USEA

United States Energy Association

Virtual

3rd Annual Advanced Energy Technology Forum

Thursday, September 9, 2021

9:00 am - 1:00 pm ET

Exploring Technological Innovation In The Energy Sector

Welcome To USEA's 3rd Annual Advanced Energy Technology Forum

Each year, USEA's Advanced Energy Technology Forum explores technological innovation in the energy sector. The event focuses on research and development in the corporate and government sectors, including national labs and universities.

Today, we are honored to have with us five representatives from our country's leading national labs, four professors from distinguished universities, executives from associations and government entities, and up-and-coming energy leaders.

USEA
United States Energy Association

The United States Energy Association (USEA) is a nonprofit, apolitical, nonlobbying organization founded in 1924. USEA's mission has two pillars of equal importance. USEA serves as a resource, by convening energy stakeholders to share policy, scientific, and technological information to foster the advancement of the entire energy sector. Internationally, USEA promotes energy development by expanding access to safe, affordable, sustainable, and environmentally acceptable energy in partnership with the U.S. Government.

Comprised of more than 100 domestic and international organizations, USEA's members include government agencies, nonprofits, think tanks, educational institutions, and Fortune 500 companies encompassing every type of energy source. As an industry resource, USEA seeks to inform and promote a positive, effective dialogue on a path forward in energy policy and its implementation. USEA presents several flagship events per year and conducts a variety of webinars, briefings, and workshops. The Association provides a nonpartisan, unbiased platform for the expression of ideas, concerns, and solutions regarding all relevant energy issues.

USEA partners with the U.S. Agency for International Development (USAID), the U.S. Department of State, the U.S. Department of Energy (DOE), and other government entities to expand and improve energy access globally. USEA's team of international specialists implement projects worldwide, including building regulatory frameworks and sharing best practices to develop cleaner, more accessible, and efficient energy. Throughout its nearly 100-year history, USEA has worked across 104 countries on six continents. Its 30-person multinational staff speaks 14 unique languages.

Agenda

9:00 AM **Welcome & Opening Remarks**

Sheila Hollis, Acting Executive Director, USEA

Vicky Bailey, Executive Chair, USEA

9:05 AM **Session One (Panel): Technological Advances In The National Labs**

Moderator: Vicky Bailey, Executive Chair, USEA

Brian Anderson, Executive Director, Interagency Working Group
Director, National Energy Technology Laboratory (NETL), U.S. DOE

Johney Green, Associate Laboratory Director for Mechanical and Thermal Engineering Sciences, National Renewable Energy Laboratory (NREL)

James Misewich, Associate Laboratory Director for Energy & Photon Sciences, Brookhaven National Laboratory (BNL)

Marianne Walck, Deputy Laboratory Director for Science & Technology
Idaho National Laboratory (INL)

Jennifer Wilcox, Principal Deputy Assistant Secretary for Fossil Energy & Carbon Management; U.S. Department of Energy (DOE)

9:55 AM **Session Two: Infrastructure Challenges & Opportunities**

Moderator: Sheila Hollis, Acting Executive Director, USEA

9:55 AM **Dena Wiggins**, President & CEO
Natural Gas Supply Association (NGSA)

10:10 AM **Paul Kjellander**, President
National Association of Regulatory Utility Commissioners (NARUC)

10:25 AM **Allison Clements**, Commissioner
Federal Energy Regulatory Commission (FERC)

10:40 AM **Mark Lauby**, Senior Vice President & Chief Engineer
North American Reliability Corporation (NERC)

10:55 AM **Catherine Hunt Ryan,** Chief Financial Officer
Bechtel

Agenda

11:10 AM

Session Three (Panel): Academic Innovations

Moderator: Nathan Johnson, Director, LEAPS, Arizona State University

Samuel Graham, Chair, Woodruff School of Mechanical Engineering
Georgia Institute of Technology

Ted Kury, Director, Energy Studies
University of Florida

Tom Richard, Director of Penn State Institutes for Energy and the Environment
Pennsylvania State University

12:00 PM

Session Four (Panel): 2021 Fortnightly Under 40 - Leading The Way

Moderator: Steve Mitnick, Executive Editor, Public Utilities Fortnightly

Damei Jack, Section Manager, Energy Efficiency & Demand Management
Con Edison

Ali Mohammed, Senior Director, Digital Innovation & Transformation Office
New York Power Authority (NYPA)

Ben York, Manager, DER Strategic Projects
Electric Power Research Institute (EPRI)

