



USEA

United States Energy Association

ANNUAL
Report
2022

Dear USEA Family,



2022 was a banner year for USEA full of signature forums, far-reaching webinars, vital training sessions, and exhilarating in-person meetings, briefings, and international workshops. The year began with our flagship 18th annual State of the Energy Industry Forum featuring nineteen extraordinarily dynamic and articulate guest speakers. The recordings of speaker presentations were viewed nearly 500 times on YouTube in the first two weeks after the event. Nearly a dozen articles were written about the Forum, including the lead story in the Washington Examiner's morning newsletter. The significant amount of attention this event received is testimony not only to the ubiquitous urgency of energy issues today, but to USEA's brand and expanding relevance.

The highly popular Virtual Press Briefing series returned focusing in 2022 on very timely topics such as wildfires and droughts; transmission capacity congestion; small modular nuclear reactors, critical minerals shortages; the future of the electric utility industry; global energy prices and the Strategic Petroleum Reserve release; the potential impact of the mid-term elections on utilities; and winter electricity stress and load shedding.

USEA's 2022 Annual Membership Meeting and Public Policy Forum was particularly meaningful as it convened USEA members and other energy stakeholders to discuss energy policy and trends, as well as to present the US Energy Award and the USEA Volunteer Awards. These awards recognize individual leaders and organizations who helped USEA make a difference around the world. I was honored to present the United States Energy Award virtually to Ralph Izzo, Chairman, President and CEO of Public Service Enterprise Group (PSEG). Prior to the presentation, Maria Korsnick, President and CEO of the Nuclear Energy Institute, and Congressman Frank Pallone, Chairman of the House Energy and Commerce Committee, appeared via recorded remarks to congratulate Dr. Izzo.

USEA also hosted the 4th Annual Advanced Energy Technology Forum, which included seventeen guest speakers hailing from a variety of energy entities: national labs, universities, corporations, and associations. We were delighted to have Secretary of Energy Jennifer Granholm provide pre-recorded remarks to kick-off the event and were also honored to welcome Olga Bielkova, the Director of Government and International Affairs for the Gas Transmission System Operator of Ukraine, for a special conversation about her important role in European energy markets.

Russia's February 2022 invasion of Ukraine brought global attention to the relationship between energy supply and prices. For more than thirty years, USEA has worked collaboratively with the United States Agency for International Development (USAID) to ensure energy security and availability by integrating Ukraine's energy networks and markets with Europe. Together, we have provided training for thousands of Ukrainian energy managers; built human resource and institutional capacity for change; migrated dozens of European regulations and energy network planning practices; and conducted many technical analyses to support Ukraine's grid integration with Europe. I am very proud of our USEA staff who have visited the area countless times – including right before the holidays – to support eastern Europe in its quest for freedom and independence. The integration of Ukraine's energy sector with Europe will substantially mitigate Russia's capacity to use energy as a geopolitical tool and enable the Ukrainian people to bravely fulfill their responsibilities under these currently challenging conditions.

On behalf of all of us at USEA, I would like to thank all of you for your affirmation, engagement, and encouragement throughout 2022. My special thanks to USEA Board Executive Chair Vicky Bailey and the entire Board of Directors for their keen guidance and invaluable advice. I would also like to recognize the devoted and selfless initiative provided by the USEA staff, who successfully pivoted from global pandemic conditions to embrace once again international travel and in-person meetings. These valuable human relationships have made USEA a highly well-respected, politically neutral venue for information dissemination on technological, policy, and economic progress in the energy sector.

Sheila Hollis

*Acting Executive Director
United States Energy Association*

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A Message from our EXECUTIVE CHAIRMAN



Dear USEA Members and Friends,

It has been a true privilege to work beside Acting Executive Director Sheila Hollis and the entire USEA team during a year marked by profound transition and critically significant international events. 2022 was remarkable in so many ways as we witnessed Russia's invasion of Ukraine and its enormous geopolitical energy impact, as well as our own unpredictable recovery from a global pandemic. In addition to those forces, there were tremendous strides in innovative technology, major advances in clean energy deployment, increasing awareness of environmental justice and energy equity, and the devastating effects of extreme weather events on nearly every continent. Just as the global pandemic highlighted our shared humanity the year before, the events of 2022 reflected our interdependence and collective journey together on planet Earth.

Russia's invasion of Ukraine upended global energy supplies, producing substantial levels of stress on energy markets and extraordinary surges in energy prices. The fast-paced shift to renewable energy and electrified transportation elevated the importance of world-wide critical minerals supplies and the long-term strategies for their development. And the arrival of artificial intelligence prompted existential questions about workforce development, the evolving roles of humans and machines, and personal security.

In the US, we saw the passage of historic energy legislation, the outcome of mid-term elections, and an employment landscape that remains unknown. USEA continued to play an important role in helping the energy sector navigate these choppy waters by hosting webinars and briefings, convening flagship events, communicating broadly on new developments, and maintaining support in areas where hostile forces plague

universal energy access. I was inspired to see the USEA Staff overcome these challenges and persevere in our mission to deliver energy to every corner of the globe. Through the marvels of 21st century communications, relationships flourished in the hybrid mixture of virtual technology and in-person interaction.

I have been honored to participate in the key USEA events this past year, as well as to represent the organization in external conferences and executive arenas. It has been gratifying to welcome new members to the USEA family, as well as to congratulate newly arrived Board members. I am grateful for the dedicated support of USEA's Board and Staff and their enthusiasm to identify new ways to collaborate with all energy stakeholders.

2023 promises to be a year of great strides for USEA as energy continues to play a prominent role in all global economies. Thank you all for your steadfast engagement, your loyal support, and your willingness to join us in the exuberant return to in-person meetings. We are absolutely thrilled to see everyone together again at USEA gatherings and look forward to a year of reconnection, new beginnings, and fresh opportunities to deliver reliable, affordable, and clean energy around the world.

Vicky Bailey
Executive Chairman
United States Energy Association

Executive Chairman
U.S. Energy Association
VICKY A. BAILEY



Founder
Anderson Stratton
International, LLC

Counsel
U.S. Energy Association
JOHN BUCHOVECKY



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President
Gee Strategies Group, LLC

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SHEILA HOLLIS



*Acting Executive
Director*
USEA

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*Head, U.S. Corporate Relations
Chief of Staff to the President*
Shell USA, Inc.

NATHAN JOHNSON



*Director, Lab for Energy
& Power Solutions*
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MARIA KORSNICK



President & CEO
Nuclear Energy Institute

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Babcock Power Inc.

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Burns & Roe

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& Chief Technology Officer*
Schweitzer Engineering Laboratories

MIKE SOMMERS



President & CEO
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Institute

DENA WIGGINS



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Natural Gas Supply Association

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Chevron Corporation

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Contracts

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Program Manager

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Program Coordinator

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EUPP
Communications

NICOLE BUCKLEY



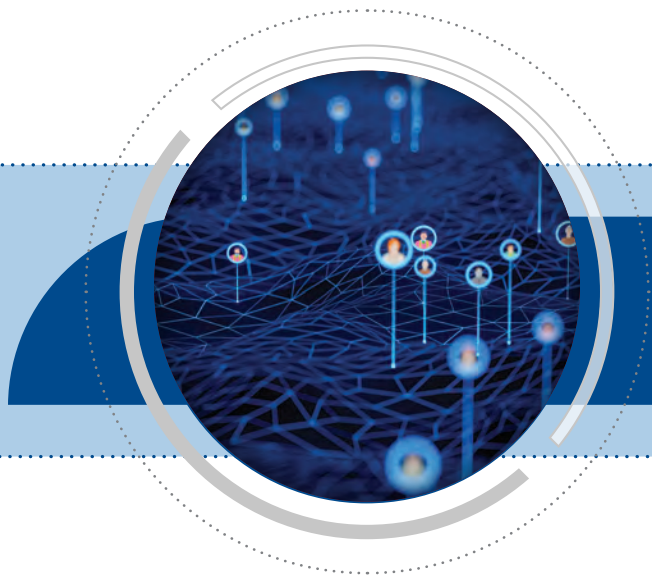
ETAG
Communications

ALEX KROWKA



Consensus Consultant

USEA STAFF



USEA MEMBERS 2022

ADI Analytics LLC

Advanced Engineering Associates International

AECOM Corporation

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

Arizona State University

Association of Energy Engineers

Association of Oil Pipe Lines (AOPL)

ASTM International

Babcock Power Inc.

Baker Botts, LLP

Bechtel Group, Inc.

Berstein Shur

Black & Veatch Corporation

Brookhaven National Laboratory

Burns and Roe Enterprises, Inc.

Canary, LLC

Catalisto

Chemonics

Cheniere Energy, Inc.

Chevron Corporation

Clifton Larson Allen, LLP

Combined Cycle Journal

ConocoPhillips

Contour Global

CyberCon

DAI Global, LLC

Dastur Energy

Delaware Office of Community Services

Deloitte & Touche LLP

DHL Customer Solutions & Innovation

Duane Morris LLP

ECODIT

Edison Electric Institute

Electric Power Research Institute

Enbridge

Enchant Energy Corporation

Encoord

Energy & Mineral Law Foundation

Energy Equipment & Infrastructure Alliance

Energy Exemplar Ltd.

Energy Markets Group, Inc.

Energy Policy Institute of Australia

ENGIE North America

Ernst & Young

ESS, Inc.

ESTA International

ETAP

Excel Services Corp.

