue to find creative ways to share our international development success stories, USEA communications is sharing the news digitally through our social platforms @USEnergyAssn.

Our Twitter, Instagram, and Linked In, for example, followers continue to grow. Our Twitter following has increased more than 11,000% since 2016.

These platforms allow us to share the amazing impact the United States is making around world in bringing reliable, affordable energy to developing countries.

USEA stakeholders are diverse, our mission critical and message consistent—energy development and delivery are essential to our economy, our security and our survival.



U.S. Energy Association @USEnergyAssn
.@ENERGY @EnergyDepSec tells #CERAWEEK US is looking at: replicating #EU #wind progress sharing with #ptech partners new #EnergyStorage ideas like #magnesium #ion batteries & next gen #solar bc #PV is like horse and buggy technology @CERAWEEK @IHSMARKIT @SEIA @WndStrAlliance pic.twitter.com/858jKNJta5

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30 YEARS AND COUNTING...

USEA was founded almost 100 years ago.

But it was 30 years ago when its Executive Director Barry Worthington took the helm with his vision—bringing energy access to the world. To that end, he built partnerships with the federal government, energy stakeholders, and the press. He built USEA.

USEA kicked off 2019 with a celebration.



Executive Director Barry Worthington rang the Opening Bell at the New York Stock Exchange January 11, 2019. USEA executives and members joined Worthington on the podium to celebrate American energy prosperity and Worthington's 30 years leading USEA.

train station in Bratislava, Slovakia, where no one spoke English. It was interesting.”

Worthington said one of his proudest moments was when CEZ, the electric company in the Czech Republic, received its bond rating. “CEZ was the first utility from the region to earn a bond rating. They were partners with Houston Lighting & Power (HL&P), a partnership he was personally very involved with structuring.

“The HL&P Treasurer took the CEZ chief financial officer to New York City and introduced him to his Wall Street contacts,” Worthington said.

POWER
BUSINESS & TECHNOLOGY FOR THE GLOBAL GENERATION INDUSTRY SINCE 1882

Trump Ended War on Fossil Fuels, but Focus Needed on CCS

Worthington was a guest on The Power Podcast. He spoke about some of his group's accomplishments over the years and explained what the USEA is concentrating on currently. “I think right now that the most important technology that we need to focus on where we're not adequately focusing is carbon capture utilization and storage,” he said.

“The region has been known to have unreliable energy supplies which have been used as political weapons. Energy security contributes to national security in every country in the world, particularly Europe and Eurasia,” he said.



USEA Board members, staff and stakeholders joined Barry Worthington to ring the Opening Bell at the New York Stock Exchange. It was more than a marker of tenure, Worthington said it was a milestone in American energy development.

It was the second year the U.S. was the world's largest oil and gas producer. Worthington assured that continuing on this trajectory would portend energy and national security for our citizens and our allies around the world.

“We are thrilled that NYSE executives invited us to be part of this historic event. And I'm personally grateful to be honored for leading such a great team of energy professionals who work tirelessly to help improve energy access around the world with our federal agency partners,” –Barry Worthington, January 2019

When Worthington joined USEA in 1988, the organization was floundering. It had expenses of \$250,000 and revenues of \$200,000. Last year, USEA revenues were nearly \$10 million.

Barry Worthington told Public Utilities Fortnightly that his team's first trip to Europe with USAID was in 1992 with the North American Electric Reliability Corporation (NERC)

“There were no cell phones, much less smart phones, and we were all at the

There were three big issues utilities in that region had to contend with – cost-based prices, frequency stabilization, and environmental emissions from coal-fired power generation.

While these issues were settled fifteen years ago, today utilities all around the world are trying to figure out how to integrate wind and solar and other intermittent sources into their power grids.

Worthington said building energy infrastructure with our allies is critical to our national security.



Executive Director Barry Worthington testified before the House Foreign Affairs Committee in April. The hearing, “How Climate Change Threatens U.S. National Security,” was one of the most critical hearings that congressional committees took up on climate change in the new 116th Congress.

DOE Office of Energy Efficiency and Renewable Energy hosted a closed-door roundtable discussion on energy efficiency in July. The meeting brought together efficiency and energy policy experts who described how new technology could transform various segments of the sector.



Barry Worthington talks to Fox Business host Liz Claman on the Claman Countdown in August about the American energy sector, increasing natural gas exports and the expansion of renewable energy.

FOX BUSINESS

US renewable energy growing rapidly, expert says.

“We are taking a leadership position [when it comes to renewables,]” Worthington said.

“The pace of renewable energy deployment in the United States is very, very rapid. Prices are falling. Both wind and solar are seeing sizable gains year after year.”

Worthington said this has been a successful partnership, and the scope of work has expanded. USAID and USEA work together to build energy infrastructure in more than thirty countries.

And there are two developing trends intertwined.

Deploying advanced technologies is one. Using these technologies to further reduce emissions is the other.

“The rate of change in technology development and deployment is unprecedented,” he said.

“Electricity generation, advanced sensors, carbon capture and storage, renewables, and technologies still to be discovered will change every aspect of the electricity business, and the energy business more broadly, very rapidly,” Worthington said.

From lawmakers to administration officials, global stakeholders and the press, Barry Worthington has been seen as a reliable source, someone who represents consistency and sound judgement on energy policy for 30 years and counting.



Barry Worthington was called to testify before the powerful House Energy and Commerce Committee for its first climate change hearing. He was invited back to testify about how energy security portends national security on a panel before the House Committee on Foreign Affairs. His judgement is sound, and stakeholders know it, from Capitol Hill to The White House.

BARRY K. WORTHINGTON



Executive Director

BRIAN KEARNS



Chief Financial Officer

SHARON LUCAS



*Senior Accounting
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