12:30 PM

Final Thoughts & Adjournment

Sheila Hollis, Acting Executive Director, USEA

Vicky Bailey, Executive Chair, USEA

Speakers - *in order of appearance*

Vicky Bailey

Executive Chairman, United States Energy Association

Vicky Bailey served as Chairman of the USEA Board of Directors from 2013-2019 and was the longest-serving chair as well as the first female and African American chairman. Ms. Bailey has previously served as a Federal Energy Regulatory Commission (FERC) commissioner and Assistant Secretary for Domestic Policy and International Affairs at the U.S. Department of Energy (DOE). Bailey is the founder of Anderson Stratton International, LLC, and previously served as President and CEO of PSI Energy, Inc., Indiana's largest electric utility, now Duke Indiana. She currently serves on the Board of the Battelle Memorial Institute and chairs the governance committee. In addition, she serves on the boards of Cheniere Energy, Equitrans Mid-stream Corporation, and PNM Resources.

Sheila Hollis

Acting Executive Director, United States Energy Association

Sheila Hollis is of Counsel with and chair of the Duane Morris, LLP Washington office. Her career spans energy policy and transactional and regulatory law worldwide. She was founding Director of the Office of Enforcement of the Federal Energy Regulatory Commission and served as Professorial Lecturer in Energy Law for 20 years at George Washington University Law School. Sheila was the first woman President of the Energy Bar Association, chaired the ABA's Section of Environment, Energy and Resources and serves as its delegate in the ABA House. She was named one of Washington's Top 100 Lawyers by "Super Lawyers". Sheila was recognized by the ABA as a "Trailblazer" for women in law and listed in "50 Key Women in Energy Worldwide". In 2011 she received Platt's Global Energy Award for Lifetime Achievement and the "2018 Legacy Award" by the Petroleum Economist. A Life Fellow of the American Law Institute and Honorary North American member of the Commercial Bar of England and Wales, she is a member of the American College Environmental Lawyers. Sheila is a Board Member of the American Friends of the Royal Society. She was elected Chairman of the Board of Directors of the United States Energy Association in May 2019. A Colorado native, Sheila is a graduate of the University of Colorado, cum laude in general studies and with honors in journalism and J.D. from the University of Denver College of Law.

Brian Anderson

Director, National Energy Technology Laboratory (NETL)

Dr. Brian J. Anderson is the Director of the National Energy Technology Laboratory (NETL) of the Department of Energy (DOE). In this capacity, he manages the complete NETL complex, including delivery and execution of the Laboratory's mission. Dr. Anderson leads NETL's national programs, in fossil energy and other DOE mission areas, with industry, universities, and national laboratories. Dr. Anderson began his career at West Virginia University (WVU) in 2006 an assistant professor in the department of chemical and biomedical engineering. Throughout his tenure at WVU, he became a recognized scientist and subject matter expert in natural gas hydrates, unconventional oil and gas development, and clean coal technologies. In 2014, Dr. Anderson founded and built the WVU Energy Institute, which is the largest energy collaborative research organization at the university, focused on advancing technology through research, development, and demonstration within the energy industry. For his work in natural gas hydrates and carbon dioxide sequestration, he received the 2012 Presidential Early Career Award for Science and Engineers, and he received the Department of Energy Secretary Honor Award for his work with DOE in response to the BP Deepwater Horizon oil spill. Dr. Anderson holds a B.S. in chemical engineering from WVU, and an M.S. and Ph.D. in chemical engineering from the Massachusetts Institute of Technology.

Speakers

Johney Green

Associate Laboratory Director for Mechanical and Thermal Engineering Sciences, National Renewable Energy Laboratory (NREL)

Dr. Johney Green Jr. serves as the associate laboratory director for Mechanical and Thermal Engineering Sciences (MTES) at the National Renewable Energy Laboratory (NREL). He oversees NREL's transportation, buildings, wind, water, geothermal, advanced manufacturing, storage, concentrating solar power research programs, and Arctic strategy, which encompass a portfolio of approximately $150 million and more than 500 employees. The MTES Directorate conducts research and development to enable technology innovations in the areas of energy efficiency, sustainable transportation, and renewable power. Green is a Fellow of the American Association for the Advancement of Science and an SAE International Fellow. He serves on the Faraday Institution's Board of Trustees and the National GEM Consortium Board of Directors. In addition, he serves on numerous advisory boards at the Georgia Institute of Technology, the University of Tennessee, and the University of Memphis. He has also been an invited participant in several National Academy of Engineering programs. Green has received several awards during his career and holds two U.S. patents in combustion science. Additionally, he has an h-index of 27, is the lead or co-author of several technical publications, and has given many invited, keynote, and plenary presentations.