Exelon Corporation

ExxonMobil

Fluor

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USEA MEMBERS 2022

<i>Fuel Cell and Hydrogen Energy Association</i>	<i>Lighthouse Energy LLC</i>	<i>Shell USA, Inc.</i>
<i>Gas Systems Engineering, Inc.</i>	<i>LNG Allies</i>	<i>Smart Electric Power Alliance</i>
<i>Gas Technology Institute</i>	<i>London Economics International LLC</i>	<i>Solar Energy Industries Association</i>
<i>Gas Turbine Association</i>	<i>Morgan Stanley Dean Witter</i>	<i>Solar Turbines</i>
<i>Gee Strategies Group, LLC</i>	<i>Morgan, Lewis & Bockius LLP</i>	<i>Southern Company</i>
<i>Geothermal Resources Council</i>	<i>Mott MacDonald</i>	<i>Strategen Consulting</i>
<i>Global Development Opportunities, LLC</i>	<i>National Energy Foundation</i>	<i>Strategic Power Systems, Inc</i>
<i>Gorrellick, Tievy & Abacus</i>	<i>National Hydropower Association</i>	<i>Summit Power Group</i>
<i>Grant Thornton, LLP</i>	<i>National Mining Association</i>	<i>Synfuels Americas</i>
<i>Hunton Andrews Kurth</i>	<i>National Ocean Industries Association</i>	<i>Tellurian Inc.</i>
<i>ICF International</i>	<i>National Rural Electric Cooperative Association</i>	<i>Tennessee Valley Authority</i>
<i>Idaho National Laboratory</i>	<i>Natural Gas Supply Association</i>	<i>Tetra Tech</i>
<i>IHS Markit</i>	<i>North American Electric Reliability Corporation</i>	<i>U.S. - China Energy and Environmental Technology Center / Tulane University</i>
<i>InfraGlobal Partners</i>	<i>Nuclear Energy Institute</i>	<i>U.S. Agency for International Development</i>
<i>INTEK Inc.</i>	<i>OnGrid Options (Formerly Bluewave Resources)</i>	<i>U.S. Department of Energy</i>
<i>International Brotherhood of Boilermakers</i>	<i>Peabody Energy</i>	<i>University of Florida - Public Utilities Research Center</i>
<i>Interstate National Gas Association of America</i>	<i>Petco International LLC</i>	<i>University of Minnesota Duluth</i>
<i>Jordan Capital Management</i>	<i>Planning & Forecasting Consultants</i>	<i>University of Southern California Energy Institute</i>
<i>K&M Advisors LLC</i>	<i>Power Engineers</i>	<i>Utilities Technology Council</i>
<i>KPMG, LLP</i>	<i>PricewaterhouseCoopers, LLP</i>	<i>Van Ness Feldman, P.C.</i>
<i>Large Public Power Council</i>	<i>Sacramento Municipal Utility District</i>	<i>West Financial Services, Inc.</i>
<i>Lawrence Livermore National Laboratory</i>	<i>Sazmining Inc.</i>	<i>Westinghouse</i>
<i>Lehigh University</i>	<i>Schweitzer Engineering Laboratories</i>	<i>WorleyParsons</i>
	<i>Segura Consulting LLC</i>	



2022 Forums and FLAGSHIP EVENTS

2022 State of the Energy Industry Forum

The 18th Annual State of the Energy Industry Forum (SOTEI) on Thursday, January 20, 2022 offered a vibrant launch for USEA into the new year. With 19-star guest executive speakers, the Forum represented energy sources from across the entire spectrum. These distinguished leaders made the Forum a unique event by bringing their respective areas of expertise to one premier venue.

Thanks to technology advances, the speakers were able to share their keen energy insights and forthright perspectives virtually with the audience. USEA Executive Chair Vicky Bailey and Acting Executive Director Sheila Hollis delivered opening remarks which set the stage for the superb line-up of speakers who contributed their wisdom and cutting-edge points of view.

This year, SOTEI generated an abundance of headlines, with nearly one dozen articles written. USEA was honored to have Utility Dive publish this recap of the

event and it was the lead story in Washington Examiner's morning newsletter. In addition, recordings of speaker presentations were viewed nearly 500 times on YouTube in the two weeks following the event. The significant amount of attention this event received is testimony not only to the ubiquitous urgency of energy issues today, but to USEA's brand and expanding relevance. The 2022 SOTEI truly inspired all of us to re-dedicate ourselves to a future vision that serves our energy and environmental needs with affordability and equitable access.

“

“Industry group heads told fellow members during yesterday's State of the Energy Industry meeting hosted by the United States Energy Association that demand has turned a 180 after the coronavirus pandemic's disruptive effects, which has driven U.S. liquified natural gas production to peak capacity.”

JEREMY BEAMAN

Washington Examiner



2022 Annual Membership Meeting & Public Policy Forum

USEA's Annual Membership Meeting & Public Policy Forum is traditionally held the day after the Spring Board of Directors meeting. It convenes USEA members and energy stakeholders to highlight industry achievements, energy policy developments, and to preview the future of the energy sector. It is also an occasion to honor individuals and organizations who have helped advance invaluable energy initiatives both domestically and internationally and helped USEA make a difference around the world. The U.S. Energy Award and USEA Volunteer Awards are presented during a special ceremony.

The May 26, 2022 Annual Membership Meeting & Public Policy Forum featured guest speakers from across the energy spectrum: corporations, nonprofits, and government agencies. Their unique energy perspectives helped illustrate the wide array of initiatives and challenges that our industry is currently facing. In addition, the 2022 U.S. Energy Award and the USEA Volunteer Awards were presented to five incredibly deserving recipients who have been outstanding friends of USEA. The United States Energy Award was presented virtually to Ralph Izzo, Chairman, President and CEO of Public Service Enterprise Group (PSEG). Prior to the presentation, Maria Korsnick, President and CEO of the Nuclear Energy Institute, and Congressman Frank Pallone, Chairman of the House Energy and Commerce Committee, appeared via recorded remarks to congratulate Dr. Izzo. Following that presentation, the Volunteer Award ceremonies honored these recipients: International Partner (NPC Ukrenergo); Corporate Volunteer (Energy Exemplar); Corporate Volunteer (Peak Load Management Alliance – PLMA); and Individual Energy Volunteer (Andy Bochman, INL). The award presentations can be accessed [here](#).

The Forum kickstarted USEA's Summer planning process building upon its historic momentum from many years.

USEA VOLUNTEER AWARDS

Congratulations to the 2021-2022 Award Recipients



Left to Right:

International Partner, NPC Ukrenergo, Volodymyr Kudrytskyi

Corporate Volunteer, Energy Exemplar, David Wilson

Corporate Volunteer, Peak Load Management Alliance – PLMA, Michael Brown

Individual Energy Volunteer, Andy Bochman, Idaho National Laboratory



2022 4th Annual Advanced Energy Technology Forum

The Advanced Energy Technology Forum explores technological innovation in the energy sector, with a focus on research and development in the corporate and government sectors, including national labs and universities. On September 22, 2022, USEA welcomed seventeen guest speakers hailing from a variety of energy entities: national labs, universities, corporations, and associations.

The Secretary of Energy Jennifer Granholm provided pre-recorded remarks to kick-off the event with inspiring remarks about the clean energy transformation. USEA was also honored to welcome Olga Bielkova, the Director of Government and International Affairs for the Gas Transmission System Operator of Ukraine, for a special conversation about her important role in European energy markets.

The 4th Annual Advanced Energy Technology Forum was organized into four Roundtables, each with a different theme:

Roundtable One:

Research and Development with the National Labs

In this session, senior directors from prominent national laboratories offered insight into the cutting-edge research they are conducting concerning new energy technologies, including advanced battery storage, carbon capture, and renewable generation.



Bill Hederman



James Misewich



Jess Gehin



John Wimer



Peter Green



Mark Lauby

Roundtable Two:

Infrastructure with Association and Industry Leaders

This panel featured executives from organizations that comprise and help regulate America's grid and related infrastructure. Panelists discussed how the grid must adapt and modernize to support increased renewable generation and withstand a surge in extreme weather events.



Doug True



Greg White



Kathryn Clay



Rob Gramlich



Nathan Johnson

Roundtable Three:

Academic Innovations with the Universities

In this roundtable, senior professors from leading universities with energy and environment programs discussed their research, the potential of public-private partnerships, and university initiatives to reduce emissions.



Ted Kury



Tom Richard



Tracy Hester



Robert Armstrong

Roundtable Four:

Corporate Insight with Business Leaders

The final session featured corporate executives from organizations that operate within a variety of sectors in the energy industry. Topics of discussion included how the private sector is helping drive decarbonization and stimulating advanced technology research, and how recent legislation has impacted them.



Eric Dresselhuys



Jonas Lee



William Swetra



Lee Stockwell



Carol Lane



JENNIFER GRANHOLM



ETAG: A LEGACY OF REGIONAL INTEGRATION AND ENERGY SECURITY IN EUROPE AND EURASIA

From 2012-2022, USEA's Energy Technology and Governance Program (ETAG) enabled 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 supported the region's maturing energy industry on its journey to self-reliance; diversified the region's electricity and natural gas supply to reduce Russia's ability to weaponize energy; facilitated investment in new cross-border transmission interconnections and renewable energy generation to accelerate the clean energy transition; and put the region on a path toward fully integrating its electricity and natural gas markets with those in the European Union.

The ETAG program delivered tens of thousands of hours of training to energy professionals who have emerged as the leaders of change and progress in the region; improved the institutional capacity of regional operators to model, analyze and prepare major infrastructure projects that have improved reliability and accelerated regional energy trade; leveraged billions of dollars in clean energy infrastructure investment; and fostered change that will benefit the region's energy security well into the future.

In 2022, the final program year, ETAG staff and partners celebrated some significant milestones:

Synchronizing the Ukrainian and Moldovan Electric Networks with Europe: In March, Moldova and Ukraine reached a milestone that the USEA ETAG program had been supporting for years: successful integration of their electricity networks with the European (ENTSO-E) network and a disconnection from the Russian-operated network. Modeling and analysis provided by USEA proved that synchronization with the Ukrainian and Moldovan networks would not pose a threat to continental Europe's reliability and was a deciding factor in ENTSO-E's decision to synchronize soon after Russia's invasion of Ukraine.