James Misewich

Associate Laboratory Director for Energy & Photon Sciences, Brookhaven National Laboratory

James Misewich joined Brookhaven National Laboratory in 2002 where he is currently the Associate Laboratory Director for Energy and Photon Sciences. In this role he has responsibility for a broad portfolio of energy R&D spanning the spectrum from discovery science to deployment of technologies. The Energy and Photon Sciences Directorate includes departments in Chemistry, Condensed Matter Physics and Materials Science, Grid/Energy Efficiency and Energy Storage and two DOE national user facilities: the National Synchrotron Light Source II (NSLS-II), and the Center for Functional Nanomaterials (CFN). He also has represented Brookhaven National Laboratory on the New York State Smart Grid Consortium and the New York Battery and Energy Storage Technology Consortium. Misewich is also a Professor of Physics at Stony Brook University where he teaches and has research collaborations and where he works with the SBU-BNL Energy Frontier Research Center on Energy Storage, the Center for Mesoscale Transport Properties. His current research is focused on strongly correlated electron physics. Prior to Brookhaven, he worked for 20 years in the Laser Physics Group in the Physical Sciences Department at the IBM Thomas J. Watson Research Center in Yorktown Heights where he made contributions to laser science, correlated electron material transport, and nanoscience.

Marianne Walck

Deputy Laboratory Director for Science & Technology, Idaho National Laboratory

Dr. Marianne Walck provides strategic leadership, direction and integration for research, science and technology at INL in her roles as deputy lab director for Science and Technology and chief research officer. She leads INL's Laboratory Directed Research and Development program, directs INL's interactions with DOE's Office of Science, and oversees INL's strategic interactions with universities. Walck joined INL in 2019. She has more than 30 years of DOE national laboratory technical leadership experience, including technical program leadership, research leadership, and line, personnel and site management. Her prior experience includes 33 years at Sandia National Laboratories, concluding as vice president for both SNL's California laboratory and its Energy and Climate Program. Walck serves on several advisory boards for universities, national laboratories and technical institutes, including the Texas A&M Energy Institute and the U.S. Women in Nuclear Executive Advisory Council. Walck was named one of the Top 100 Women in Energy by the National Diversity Council in 2021. She earned Ph.D. and M.S. degrees in geophysics from California Institute of Technology and a bachelor's degree in geology/physics from Hope College. She holds memberships in the American Geophysical Union, the Seismological Society of America, the Association for Women Geoscientists, the American Nuclear Society, Women in Nuclear, and the American Association for the Advancement of Science.

Speakers

Jennifer Wilcox

Principal Deputy Assistant Secretary for Fossil Energy & Carbon Management, U.S. DOE

Jennifer Wilcox, the Principal Deputy Assistant Secretary (Acting Assistant Secretary) in the Office of Fossil Energy and Carbon Management at DOE, was the Presidential Distinguished Professor of Chemical Engineering and Energy Policy at the University of Pennsylvania. As a senior fellow at the World Resources Institute, she led WRI's Carbon Removal Program. Having grown up in rural Maine, Wilcox has a profound respect and appreciation of nature. That appreciation permeates her work; she focuses on minimizing the negative impacts of humankind on our natural environment. Wilcox holds a Ph.D. in Chemical Engineering and an M.A. in Chemistry from the University of Arizona and B.A. in Mathematics from Wellesley College. Wilcox's research takes aim at the nexus of energy and the environment, developing both mitigation and adaptation strategies to minimize negative climate impacts associated with society's dependence on fossil fuels. She has served on committees of the National Academy of Sciences and the American Physical Society to assess carbon capture methods and impacts on climate. She is the author of the first textbook on carbon capture, Carbon Capture, published in March 2012. She co-edited the CDR Primer on carbon dioxide removal in 2021.