Strengthening Cybersecurity Incident Response:

Because the cybersecurity of energy networks is essential to regional energy security, the ETAG program conducted Europe and Eurasia's first-ever cybersecurity tabletop exercise. The Cyber Resiliency Challenge—a preparedness and response activity that simulated a cyberattack on an electric utility—drilled energy operators in Europe and Eurasia on incident response to improve their ability to sustain operations during cyberattacks. In 2022, ETAG hosted two Cyber Resiliency Challenge exercises for more than 40 cybersecurity professionals. The first included participants from six utilities in the Western Balkans region. The second exercise included 13 utilities from five countries within the Black Sea region, including those in Ukraine and Moldova.

USEA Network Modeling Lays Foundation for

Black Sea Submarine Cable: In 2022, the Georgian State Electrosystem took a major step toward constructing an electric power transmission cable across the floor of the Black Sea that will connect its network—and by extension the entire Southern Caucasus region—to Romania. When complete, the cable will enable the Southern Caucasus to export its surplus wind, solar, and hydropower to energy-starved Southeast Europe. In the early stages of this effort, the ETAG program used its convening power and technical expertise to lead a pre-feasibility study that secured a \$2.5 million World Bank loan for a full-scale project feasibility study. The models USEA has developed and maintained with USAID support—including the Black Sea transmission models—are now used as the evidence base for every transmission network investment decision that the region's utilities and energy ministries make.

USEA Launches Power System Modeling Lab in Moldova: As a result of Moldova’s 2022 synchronization with the European power grid, engineers in its electricity sector must acquire new skills to plan and operate the grid to European standards. In September 2022, USEA and USAID dedicated a new laboratory for power system modeling at the Technical University of Moldova. The laboratory is equipped with 12 computers and advanced network modeling software. USEA trained the university’s faculty on the software, and the faculty subsequently incorporated the software and training lab capabilities into its electrical engineering curriculum.



Guiding the Decarbonization of Southeast Europe: To comply with European environmental standards and policy, the non-European Union countries of the Western Balkans plan to retire up to 50 percent of their aging, legacy coal and lignite generation fleet, which has provided the region with inexpensive and dependable electricity for decades.

USEA used its Electricity Market Initiative regional network model to produce the *2022 Southeast Europe Decarbonization Study*. The study provided evidence-based recommendations to policymakers and regulators that included: increasing transmission capacity with Central Europe; accelerating wind and solar generation capacity; and diversifying the region’s supply of natural gas.

JSET: A NEW VISION FOR THE CLEAN, SECURE ENERGY TRANSITION ACROSS EUROPE AND EURASIA

In October 2022, USEA was awarded a five-year, multimillion dollar cooperative agreement with the United States Agency for International Development (USAID) to support the clean, secure energy transition across Europe and Eurasia. The new USAID/USEA Just and Secure Energy Transition (JSET) program builds upon 30 years of groundbreaking development assistance in the region and sets an ambitious plan to improve the renewable energy readiness of its countries while ensuring reliable, secure energy over the course of the transition. USEA will harness US energy industry expertise and experience, as well as the expertise of partner organizations around the world, to aid in the region’s transition.

For the countries in this region—with particular focus on those in Southeast Europe, the Balkans, and the Black Sea area—the JSET program aims to: operationalize and integrate regional energy markets; improve energy system operation and integrate reliable, cost-effective clean energy technologies into energy networks; improve regional energy sector resilience and response capabilities to disasters and extreme events; increase adoption of US-developed or supplied grid enhancing technologies; and improve public understanding of the benefits of a clean energy transition.

In its initial months, the JSET program launched two initiatives to jump start its work:

Deploying US Grid Enhancing Technology: Grid enhancing technology promises to increase the region’s renewable energy absorptive capacity and cross-border transmission capacity at a fraction of the cost and time compared to building new infrastructure. The initiative will help transmission system operators and regulators across Europe and Eurasia partner with US equipment manufacturers and software companies and reduce technical and regulatory impediments to deploying cutting-edge smart grid technology.

Ensuring Adequate Generation and Flexibility in the Regional Grid: Building on its *2022 Southeast Europe Decarbonization Study*, USEA launched a six-country regional resource adequacy initiative to help transmission system operators, regulators, and policymakers plan for and enact policies needed to ensure there is sufficient generation and flexibility in the regional power grid as the clean energy transition progresses. JSET is leading the region’s transmission system operators and regulators in developing network models and analyses to identify future national and regional generation and flexibility capacity. The JSET program will support energy leaders in designing market-based solutions to acquire and implement that generation capacity.



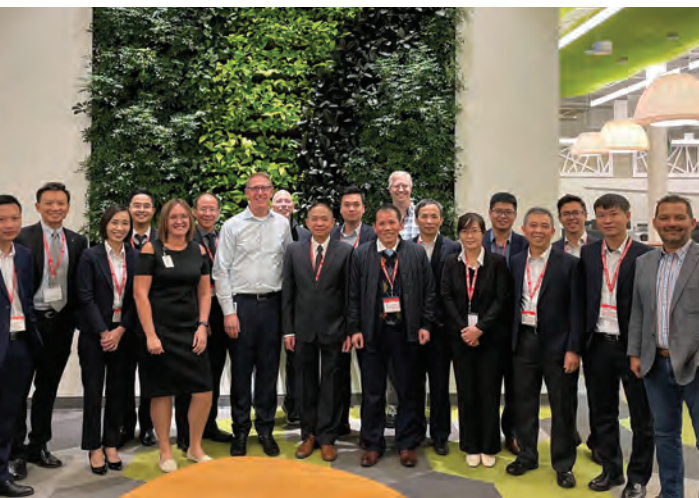
Energy leaders and partners from the US and across Europe and Eurasia met in December 2022 to launch these initiatives and other projects under the USAID U.S.-Europe Energy Bridge program.

Energy Market Investment AND MODERNIZATION



Clean EDGE (Enhancing Development and Growth through Energy) Asia: Indo-Pacific Energy Market Investment and Modernization

The Indo-Pacific Energy Market Investment and Modernization (EMIM) project is funded by the U.S. Department of State's Bureau of Energy Resources (ENR) and implemented by USEA. The goal of EMIM is to strengthen the energy security of U.S. allies and partners; create open, efficient, rule-based, and transparent energy markets; improve free, fair, and reciprocal trading relationships; and expand access to affordable, reliable energy as part of the U.S. government's Clean EDGE (Enhancing Development and Growth through Energy) Asia initiative. EMIM also works to advance the goals of the Japan-U.S.-Mekong Power Partnership (JUMPP), ENR's Power Sector Program, and ENR's Energy and Mineral Governance Program.



Advancing Competitive Power Markets and Clean Energy in the Lower Mekong Region:

From January through November 2022, EMIM convened representatives from Cambodia, Lao PDR, Thailand, Vietnam, and Japan for JUMPP Technical Advisory Group (TAG) meetings to discuss the priorities for technical cooperation reflected in a JUMPP Action Plan. The Action Plan is a 2020 ministerial commitment under the Mekong-U.S. Strategic Partnership that sets goals and technical assistance priorities on clean energy, power trade, and market development. The JUMPP TAG is an example of U.S. and Japanese support for Mekong energy security, power sector decarbonization, and enhanced interconnectivity.

USEA member MISO shared their experience designing and integrating Market Management Systems with visitors from Vietnam.



Representatives from NLDC, Vietnam Electricity, and the Electricity Regulatory Authority of Vietnam meet with technical experts from the Pacific Northwest National Laboratory.

leading practices in clean energy integration and electricity market management. As Vietnam expands its wholesale electricity market to encourage investment in power system infrastructure, technologies like market management systems will be key enablers to the growth of renewable energy projects.

Enabling Sri Lanka’s Clean Energy Transition:

From January to July 2022, EMIM provided virtual capacity building to the Sri Lanka Sustainable Energy Authority (SEA), Ceylon Electricity Board (CEB), and Public Utilities Council of Sri Lanka (PUCSL) on clean energy transition topics including battery energy storage systems (BESS) and renewable energy forecasting and integration. Technical experts from the National Renewable Energy Laboratory and USEA member ESS, inc. shared the latest technology trends and leading practices to enable Sri Lanka to pursue its goals of accelerating the clean energy transition and provide affordable, reliable, and clean energy to all.

Supporting Vietnam’s Electricity Market Development:

In September 2022, EMIM provided technical assistance to Vietnam’s National Load Dispatch Center (NLDC) on the operation of competitive electricity markets and increasing penetration of variable renewable energy sources to support the achievement of Vietnam’s clean energy targets. As part of this technical assistance, 12 officials from NLDC, Vietnam Electricity, and the Electricity Regulatory Authority of Vietnam traveled to the U.S. for a Study Tour on Market Management Systems. The Vietnamese officials learned from the Electricity Reliability Council of Texas, the Pacific Northwest National Laboratory (PNNL), and the Midcontinent Independent System Operator about



Staff and leadership from Vietnamese power sector stakeholders visit a wind generating facility in Washington state.

Supporting Clean Energy Innovation in Bhutan:

From July through December 2022, EMIM, in partnership with USEA member Tetra Tech and Roland Berger Consulting, delivered technical assistance to the Bhutan Department of Energy to support Bhutan’s aspirations of developing a green hydrogen economy. Through this project, EMIM is developing a Green Hydrogen Market Study for Bhutan, which includes a framework and strategy for targeted investments, policy reforms, and stakeholder organization to develop a green hydrogen market using Bhutan’s abundant hydropower generation resources.

Ruth Yu-Owen, President of Upgrade Energy Philippines, shares her experience of rising to the top of a male-dominated career field with participants in the FLIE partnership.