Dena Wiggins

President & CEO, Natural Gas Supply Association

Dena E. Wiggins is President and CEO of the Natural Gas Supply Association (NGSA), representing major integrated and independent natural gas producers in the U.S. She joined NGSA in 2014. As President of NGSA, Wiggins leads the association's efforts to encourage the supply and use of natural gas and promotes the benefits of competitive markets. Following the Center for LNG (CLNG) merger with NGSA, she also steers CLNG. Wiggins also represent NGSA on the Commodity Futures Trading Commission's Energy and Environmental Markets Advisory Committee, which advises the CFTC on preserving market integrity and competition in energy futures markets, among other issues. She also currently serves on the Board of NAM's Council of Manufacturing Associations as well as the Board of the British-American Business Association. In addition, she serves on the Advisory Council of New Mexico State University's Center for Public Utilities and is a member of the Council Group of the American Bar Association's Infrastructure and Regulated Industries Section.

Paul Kjellander

President, National Association of Regulatory Utility Commissioners (NARUC)

Commissioner Paul Kjellander serves as president of the Idaho Public Utilities Commission, having been appointed to his current six-year term in 2017 by former Gov. C.L. "Butch" Otter. It is Commissioner Kjellander's second term in his second stint on the Commission, having previously served from January 1999 until October 2007. Gov. Otter reappointed Kjellander in April 2011, following his service as administrator of the newly created state Office of Energy Resources (OER). A member of the National Association of Regulatory Utility Commissioners' (NARUC) board of directors, Kjellander serves as Second Vice President of the association and as the NARUC representative to the North American Numbering Council. He previously served as chairman of NARUC's Committee on Telecommunications, and has served on NARUC's Committee on Consumer Affairs and its Electricity Committee. Kjellander also serves on the executive committee of the National Council on Electricity Policy, which is funded by the US Department of Energy and managed by NARUC. He is a member of the Federal Communications Commission's 706 Joint Board and has served as chairman of the FCC's Federal-State Joint Board on Jurisdictional Separations. During his time at OER, Kjellander created an aggressive energy efficiency program funded through the federal American Recovery and Reinvestment Act of 2009. He also served on the board of the National Association of State Energy Officials. Before joining the Commission in 1999, Kjellander was elected to three terms in the Idaho House of Representatives, where he served from 1994 to 1999. As a legislator, Kjellander served on a number of committees, including the House State Affairs, Judiciary and Rules, Ways and Means, Local Government and Transportation. During his final term in office, Kjellander was elected chairman of the House Majority Caucus.

Speakers

Allison Clements

Commissioner, Federal Energy Regulatory Commission (FERC)

Commissioner Allison Clements has two decades of public and private sector experience in energy regulation and policy, representing utilities, independent power producers, developers and lenders, nonprofits and philanthropies on grid policy issues. Prior to her time at FERC, she spent two years as director of the energy markets program at Energy Foundation. Earlier, she founded Goodgrid, LLC, an energy policy and strategy consulting firm. She also spent a decade at Natural Resources Defense Council in New York, NY, as the organization's corporate counsel and then as director of the Sustainable FERC Project. Before that, she spent several years in private legal practice. Commissioner Clements has served as a federal energy expert in several capacities, including as a member of a National Academies of Sciences committee on grid resilience and as a clinical visiting lecturer at Yale Law School. She grew up in Dayton, Ohio and now lives in Washington, DC, with her husband and two children.

Mark Lauby

Senior Vice President & Chief Engineer, North American Reliability Corporation (NERC)

Mark G. Lauby is senior vice president and chief engineer at the North American Electric Reliability Corporation (NERC). Mr. Lauby joined NERC in January 2007 and has held a number of positions, including vice president and director of Standards and vice president and director of Reliability Assessments and Performance Analysis. In 2012, Mr. Lauby was elected to the North American Energy Standards Board and was appointed to the Department of Energy's Electric Advisory Committee by the Secretary of Energy from 2013-2017. From 1999 to 2007, Mr. Lauby was appointed as a member of the Board of Excellent Energy International Co., LTD, an energy service company based in Thailand. He was named a Fellow by IEEE in November 2011 for "leadership in the development and application of techniques for bulk power system reliability," and in 2014, Mr. Lauby was awarded the IEEE Power and Energy Society's Roy Billinton Power System Reliability Award. Mr. Lauby is the author of more than 100 technical papers on the subjects of power system reliability, expert systems, transmission system planning, and power system numerical analysis techniques. Mr. Lauby served as chair and is a life member of the International Electricity Research Exchange and served as chair of a number of IEEE working groups. He earned his bachelor's and master's degrees in Electrical Engineering from the University of Minnesota. In addition, Mr. Lauby attended the London Business School Accelerated Development Program, as well as the Executive Leadership Program at Harvard Business School.