Empowering Southeast Asian Female Energy Professionals:

From January through December 2022, the Female Leadership In Energy (FLIE) partnership, with funding from ENR, seeks to advance the professional development of early to mid-career women working in energy sectors across Southeast Asia and the Pacific region. Through FLIE, thirty-two women from Southeast Asia and the Pacific have participated in a mentorship program, which partners the mentees with senior female energy leaders from the U.S. In 2022, EMIM held the first four of a series of six workshops intended to increase participants' industry and job function knowledge, as well as leadership skills, to empower them to lead the clean energy transition. The workshops took place both virtually and in-person, focusing on clean energy technologies, the experiences of female energy leaders, and leadership skills development training. During the workshops, industry experts delivered technical presentations on solar, wind, hydrogen, battery energy storage systems, grid management technologies, and

energy systems of the future. Mentees also engaged with several female industry leaders, who shared their professional career experiences and advice for advancement. Finally, mentees completed training on a variety of key career and leadership topics, including how to handle gender discrimination, improve negotiation and self-advocacy, and practice effective conflict management.

Participants in the FLIE mentorship program meet in Manila, Philippines for the Fourth FLIE Technical Workshop.





2021 – 2022 ENERGY AWARD

Ralph Izzo Presented With 2021-22 United States Energy Award

On Thursday May 26, 2022, Ralph Izzo, Chair, President and CEO of Public Service Enterprise Group (PSEG), accepted the 2021-2022 United States Energy Award virtually in recognition of his exceptional contributions to the energy industry over his three decades with PSEG.

The award, which was established in 1989 to recognize preeminent energy leaders and their contribution to the understanding of energy issues, was presented virtually to an audience viewing via livestream. The ceremony was opened by USEA Acting Executive Director Sheila Hollis, who welcomed the audience virtually on the Communications platform zoom.

PSEG, which is headquartered in Newark, New Jersey, is a Fortune 500 company that was founded in 1903. It is one of the nation's largest utilities and comprises three major subsidiaries: Public Service Electric and Gas (PSE&G), PSEG Power, and PSEG Long Island, which operates the electric transmission and distribution system of the Long Island Power Authority. PSEG delivers energy to millions of customers throughout New Jersey and Long Island, including 2.3 million electric and 1.9 million gas customers in New Jersey, and an additional 1.1 million customers in Long Island.

Dr. Izzo joined PSEG in 1992 and has led various divisions within the organization, including senior vice president of utility operations, vice president of corporate planning, and vice president of electric ventures. He has served as PSEG's Chair, President and CEO since 2007.

During his tenure, Dr. Izzo reoriented PSEG's mission to align with the realities of climate change and the goal of a clean energy future. Under his leadership, PSEG has reduced carbon emissions from power generation by 98% since 2005, selling or retiring 11,000 megawatts of fossil generation in that time. In 2021, PSEG accelerated its net-zero climate vision by 20 years to 2030 and signed on to the U.N. Race to Zero and Business Ambition for 1.5 C campaigns, committing to develop science-based targets. In February 2022, piloted by Dr. Izzo, PSEG launched its new Powering Progress initiative, which envisions a future where people use less energy that is cleaner, safer and delivered more reliably than ever.

Dr. Izzo began his career as a nuclear scientist, and he recently served as chair of the Nuclear Energy Institute, a USEA member. He has frequently testified on Capitol Hill and is considered a foremost expert in the areas of global energy and climate policy. He is due to retire from PSEG at the end of 2022.

“

“Ralph Izzo’s remarkable leadership ability, his sensitivity to environmental justice issues, and his vision of a clean energy future are the defining qualities that make him an exceptionally deserving recipient of the 2022 U.S. Energy Award. He has presided over PSEG in a challenging time in which the energy sector has been rapidly evolving. In his 15 years at the helm, our nation’s grids, regulatory systems, and emerging technologies have all enormously altered the energy landscape, yet Ralph has guided his organization through it all with outstanding precision. It is superb leaders like Ralph that will forge the way to a greener planet in which reliable, safe, and accessible energy is a reality for all. USEA is honored to present this award to Ralph as a way of recognizing his lifetime of achievements, and we wish him a fulfilling retirement.”

SHEILA HOLLIS



2022 Virtual PRESS BRIEFINGS



USEA's Virtual Press Briefing series features a panel of industry experts answering questions from energy journalists about the leading issues and cutting-edge energy topics of the day. The general audience can also submit questions. Acting Executive Director Sheila Hollis delivers opening remarks for each briefing. The briefings are organized and moderated by Llewellyn King, producer and co-host of White House Chronicle on PBS. The Virtual Press Briefing series was launched in October 2020 and is a virtual reboot of the original Press Briefing series, which was conducted several years ago in the USEA offices.

The highly popular Briefings have received extensive media coverage, including articles in Forbes, POLITICO, The Guardian, Energy Daily, S&P Global Platts, and Utility Dive. The briefing recordings are distributed to registrants and posted on USEA's website, and they have been viewed thousands of times online. Each briefing features a topic that is timely and of great importance to the industry, and the pointed questions asked by the reporters allows for excellent responses and dialogue with the guest experts. In 2022, the series focused on the highly relevant topics such as wildfires and droughts; transmission capacity congestion; small modular nuclear reactors; critical minerals shortages; the future of the electric utility industry; global energy prices and the Strategic Petroleum Reserve release; the potential impact of the mid-term elections on utilities; and winter electricity stress and load shedding. Selected examples included:

For the first 2022 Virtual Press Briefing, USEA assembled a panel of experts to talk about the new Department of Energy "Building a Better Grid" initiative, which will deploy more than \$20 billion to expand and upgrade transmission. Questions for the panel included: How will the funds be applied? What will the federal role be? How soon will new construction start? How will rights-of-way be secured when they have met fierce, local opposition in the past? What will be the balance between DOE, the Federal Energy Regulatory Commission (FERC), and the utilities - and who will coordinate?

At another Virtual Press Briefing, panelists focused on Russia's invasion of Ukraine and how it upended the global energy supply chain, producing historic levels of stress worldwide and catastrophe in Europe. A big question for the panel was how electricity prices would be affected by Russia's war on Ukraine: can utilities hold the line, or will force majeure come into play, adding to consumer woes? Another question was whether the fast-paced transition to renewables would stall due to possible interruption from Russia's critical minerals supply.

POLITICO

**The
Guardian**

The Inflation Reduction Act Will Spawn Nuclear Energy's Growth

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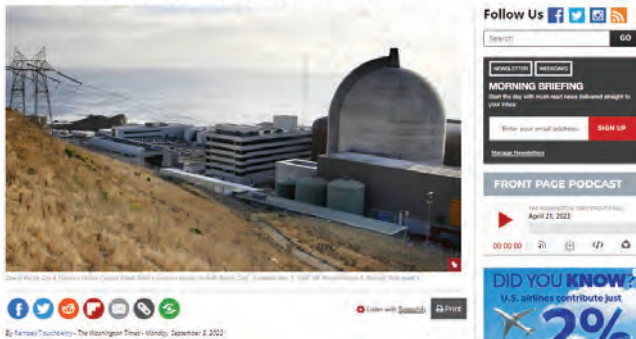
One Virtual Press Briefing addressed electrification as the megatrend for the energy sector. As utilities gear up for a surge in electric vehicles and the deployment of massive electric fleets, is the electric future close? What is the role of advanced batteries as the storage system for utilities and microgrids, including the lithium-ion battery and its precarious supply chain? While electrification of everything is cheered everywhere, the danger of depending on the lithium-ion battery is palpable as none of the principal components are sourced in the United States.

The August Virtual Press Briefing on nuclear power was one of the most popular installments in the series. Most of the dialogue focused on industry enthusiasm surrounding small modular reactors (SMRs), which are easier to assemble, safer, and cheaper to operate than the massive reactor facilities currently in operation. Media coverage of the briefing was wide-ranging, including articles from Forbes, Utility Dive, Nuclear Net, and The Washington Times.

The September Virtual Press Briefing, 'Electric Utilities and the 2050 Dilemma' featured the largest panel to date, with ten speakers (five guest experts and five reporters). The audience heard from a variety of key players that comprise the utility industry, including a federal agency, rural co-op, and investor-owned utility. Together, they were able to offer several perspectives of the issue at hand: boosting electric supply to meet demand while reducing emissions. The panel examined the potential role for HVDC transmission lines to supply the power-needy East with the West's abundant domestic energy resources.

The final installment of the 2022 Virtual Press Briefing Series took place on December 14th. In this episode, winter electricity stress and load shedding took center stage. The coming winter was explored by industry leaders in terms of what utilities and the public will face as the season approaches.

Democrats, environmentalists warm to nuclear power for quicker transition to a green energy future



Energy Utility Partnership PROGRAM



The Energy Utility Partnership Program (EUPP) is a cooperative initiative between the United States Energy Association and the United States Agency for International Development under the Bureau for Development, Democracy, and Innovation (DDI). EUPP works around the world to promote energy security and clean energy access by providing capacity building to local utilities using industry experts. By bringing countries together and encouraging knowledge sharing of global best practices, EUPP enables emerging markets to have access to U.S. public and private sector expertise and technical assistance. Together, the partnering organizations expedite the transfer of market-based approaches in utility operation and management, regulation, environmental improvement, and climate change mitigation.



Uganda: Building Expertise in Hydropower, Asset Management and Cybersecurity

EUPP worked with the Uganda Electricity Generation Company Ltd (UEGCL) for five years to build an enabling environment for UEGCL's employees and management to improve hydropower operations and maintenance, asset and risk management, and dam safety. EUPP brought four American experts to Uganda to train over 30 UEGCL participants on improving operations and maintenance of hydropower plants; developing dam safety programs, project management and commissioning; and risk management indicators and quantification methods. During this exchange, UEGCL offered the experts in-depth tours of their Nalubaale and Kiira Hydropower Complex (380 MW) and Isimba Hydropower Station (183 MW) and discussed improvements in operations and maintenance and emergency dam safety plans. Several months later, discussions continued on failure mode effects and criticality analysis processes (FMECA), distribution value framework, and risk management during a 10-day executive exchange to the United States to participate in the CEATI Asset Management Conference and to visit Chelan County Public Utility District (Chelan PUD).

Executive Exchange on Dam Safety at Kiira Hydropower Dam in Jinja, Uganda (May 2022).



UEGCL visits Rocky Reach Hydropower Dam in Wenatchee, Washington in October 2022.

The Cybersecurity and Digitalization for the Energy Sector course for Uganda was also launched under this partnership to address the increased threat of cyber-attacks on critical infrastructure. As a result of the USAID-funded training, three department heads of UEGCL who participated in the course recognized and stopped a phishing attack which is critical to protect utility infrastructure and ensure energy reliability.

The Uganda partnership concluded in 2022. Over five years, UEGCL transformed their hydropower operations and asset management. Below are some highlights of their results:

- Moved from Managing Assets to Asset Management. UEGCL started out the asset management program in 2019 and has since matured from a scale of 0 to 2.53 out of 5.
- Implemented a computerized maintenance management system (CMMS) solution based on IBM Maximo application suite to support the Enterprise Asset Management program.
- Created Asset Management department.
- Certified 15 employees in Asset Management from the Institute of Asset Management (IAM)
- Developed and approved an Asset Management Policy.
- Developed and approved a Strategic Asset Management Policy (SAMP).
- Joined Centre for Energy Advancement through Technological Innovation (CEATI) for further engagements and access to utility best practices. In less than 5 years, UEGCL has become a leading utility in asset management, presenting on their corporate risk management approach and framework at the CEATI 2022 Asset Management Conference.
- Rolled out Asset Management company-wide starting with Isimba and Karuma Hydro Dams.
- Developed, reviewed and implemented a risk management policy.
- Developed, reviewed and implemented a risk appetite statement.
- Developed corporate risk register and registers for all departments.
- Improved risk assessments by introducing criticality assessments.
- Established a risk department to proactively identify, monitor, and mitigate risks.
- Trained more than 100 UEGCL staff in hydropower operations, maintenance, and asset management.
- Certified 20 Ugandan stakeholders in Cybersecurity through the Institute of Electrical and Electronics Engineers (IEEE).
- Developed an Energy Mix Diversification Strategy and Financial Roadmap for UEGCL.
- Facilitated stakeholder engagement between the key energy sector companies in Uganda to work together and develop an Integrated Resource Plan up to 2040.
- Supported the UEGCL in becoming a member of the International Commission on Large Dams (ICOLD) and developing their own chapter: the Uganda Commission of Large Dams (UCOLD).

USEA consultants train Rwanda Energy Group/ National Electricity Control Center dispatchers on the Dispatchers Training Simulator.



Rwanda: Dispatchers Trained to Improve Operations and Reduce Outages

To help the Rwanda Energy Group (REG) better manage system disturbances and other challenges in real-time operations, EUPP trained the National Electricity Control Center (NECC) power controllers on the knowledge and skills of multi-tasking dispatchers. This training concluded a larger project that included a comprehensive audit of NECC's operations and procedures and provided REG with technical solutions and recommendations for improvement. As a result, REG has improved capacity for reliable and efficient operation of the national electric grid, reducing outages and interruptions. It also prepared Rwanda for regional integration with Uganda and Kenya, improving power flows across borders and facilitating regional energy cooperation and power trade.

After four years of activities, the Rwanda partnership concluded with significant operational results including:

- Installation of a second transformer unit in Rilima Substation and higher rated transformer units in Rilima and Shango to improve transformer capacitor reserves.
- Frequency threshold is now 50.5 Hz and droop settings are adjustable between 2 – 12 %.
- All new generating units must provide primary frequency control, even for power park modules (wind and solar), until overall system inertia increases making it more robust for frequency deviations.
- Power plants are now equipped with a permanent automatic excitation control system that can provide constant alternator terminal voltage at a selectable setpoint without instability over the entire operating range of the synchronous power-generating module.
- Power generating units are set to operate in automatic voltage regulation (AVR) regime, maintaining voltage setpoints by continuously adjusting reactive power generation.
- Resolution of overvoltage issues in the current network state by optimizing reactive power dispatch of existing generating units.
- Tap readjustment of 110/X kV network transformers in cases of high voltages in the transmission system to increase voltages in the distribution system.
- Transmission network upgrade to 220 kV voltage level to amplify generation of reactive power in the system.

Eastern Africa Power Pool (EAPP)/Nile Equatorial Lakes Subsidiary Action Program (NELSAP): System Modeling to Expand Renewables and Regional Interconnections

Having well trained power system modelers able to conduct sophisticated analyses and find solutions to possible disturbances in the actual interconnected grid is crucial for managing grid performance of all regional networks. EUPP completed a series of training programs on load flow modeling and security analyses to create an enabling environment for the addition of renewable generation required to meet Power Africa's goals. The training will help participants create conditions conducive to greater regional electrical interconnections and facilitate regional energy trading.



Ugandan engineers participate in a training on power system modeling and analyses.

Tanzania: Promoting Investment and Renewable Energy Development

To help Tanzania tap into its renewable energy potential of 6GW and the country's broader mission of sustainable development for economic growth and improved quality of life, EUPP facilitated several activities on how to improve public private partnerships and develop renewable energy. High level representatives from Tanzania participated in two workshops on global best practices to improve public private partnerships (PPP) to gain a better understanding of the role of PPPs in building and developing infrastructure and how to revise procurement processes. Information provided by the experts will also assist in developing a comprehensive strategy for facilitating energy PPP project financing, competitive bidding and Model Energy PPP Transaction Documents & Practical Guidelines based on global experiences.

High level energy stakeholders from Tanzania and Zanzibar also visited India to discuss its successful development of renewable energy focusing on wind and solar, global trends, transparent and digitized procurement processes, load forecasting and system flexibility, research and development, battery storage, energy sector policies, and regulatory frameworks. By applying lessons learned from this exchange, draft recommendations will be submitted to the Government to update Tanzania's National Energy Policy.



Tanzania delegation visits the Tata Power Battery Energy Storage site.

Kenya Government Formalizes Community Engagement as Part of Project Development

In 2019, EUPP created a Community Engagement plan for KenGen to work with indigenous communities on geothermal projects in their territories. At the time of the launch, the Minister of Energy stated they planned to roll it out as a model framework for all of the parastatals, including KETRACO. Community engagement is now listed on the Ministry of Energy's website as part of the project delivery methods. Engaging the community early in the process reduces delays and disagreements, speeding the deployment of geothermal generation and energy access in Kenya.

Kenya: Improving Electrical Grid Stability & Preparing for 100% Clean Energy by 2030

The Kenyan electrical grid has an installed capacity of 2,990 MW with the peak demand currently at 2,132 MW. The grid is interconnected with Uganda, Ethiopia, and Tanzania with further enhanced interconnection with Uganda under implementation. In 2021, 81% of Kenya's electricity generation came from the low-carbon sources of geothermal, hydro, wind, and solar power. To manage this dynamic system, Kenya utilizes power system planning and analysis tools for transmission planning, network stability, and grid operation studies. In 2022, EUPP completed the final training for twelve executives from Kenya Electricity Transmission Company Limited, Kenya Power & Lighting Company, Kenya Electricity Generating Company, and the Kenyan Energy and Petroleum Regulatory

Authority on the modeling and analysis of power system dynamics, enabling them to conduct advanced modeling and system analysis. Kenya Power is using the modeling to determine how best to dispatch renewables to maximize wind and solar on the grid while maintaining stability, thus mitigating emissions.

This system modeling training concluded the Kenya partnership. Results from the program include:

- Simulated the critical clearing time of various transmission lines and buses in the Kenyan power system, allowing them to model wind and solar accurately. These simulation results gave Kenya Power new operational insight into how to dispatch renewables to maintain the stability of the system and a

greater ability to integrate more renewable energy thus mitigating GHG emissions.

- Conducted a study on the effects of 120 MW of solar power plants on the stability of the Kenyan system, helping Kenya Power add more solar power to the system, avoid greenhouse gas emissions and diversify their energy mix to reduce dependency on hydro that is sensitive to droughts caused by climate change.



Kenyan system engineers conduct advanced modeling and system analysis with the goal of improving system reliability and security.

Senegal: Improving Capacity to Expand Energy Access



USEA along with Kelter Global with P3M Consulting provides training on Project and Portfolio Management to Senelec staff in Dakar, Senegal (July 2022).

The Government of Senegal committed to achieving universal electricity access by 2025. Currently Senegal's electricity access is 88% for the urban population with 38% in the rural areas. Senelec, Senegal's national electricity company, received a national government sanctioned budget to develop its portfolio of energy projects to increase energy access but needed training to strengthen their project management skills. In 2022, EUPP conducted a three-part training series on Portfolio and Project Management focused on Senelec's strategy to manage their portfolio of projects, align their organizational structure, and create a standardized and systematized process for project management. This was a follow-on to the three Project Management workshops conducted in Dakar in 2018-2019. USEA has over the years evolved its support to Senelec from initially helping engineers plan advanced power flow, contingency, voltage stability and dynamic analysis to later improving their ability to manage the growing number of generation, transmission, and distribution projects ensuring best practices in project management, procurement, and power system modeling.