Catherine Hunt Ryan

Chief Financial Officer, Bechtel

Catherine Hunt Ryan is the chief financial officer (CFO) of Bechtel Group, Inc., responsible for leading the finance organization, which includes Bechtel Enterprises and the controller, treasury, tax, and shared services functions. In her previous role, she served as the CFO of Bechtel's Oil, Gas & Chemicals (OG&C) business unit. Catherine joined Bechtel in 2007, initially working in Bechtel Enterprises, the company's project development, investment, and financing services group. During her time with Bechtel Enterprises in Maryland and Virginia, she was an asset manager of jointly-owned airport assets and led project development and financing for renewable power projects. Catherine transitioned to OG&C in 2013 and was the project controls and commercial lead of the Sabine Pass Liquefaction project. She became the CFO of the OG&C business in 2016 and became the CFO of Bechtel Group in 2018. Before joining Bechtel, Catherine worked at the World Bank's Infrastructure Economics and Finance unit with a focus on contract design and economic regulation for private investment in power and water utilities. Catherine earned a bachelor's degree in political science from Stanford University, and a master's degree in public policy from Harvard Kennedy School.

Speakers

Nathan Johnson

Director, Laboratory for Energy and Power Solutions, Arizona State University

Dr. Nathan Johnson is an Associate Professor in The Polytechnic School of the Ira A. Fulton Schools of Engineering at Arizona State University. He is also Director of the Laboratory for Energy And Power Solutions that provides technical and business solutions to facilitate the global transition to a resilient low-carbon economy. Research to commercialization efforts emphasize grid modernization, microgrids, off-grid solutions, critical infrastructure, and workforce development. Dr. Johnson also leads ASU's Grid Modernization and Microgrid Test Bed. Dr. Johnson builds public-private partnerships in the US and internationally to develop and evaluate technologies leading to pilot demonstration and scale. This work is paired with innovations in business models and regulation to benefit all stakeholders, and value propositions that increase energy access, energy security, and economic development through decarbonization and cost savings. Before joining ASU, Dr. Johnson completed product development and business development across 15 countries. His globally focused work continues in sub-Saharan Africa, Middle East, and East Asia.

Samuel Graham

Chair, Woodruff School of Mechanical Engineering, Georgia Institute of Technology

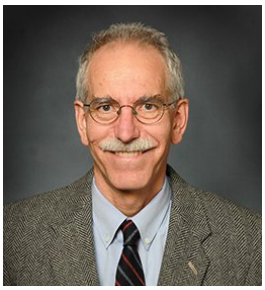
Samuel Graham is the Eugene C. Gwaltney, Jr. Professor and Chair of the Woodruff School of Mechanical Engineering at the Georgia Institute of Technology. He leads the Electronics Manufacturing and Reliability Laboratory which is focused on the electrical and thermal characterization, packaging, and reliability of wide bandgap semiconductors, solar cells, and flexible electronics. He also holds a courtesy appointment in the School of Materials Science and Engineering at Georgia Tech, a joint appointment with the National Renewable Energy Laboratory, and is a Distinguished Visiting Professor at Nagoya University in Nagoya, Japan. He is a Fellow of ASME, a member of the Engineering Sciences Research Foundation Advisory Board of Sandia National Laboratories, and a member of the Emerging Technologies Technical Advisory Committee of the US Department of Commerce. In October 2021, he will move to become the Dean of the Clark School of Engineering at the University of Maryland.

Ted Kury

Director, Energy Studies, University of Florida

Ted Kury is director of Energy Studies for the Public Utility Research Center (PURC) at the University of Florida. He is responsible for promoting research and outreach activities in energy regulation and policy. He develops research strategies that inform the academic community and practitioners on emerging issues and best practices and serves as an expert resource for regulatory professionals, policymakers, and service providers in Florida and around the world. He teaches in PURC's flagship two week program on utility reg-ulation and strategy, and, with Sanford Berg, PURC's on-line course in Regulatory Impact Analysis. He also conducts PURC's one week advanced course on energy pricing and customized training programs around the world. He has been featured on CNN, Fox News, NPR, and the Wall Street Journal. He holds a Ph.D. in Economics from the University of Florida.

Speakers



Tom Richard

Director of Institutes for Energy and the Environment, Penn. State University

Tom Richard is a professor of agricultural and biological engineering and the director of Pennsylvania State University's Institutes for Energy and the Environment, where he coordinates nearly 500 faculty engaged in innovative interdisciplinary research and education on energy, water, climate, ecosystems, urban systems, and environmental health. His research and teaching focus on applications of fundamental engineering science to microbial and agricultural systems, developing market-based strategies for a more sustainable agriculture and the emerging bio-based economy. Richard is the author or co-author of over 150 publications, fellow of ASABE, and fellow and former president of the Institute of Biological Engineering.