After five years of activities, the Senegal partnership concluded in 2022 with significant results including:

- Trained 80 Senelec staff on Project Management Fundamentals
- Created a standardized process for managing projects and documentation – including stakeholder management, monitoring and evaluation, and project close-out.
- Procured and installed a portfolio management information system, Oracle Fusion Cloud, to aid in managing their projects and modernizing their information system.
- Seven employees passed the Project Management Professional (PMP) Certification Examination and other Senelec employees are continuing to build their skills through ongoing coursework at the Project Management Institute Chapter in Senegal.
- Increased Senelec's load flow modeling and transmission planning, through training that developed additional scripts and taught Senelec to use them on a daily basis for automation of dynamic simulations, plotting, and data extraction. As a result, Senelec will have better system reliability by having tests run automatically.
- Reviewed their dynamic model and correct parameters of GGOV1 (governor model for frequency regulation) and AC7B (model for voltage regulation) models. An improved calibration of these models will help to recreate the power system's behavior in case of failure.
- Learned the principles of small signal stability analysis and reliability analysis and now perform these analyses, giving them important data to avoid system outages.
- Developed a python script for the dynamic load model to improve the accuracy of the dynamic model and created models for the Hann and Bel Air substations in Dakar. Senelec has also defined an action plan to continue the process for all substations.

A 1 MW solar photovoltaic array installed in 2019 that will provide renewable power to the Oserian Two Lakes Industrial Park.



East Africa Geothermal Partnership (EAGP): Enabling Geothermal Development

EAGP in Kenya

The U.S. – East Africa Geothermal Partnership, with funding from USAID and Power Africa, provided technical assistance to the Oserian Two Lakes Geothermal Industrial Park, an innovative project in Naivasha, Kenya. Oserian received a license to sell electricity generated on their land from Kenya’s Energy and Petroleum Regulatory Authority (EPRA), making them the only Kenyan company with a license to generate, transmit, and sell electricity. Using this license and the site’s abundant geothermal resources, Oserian is developing the first geothermal industrial park in sub-Saharan Africa. A grid study conducted in 2020 found that the industrial park’s installed geothermal and solar power will not be sufficient to meet the load of all prospective industrial park clients. In 2022, EAGP partnered with technical experts to support Oserian with the design of an interconnection between the industrial park microgrid and Kenya Power and Lighting Company’s distribution grid to provide backup power for the industrial parks. EAGP is continuing to support Oserian with a study focused on extending a steam supply pipeline to connect Oserian’s two geothermal power plants and increase the available electricity production from these existing plants. USEA and a team of technical experts visited the site in December 2022 to conduct a site survey and GIS map coordinates for a new steam supply pipeline. The report will be completed in 2023, enabling Oserian to provide increased renewable energy to industrial park clients to support local economic development.



Technical experts examine a 2 MW single-flash geothermal power plant that will provide baseload power to the Oserian Two Lakes Industrial Park.

EAGP in Djibouti

Only 50% of Djibouti's population has access to electricity. Djibouti has an estimated geothermal potential of over 1000 MW, enough to meet the country's electricity demand, and the Government of Djibouti plans to develop an initial 250 MW of geothermal energy by 2031. To help expand Djibouti's access to cheaper, cleaner and more reliable energy while improving lives and mitigating climate change impacts, EUPP purchased four pieces of geoscientific equipment to conduct seismic and seismic soil testing at Djibouti's geothermal sites as part of the country's new geothermal drilling program. This will allow Djibouti to identify the best potential sites for geothermal drilling and development, displacing diesel generation and avoiding coal imports.



The new geothermal steam supply pipeline will tie in with this existing steam supply pipeline to enable additional power generation from two geothermal power plants.



USEA consultants train regional Coordinating Dispatch Center (CDC) Energia staff on DlgSILENT PowerFactory modeling software.

Central Asia: Improving System Modeling and Renewable Integration

As the Central Asian states begin their transitions towards cleaner, greener economies, the regional governments set ambitious renewable energy targets. EUPP conducted a series of activities to enhance the capacity of regional stakeholders for power system modeling and simulation, integration of renewables, and analysis and long-term planning with the ultimate goal of creating an enabling environment for the expanded integration of renewable generation.

- Finalized and presented the *System Stability and Reliability Study – Prospective State* for the National Electricity Transmission Company (NETC) of Uzbekistan to analyze the future system behavior and develop possible technical and engineering solutions to avoid network instability.
- Held two five-day in person trainings on Integrating Renewable Energy into Power Systems and on Grid Code Compliance for the National Electricity Transmission Company of Uzbekistan.
- Held in person training on DlgSILENT PowerFactory: Basic Functions for the regional Coordinating Dispatch Center (CDC) Energia.
- Organized workshop to enhance the capacity of NETC and NDC for integration of renewable generation while maintaining stability and reliability of the national grid using DlgSILENT's PowerFactory (PF) software.

EUPP Roadmap activates Digital Substation Commissioning in Kazakhstan

After a digital substation strategy was created under EUPP for the *Kazakhstan Electricity Grid Operating Company (KEGOC)*, Siemens commissioned a digital substation at the 220 kv Ortalyk substation in Kazakhstan that included the Process bus solution recommended in the EUPP roadmap.

Kazakhstan: System Operator Provided with Solutions to Voltage Issues

The Kazakhstan power system's interconnection with Russia causes significant voltage deviations throughout the network, requiring frequent switching of substation reactors that results in the deterioration and premature failure of switching equipment. To help remedy this situation, USEA provided the Kazakhstan Electricity Grid Operating Company (KEGOC) with developed solutions to resolve these issues using modern Flexible Alternating Current Transmission System (FACTS) devices. This technical assistance included solutions for the present and future conditions of the Kazakhstan power system, including planned renewable generation, and a roadmap for implementing the suggested FACTS technology throughout the KEGOC's network. Implementation of FACTS technology will improve quality and efficiency of power transmission with reduced delivery costs, contributing to increased reliability and resiliency of Kazakhstan's National Power Grid.

Honduras: Promoting Women in Energy

In coordination with the Energy Utility Partnership Program (EUPP), the Secretary of Energy (SEN) in Honduras launched a new website and blog promoting gender equality in the energy sector (<https://sen.hn/mujeres-en-energia-hn/#>). EUPP facilitated a number of discussions with SEN on the creation of their Women in Energy website which features blog style interviews and a resource library. The website and blog will raise awareness about women who advance the energy sector transition in Honduras which can encourage other women to join the energy sector and work on climate action.

Colombia: Embracing Renewable Technologies and Innovations

EUPP is working with USAID Colombia to assist the Colombian government advance their plans to incorporate nonconventional renewable energy (NCRE) onto their grid while maintaining or improving system reliability and accommodating expected growth. EUPP convened international experts to review different options and their implications for the future development of green and blue hydrogen in Colombia. This activity will help the Ministry of Mines and Energy (MME) develop its own taxonomy for green and blue hydrogen, allowing these fuel resources to benefit from the fiscal incentives available to fuels classified as renewable energy. The initial workshop was followed up with a discussion and review of Colombia's proposed Draft Hydrogen Taxonomy and Institutional Decree at an April 19 workshop. Both workshops were grounded in Colombia's Green Hydrogen Road Map, which



lays out the route for implementing Colombia's Energy Transition Law (Law No. 2099 of 2021), modifies the regulatory framework for power generation from non-conventional renewable sources (NCRS), and legally establishes green hydrogen and blue hydrogen as NCRS. The Colombian Ministry of Mines and Energy published Decree 1476 regulating the production of green and blue hydrogen. The decree adds regulations and adopts provisions aimed at promoting innovation, research, production, storage, distribution and use of hydrogen to allow Colombia to mobilize around USD 5.5 billion and create about 15,000 jobs by 2030.

Following a successful young professionals training on integrating renewables in 2021, EUPP brought a group of the participants to see the latest technology, innovations and presentations at the National Renewable Energy Laboratory in Golden, Colorado. Participants presented the latest developments from their action plans to experts from NREL and received feedback about best practices and advice for next steps to carry-out their action plans. Upon return to Colombia, participants continue to finalize the action plans and begin implementation. Results from the previous Young Professionals Training include:

- The Ministry of Mines and Energy will continue with a study schedule for the inclusion of nodal prices.
- Superintendencia de servicios públicos domiciliarios (Superintendent of Public Utilities) will review the criteria for hosting capacity for implementation in Colombia as a regulatory recommendation to be made to the CREG.
- XM implemented a computational tool for the study of resilience in power systems.
- Grupo Electrica de Bogota (GEB) is developing inter-institutional working groups to discuss technical aspects of transport electrification for the city of Bogota (previously GEB did not participate in these discussions).The GEB is implementing several actions oriented to promote renewables, sustainable mobility (GEB fleet replacement), and distributed resources (participation in self-generation discussions in schools).

Colombia Offshore Wind Energy Roadmap Leads to New Resolution - Building on previous EUPP workshops, Colombia's Ministry of Mines and Energy released its own Offshore Wind Energy Roadmap in May, and in August 2022, published Resolution No. 40284, defining the process to obtain temporary permits for offshore projects and calling for the first round of allocations. Colombia's roadmap estimates that the country has almost 50 GW of offshore wind capacity which can bring Colombia more than USD 27 billion in investments and create 26,000 jobs by 2050.



Geothermal Decrees Published

EUPP, with Tetra Tech and NREL, organized a series of workshops to convene stakeholders to review the Colombian government's geothermal proposal and receive feedback from international experts.

The Colombian Ministry of Mines and Energy published two decrees regulating the production of electricity from geothermal sources. Decree 1318 modified previous decrees to regulate the development of activities oriented to the generation of electrical energy from geothermal sources.

Decree 40302 outlined the technical requirements that will govern the Geothermal Registry and the Permits for exploration and

exploitation of the Geothermal Resource for electric power generation. Colombia has 1.2 GW of geothermal potential, which is a good resource to diversity generation from hydro, increase system resilience, and mitigate risk from droughts.

South and Southeast Asia: Improving System Flexibility for Renewable Dispatch

As the country decommissions a quarter of its coal capacity by 2030, fossil fuel generators and grid operators will be tasked with operating in a manner they never have before. The existing coal fleet will need to reduce its minimum generation levels to all-time lows without causing disturbance to the grid, as well as alter its ramping rate to match the balancing needs of variable renewable energy. EUPP hosted a workshop with executives from Indonesia, India, Thailand, and Vietnam to highlight best practices to increase the flexibility of baseload thermal

generation. This workshop presented strategies to support expanded renewable energy generation and the process to transition from a fossil economy through discussions on operational, planning, and financing methods to enhance system flexibility of existing generation. Experts presented pathways that other countries and utilities have followed in phasing out fossil fuels and decommissioning thermal generation, giving participants a roadmap they can use in their countries.

Business Innovation Partnership (BIP) - Improving Core Business Operations

In 2022, USAID and USEA concluded the Business Innovation Partnership to assist USAID-partner utilities in navigating the most pressing challenges, needs, and opportunities within the growing cybersecurity, digitization, grid modernization, and energy management industry. EUPP trained four partner utilities (Edesur - Dominican Republic, Ghana Grid Company Limited, Jamaica Public Service, and Power Information Technology Company - Pakistan) in business process innovation and change management and helped them apply these techniques to a chosen project to improve business operations.

Pakistan



PITC is a state-owned company responsible for developing, deploying, and providing information technology (IT) support and infrastructure services for power distribution companies (DISCO), the Ministry of Energy, the National Transmission and Dispatch Company, the Central Power Purchase Agency, and other stakeholders throughout Pakistan. The BIP supported PITC in developing a new cybersecurity framework policy and establishing a standardized incident management response plan.

Using the Lean Six Sigma methodology, BIP participants established and implemented the National Institute of Standards and Technology (NIST) and International Organization for Standardization (ISO) cybersecurity management framework to improve responsiveness and minimize the impacts of a cybersecurity breach.

The new cybersecurity framework is now also being extended to the IT departments at each of the ten DISCOs. As a result of the change management process, PITC has increased its training budget by 50 percent and is nominating employees for data center security training. PITC is now prepared to improve and implement other procedures from their cybersecurity policy through their change management teams.

Jamaica

Jamaica Public Service (JPS) is an integrated electric utility company and the sole distributor of electricity in Jamaica. Electricity theft costs JPS an average of \$200 million in losses per year and meter reading expenses account for approximately \$2.3 million annually. In 2020, JPS announced an investment of more than \$100 million towards the modernization of the nation's electricity grid by 2025. A crucial piece of Jamaica's grid modernization efforts includes the replacement of 140,000 manually operated meters with "smart" meters. The BIP supported the JPS teams in executing the aggressive roll-out of 69,500 smart meters in 2022. The project reduced meter reading expenses and maintenance costs and improved the accuracy and availability of meter readings, while also automating the billing cycle. This resulted in more data points for the grid stability analysis required to improve grid reliability. With the use of "smart" technology, data is retrieved at 15-minute intervals from "smart" technology



applied at all metering transformer locations. The project expanded the smart grid communication network, enhanced systems communications and established standards for smart grid applications. Through the BIP project, JPS set a goal to change the way in which technology, human resources, systems analytics, and energy measurements are integrated towards realizing utility goals and customer expectations. JPS employees participating in the BIP have gained skills to foster a culture for innovation and strengthen Jamaica's grid modernization efforts, while supporting national decarbonization priorities. The BIP mentorship impacted other departments as well. JPS senior management learned that having a change management team accompany Capex projects saves money, so they created a new procedure that all future projects include a change management team.

Ghana

GRIDCo has been licensed by the Energy Commission of Ghana (ECG) to exclusively operate and maintain the National Interconnected Transmission System (NITS) since 2008. The Company currently transmits electricity to thirty-one bulk customers and distribution utilities from ten wholesale suppliers, including the Volta River Authority.



The BIP supported GRIDCo in identifying potential cybersecurity incidents, establishing global best practice incident management processes, and building new skills to enhance cybersecurity preparedness to comply with Ghana's National Cybersecurity Policy. BIP participants established and implemented the National Institute of Standards and Technology (NIST) and International Organization for Standardization (ISO) cybersecurity management framework to improve responsiveness and minimize the impacts of a cybersecurity breach. GRIDCo estimates that a cybersecurity breach could result in a revenue loss of \$200,000 per hour, which it can now potentially avoid. In addition, a prolonged grid disruption would have sub-regional security implications, due to the reliance of Togo, Benin, and Burkina Faso on Ghana for electricity. By establishing an effective incident management process, GRIDCo is now equipped to respond to such attacks in less than 48 hours, minimizing system impacts.

The BIP project also helped to establish a cybersecurity response culture to shift values, attitudes, and beliefs. GRIDCo is taking steps to nurture a culture of cybersecurity awareness that tasks every member of the organization with embracing attitudes and beliefs that drive secure behaviors.

Dominican Republic

EDESUR was formed in 1999 after the unbundling of the Dominican Electricity Corporation. Its main function is to distribute electricity throughout the southern part of the country, including part of Santo Domingo. Using the Lean Six Sigma methodology, the BIP supported EDESUR to improve customer care processes and increase the number of paying customers, collections, and revenue. To achieve this goal, EDESUR developed a visual tool for documenting current customer service processes from beginning to end, providing a clearer understanding of the existing approach and the key stakeholders involved. During the BIP program, EDESUR redesigned its Service Philosophy, Integral Training Program and Customer Service Model, called "EDESUR LEAL". "LEAL" stands for Legal, Empathetic, Agile and Ready (Listo, in Spanish). More than three hundred commercial agents received specialized training on the new service philosophy.

With support from the BIP, EDESUR built a stronger culture where diversity, equity, and inclusion for people with disabilities are foundational to improving customer service. EDESUR created a new Inclusive Service training module where employees receive clear guidelines on how to approach service for customers with disabilities, including visual, motor, hearing or cognitive, by incorporating inclusive design into two new commercial offices. EDESUR strengthened their commitment to advance Diversity, Equity, Inclusion, and Accessibility (DEIA) principles by fostering a more inclusive work environment that values diversity, empowers individuals from all backgrounds, expands their customer reach, and reduces accessibility barriers.

EUPP's capacity development programs in 2022 used institutions formerly trained by EUPP as experts, highlighting the lasting impact of USAID funded capacity building programs. Companies include *Power System Operation Corporation (POSOCO)*, *Ministry of New and Renewable Energy (MNRE)*, *Tata Power and Central Electricity Regulatory Corporation (CERC)* of India.





■ Advancing Modern Power Through Utility Partnerships (AmpUp)

The Advancing Modern Power through Utility Partnerships (AmpUp) program introduces a new approach to international energy development assistance implemented by a consortium centered around peer-to-peer relationships and strong practitioner and stakeholder networks. The AmpUp program utilizes the vast experiences and knowledge of the organizations comprising the Consortium: Arizona State University (ASU), Segura Consulting, MK Advisors, NRECA and USEA. AmpUp leverages the expertise and knowledge of utilities and energy sector experts from around the world, applying lessons learned and incorporating new models of engagement to support the global energy transition.

Grid Modernization Towards Resilience Training

Grid resilience has become increasingly vital with changing and extreme weather interrupting service. It can help safeguard against disruptive events and maximize chances of adaptation and quick recovery of operations, reducing commercial risks. To address this concern, AmpUp hosted a virtual training on *Grid Modernization towards Resilience* for 35 people across eight countries in Latin America and the Caribbean, Sub-Saharan Africa, South-East Asia, and Central Asia. Attendees from electric utilities, market operators, regulators, and developers joined the one-day interactive training. Technical topics focused on utility threat vectors and resilience, mini-grids and DERs, adapting business models for grid modernization, and utility digitalization.

Cybersecurity and Digitalization for the Energy Sector Training in Vietnam

More than forty managers and technical staff from EVN, Vietnam's state-owned power company, participated in the first in-person workshop in Hanoi under the Countering Energy Cybersecurity Threats program. The program targets Vietnam, Central Asia, Latin America and the Caribbean over the course of 2022-2023. Twenty-five staff from EVN recently completed an online cybersecurity training and received certification from the Institute of Electrical and Electronics Engineers (IEEE), the world's largest technical professional organization. By sharing these best practices in cybersecurity, EVN can improve their resiliency and reliability against cyberattacks. This is increasingly important as electric utilities around the world are becoming prime targets to bring down the grid system and disrupt service, costing companies millions of dollars to repair.



Workshop on Cybersecurity and Digitalization for the Energy Sector in Hanoi, Vietnam.

U.S. Utilities Discuss Climate Risk Management and Resilience Planning Strategies

As the changing climate poses mounting threats to the quality and reliability of power systems, electric utilities in the United States are taking necessary steps to identify and manage these risks. Utilities in developing countries must likewise take action to protect critical infrastructure and maintain reliable service amidst an uncertain climate future. AmpUp organized a webinar highlighting the experiences of two U.S. utilities that are leaders in climate risk management and resilience planning: Con Edison and Pacific Gas and Electric Company (PG&E). Presentations focused on key lessons learned and recommendations for utilities in developing countries to consider in their own climate risk management processes.

AmpUp Circular Economy Webinar Introduces Partners to Utility Framework

While many electric utilities have ambitious power generation decarbonization goals, few consider resource circularity in climate targets, financial models, supply chain, and inventory management. The circular economy model has emerged as an alternative to reduce costs and mitigate supply chain disruptions for assets such as transformers, meters, and more. The Advancing Modern Power through Utility Partnerships (AmpUp) Program webinar introduced a practical framework for asset circularity for an electric utility. Salt River Project, a utility, focused on transformer shortages and mitigation strategies for grid-connected customers, and Engie Energy Access, an energy solutions provider, discussed circularity for solar home systems and mini-grid assets for off-grid customers. Webinar speakers and content will inform development of an actionable guide on asset circularity that will be made available to attendees at a later date.

Just Energy Transition: Reducing the Impact on Communities and Workers

AmpUp held a panel discussion focusing on socio-economic implications and new workforce development opportunities for USAID-assisted countries as they transition away from fossil fuels. The webinar included presentations and case studies by subject matter experts from the Center for Strategic and International Studies (CSIS), Salt River Project, and the Energy India Climate Collaborative to identify inclusive, collaborative, and participatory best practices that focus on equity and inclusivity.