Steve Mitnick

Executive Editor, Public Utilities Fortnightly

Steve Mitnick is editor-in-chief of Public Utilities Fortnightly and president of its parent company Lines Up, Inc., based in Arlington, Virginia. He also authors the weekly digital magazine This Half Fortnight from PUF. He previously was a member of the leadership teams of energy consulting practices at McKinsey & Co., Marsh & McLennan, and PHB/Hagler Bailly. Before that he served as president of the transmission developer Conjunction LLC, and chief energy advisor to the Governor of New York. His book, Lines Down: How We Pay, Use, Value Grid Electricity Amid the Storm, was published in June 2013. His book, Lewis Latimer, The First Hidden Figure, was published in November 2020.His most recent book, Women Leading Utilities, the Pioneers and Path to Today and Tomorrow, was published in May 2021. He is presently working on a book about the military veterans in the utilities industry, to be called Front Lines to Power Lines, and to be published in September 2021. He has testified before utility regulatory commissions of six states, the District of Columbia, the Federal Energy Regulatory Commission, and in Canada. Early in his career, he was a member of the faculty of Georgetown University and taught undergraduate microeconomics, macroeconomics and statistics. He has an M.B.A. from the Wharton School, University of Pennsylvania, and two B.S. degrees from Rensselaer Polytechnic Institute, in physics and in history/political science.

Damei Jack

Section Manager, Energy Efficiency & Demand Management, Con Edison

Damei Jack is currently the Section Manager of Non-Pipeline Alternatives at Consolidated Edison Company of New York, Inc. Her team is responsible for developing and executing a framework that encourages the use of customer efficiency and other innovative projects to enable gas demand reduction to offset traditional infrastructure. Her prior positions included Manager of non-wire solution projects which seeks to procure electric demand reductions by incentivizing the installation of Distributed Energy Resources. She also served as Product Owner to advance digital solutions and developed other programs that have increased the adoption of various energy technology within the Con Edison service territory. Damei obtained her Bachelors and Masters from NYU Tandon School of Engineering. She is excited to animate the market and continue learning from and enabling the new and innovative projects happening at Con Edison and industry-wide.

Speakers

Ali Mohammed

Senior Director, Digital Innovation & Transformation Office, New York Power Authority (NYPA)

Ali Mohammed is the Sr Director of the Digital Innovation and Transformation Office at the New York Power Authority (NYPA) overseeing the implementation of NYPA's Digital Strategy along with the Digital Workforce program, Advanced Grid Innovation Lab for Energy (AGILe), and Research and Development. In his capacity, Ali oversees a portfolio of projects estimated at approx. $3 billion and is leading and partners with internal and external stakeholders to drive innovation and transformation to support NYPA's end-to-end digital utility vision; one that leverages connectivity, analytics, and cutting edge digital infrastructure to optimize physical and data assets, enable our workforce, and empower our customers. Ali serves on Industry Advisory Boards and is also the founding Chairman of the Utility Broadband Alliance. Prior to joining the Digital Innovation & Transformation Office, Ali worked in the Utility Operations business unit where he was the project manager for major strategic and interconnection projects estimated at over $800 million. Ali is an alumnus of Manhattan College, earning a Master's degree in both Electrical Engineering and Computer Engineering. Ali also holds a bachelor's degree in Electrical and Instrumentation Engineering from India and is a certified Project Management Professional.

Ben York

Manager, DER Strategic Projects, Electric Power Research Institute (EPRI)

Ben York leads a team of engineers seeking to apply EPRI research to current distributed energy resource (DER) interconnection and systems integration challenges at utilities worldwide. One of the original authors of EPRI's Integrated Grid concept, Ben has led multiple demonstrations including distributed solar, storage, demand response, microgrids, electric transportation, and control systems. Ben also guides ongoing research and technical discussion around inverter behavior, power quality, and distribution system grounding. Before joining EPRI in 2013, Ben was a Research Assistant at Virginia Tech's Future Energy Electronics Center. There he was responsible for research, development, and demonstration of several products directly related to photovoltaic energy conversion. Ben received a bachelor's degree in electrical engineering from the University of Alabama, as well as master's and doctoral degrees in electrical engineering from Virginia Tech.