The examples presented during the webinar may be used by other overseas partners as a starting point in developing their own Just Energy Transition strategies as they look at reducing their greenhouse gas emissions through the closure of fossil fuel based generation facilities.



Consensus Oil and NATURAL GAS

BUILDING INTERNATIONAL CONSENSUS ON OIL AND NATURAL GAS

To tackle the joint challenges of ensuring energy security and mitigating climate impacts of energy systems domestically and internationally, USEA continued “Building International Consensus on Oil and Natural Gas.” As the world continues to rely on oil and natural gas resources to meet energy and power demand, USEA is working with industry and governments to ensure that they are utilized responsibly. USEA continued to work in partnership with the U.S. Department of Energy’s Office of Fossil Energy and Carbon Management to strengthen international energy relationships and promote the responsible use of oil and natural gas to enable a cleaner energy future.



U.S.-INDIA LOW EMISSION GAS TASK FORCE (LEGTF)

USEA serves as Secretariat for the U.S.-India Low Emission Gas Task Force (LEGTF) under the U.S.-India Strategic Clean Energy Partnership.

Throughout 2022, USEA worked with DOE officials, U.S. industry, the Government of India and India’s natural gas industry to meet India’s climate and energy goals through the deployment of maximally-abated natural gas.

The LEGTF 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. Natural Gas for Lower Emissions

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. Natural gas is an important tool for the Government of India to meet the emissions reduction targets announced at the COP26 Summit. In particular, natural gas can enable fuel switching from high-polluting fuels in the industry, agriculture, transportation, and residential sectors. Deploying natural gas, while mitigating greenhouse gas (GHG) emissions associated with gas infrastructure, can reduce hazardous emissions, with positive health benefits, and lower energy costs for users.

In 2022, LEGTF members commenced several pilot projects in India using natural gas to displace high polluting fuels, accelerate the development of a clean hydrogen market with natural gas infrastructure, and create virtual LNG pipelines using ISO containers outfitted with leak detection and monitoring equipment.

Consensus Carbon MANAGEMENT



Promoting Consensus on Carbon Capture, Utilization and Storage (CCUS) and Carbon Management Technologies

Implemented by USEA and the U.S. Department of Energy (DOE) Office of Fossil Energy and Carbon Management (FECM), the Promoting Consensus on CCUS and Carbon Management Technologies (CONSENSUS) program conducts workshops, training programs and informational briefings, and performs analyses to communicate the technical, environmental and societal benefits of CCUS, carbon management technologies, rare earth elements and blue hydrogen.

REPORTS PUBLISHED IN 2022

- November 2022 - Life Cycle Assessment of Carbon Dioxide Removal Methods Summary Report
- November 2022 - Retiring Fossil Plants: Utilizing Thermal Energy Storage Technology for Longer Duration Energy Storage Deployment
- November 2022 - Seasonal Energy Storage
- September 2022 - A Catalog and Survey of Critical Materials Research Collaboration Between Industry and National Laboratories

WORKSHOPS HOSTED IN 2022

- An Opportunity to Facilitate Resilient Domestic Critical Material Supply Chains – Discussions on the Infrastructure, Investments and Jobs Act, Sections 41003c and 41003d in Washington, D.C.
- An Opportunity to Facilitate Resilient Domestic Critical Material Supply Chains – Discussions on the Infrastructure, Investments and Jobs Act, Sections 41003c and 41003d in Golden, CO
- An Opportunity to Facilitate Resilient Domestic Critical Material Supply Chains – Discussions on the Infrastructure, Investments and Jobs Act, Sections 41003c and 41003d outside Chicago, IL

- Carbon Conversion Procurement Grants – Virtual Workshop for Manufacturers of Construction Materials
- Carbon Conversion Procurement Grants – Virtual Workshop for Manufacturers of Fuels, Chemicals, and Bioproducts
- Carbon Negative Earthshot: Listening Session on Measurement, Reporting, and Verification
- CO2 Freight Transport Workshop
- Columbus, Ohio Regional Carbon Management Applicant Education Workshop
- CORE-CM Awardee Collaboration Roundtable
- Department of Energy Public Community Listening Session Regarding Carbon Management
- Eastern & Mid-Atlantic Regional Carbon Conversion/Utilization Procurement Grant Workshop
- Macroeconomic Effects of a Low-Carbon Transition - Modeling Challenges and Approaches
- Midwestern Regional Carbon Conversion/Utilization Procurement Grant Workshop
- New Orleans, LA Regional Carbon Management Applicant Education Workshop
- Repurposing Fossil Energy Assets

- Roundtable on Carbon Transport R&D Priorities for Existing Pipelines
- Roundtable on Carbon Storage R&D Priorities for Existing Wells
- Salt Lake City, Utah Regional Carbon Management Applicant Education Workshop
- Southeast Regional Carbon Conversion/Utilization Procurement Grant Workshop
- Virtual Carbon Management Applicant Education Workshop
- Western Regional Carbon Conversion/Utilization Procurement Grant Workshop
- Western Tribal Carbon Management Strategies Forum

WEBINARS HOSTED IN 2022

- February 2: Southwest Research Institute's CCUS and Clean Energy Development: Oxy-fuel Combustion and Advanced Power Generation Turbines
- March 24: Waste Plastics Gasification with Carbon Capture
- May 5: Indian Energy Minerals Forum 2022 Webinar Series 3, Webinar #1: Webinar Series introduction and Regulatory & Compliance Landscape
- May 12: USEA CONSENSUS Webinar: Hydrogen Market Module Component Design Report
- May 19: Indian Energy Minerals Forum 2022 Webinar Series 3, Webinar #2: Tribal Water-Energy Nexus
- June 2: Indian Energy Minerals Forum 2022 Webinar Series 3, Webinar #3: CO2 Sequestration and Carbon Capture on Reservations
- June 16: Indian Energy Minerals Forum 2022 Webinar Series 3, Webinar #4: Tribal Hydrogen Hub
- July 7: Indian Energy Minerals Forum 2022 Webinar Series 3, Webinar #5: Helium and other Rare Earth Elements on Indian Lands
- July 21: Indian Energy Minerals Forum 2022 Webinar Series 3, Webinar #6: Tribal Environmental, Social and Governance (ESG)
- July 28: Direct Air Capture LCA Best Practices
- August 11: Overcoming Barriers to Deploying Direct Air Capture
- August 25: Critical Materials Collaboration between Industry and the National Laboratories
- October 24: The National Tribal Energy Roundtable: Tribal Voices on our Energy Future
- November 2: USEA & EPRI: CO2 Transport and Storage Workshop: How do we Accelerate Deployment using the Knowledge/Experience Gained to Date
- November 9: USEA & EPRI: Seasonal Energy Storage Workshop
- November 10: USEA & EPRI: Thermal Energy Storage Repowering, A Pathway for Longer-Duration Energy Storage Deployment
- December 5: The National Tribal Energy Roundtable, Webinar #2: Clean Energy, Higher Education, and Workforce Development

USEA COMMUNICATIONS



As a result of the unexpected pandemic that occurred in late 2020, USEA intensified its outreach efforts in 2022. The primary method by which USEA distributes its message is through various social media platforms. Through a wide range of social media outlets, we have quickly adapted to several digital mediums - interviews, podcasts, newsletters, social media, and more. After becoming USEA Acting Executive Director in September 2020, Sheila Hollis placed renewed emphasis on USEA's communications efforts. The evolving virtual nature of the world demanded that USEA increase its visibility and online presence to remain relevant and a well-respected global resource. This approach proved even more successful in 2022 as USEA's subscribers grew tremendously.

Forbes



The Economist

POLITICO

Bloomberg

RTO Insider

Over 12 months, USEA appeared in 57 distinct online articles and 502 total articles. During 2022, Sheila was interviewed 6 times by 6 reporters at 6 different outlets. Outlets spotlighting USEA include Forbes, Utility Dive, The Peggy Smedley Show, POLITICO, Chemical & Engineering News, Bloomberg, RTO Insider, The New York Times, and The Economist. Each article was re-distributed through USEA's social media channels to amplify its reach. The media exposure online was not limited to traditional articles but included podcasts as well.

S&P Global

In February, USEA's Acting Executive Director Sheila Hollis was featured on a New S & P Global Podcast. She was interviewed alongside seven major energy executives who were interviewed for the newest episode of the "Energy Evolution" podcast. The episode focused on the issues likely to affect the transition to cleaner energy in 2022. In early October, Gloria Gonzalez, the Deputy Energy Editor at POLITICO (and former Board Member of the Society of Environmental Journalists) interviewed Sheila Hollis regarding the Biden Administration's recent decision to waive the Jones Act to allow LNG deliveries to Puerto Rico using non-US flagged tankers from American ports. Extension of the waiver could benefit Puerto Rico, as global geopolitical developments in the past year have demonstrated that LNG is a critical fuel source for electric power generation in Puerto Rico. In late October, Sheila was also interviewed by Vijay Vaitheeswaran, who is an award-winning senior journalist and Global Energy & Climate Innovation Editor at the Economist (he also participated in our May Virtual Press Briefing). Vijay sought information on LNG export infrastructure for an upcoming story. The discussion included permitting reform, LNG export facilities, and how the Ukraine war has impacted the LNG market. Sheila also provided background on her prior work at FERC and how it contributed to her LNG experience.

USEA also produced a monthly external newsletter in 2021, which thrived in 2022 with over 10,000 USEA subscribers. This newsletter includes an opening letter from the acting Executive Director, USEA Program updates, Women in Energy, USEA Forums and Flagship Events, and other special features.

In February, USEA's Acting Executive Director Sheila Hollis was featured on a New S & P Global Podcast. She was



GLORIA
GONZALEZ


POLITICO



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