

NEW JERSEY BPU/DOE/SNL ENERGY STORAGE WEBINAR SERIES:

The Role of Electricity Delivery Companies (EDCs) and Private Markets in Energy Storage (ES)

February 8, 2021 1:00 PM – 4:00 PM (EST)

Agenda & Speaker Biographies

**Presented by New Jersey Board of Public Utilities,
U.S. DOE Office of Electricity Energy Storage Program, and Sandia National Laboratories**

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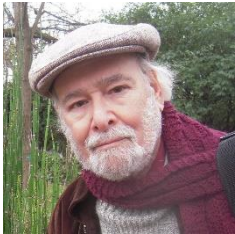
Meeting will be open ½ hour early so you can test your connections

Energy storage is the key to unleashing the power of renewables, relieving generation, transmission, and distribution demands, and hastening the energy transition to a decarbonized future. New Jersey Board of Public Utilities Commissioners and Staff are invited to participate in a series of energy storage webinars planned by BPU Staff and presented in collaboration with US DOE Office of Electricity Energy Storage Program, Sandia National Laboratories, and Pacific Northwest National Laboratory. Experts from the national labs, NGOs, utilities, and other organizations and institutions will provide content. The goal of the webinar series is to help advance the energy storage market in New Jersey.

February 8, 2021 – The Role of Electricity Delivery Companies (EDCs) & Private Markets in Energy Storage (ES)

1:00 – 1:15	Introductory Comments Dr. Imre Gyuk, Director, DOE Office of Electricity Energy Storage (OE ES) Program
1:10 – 1:30	Overview of EDC Operation and Storage Models Jeremy Twitchell, Pacific Northwest National Laboratory (PNNL)
1:30 – 1:55	ES Ownership and Operational Issues in NJ Abe Silverman, General Counsel BPU EDC
1:55 – 2:20	EDC Roles in NJ Andrew Powers, PSE&G
2:20 – 2:30	Q&A / Discussion
2:30 – 2:40	Break
2:40 – 3:20	Panel Discussion, Streamlining Interconnection Moderator: Ryan Quint, North American Electric Reliability Council (NERC) Panelists: Charlie Vartanian, Pacific Northwest National Laboratory (PNNL) Mike Ropp, Sandia National Laboratories (SNL)
3:20 – 3:50	Energy Storage Safety – Codes, Standard, and Case Studies Matt Paiss, PNNL
3:50 – 4:00	Q&A / Discussion

Speaker Biographies



After taking a B.S. from Fordham University, Dr. Imre Gyuk did graduate work at Brown University on Superconductivity. Having received a Ph.D. in Theoretical Particle Physics from Purdue University he became a Research Associate at Syracuse. As an Assistant Professor he taught Physics, Civil Engineering, and Environmental Architecture at the University of Wisconsin. Dr. Gyuk became an Associate Professor in the Department of Physics at Kuwait University where he became interested in issues of sustainability. Dr. Gyuk joined the Department of Energy to manage the Thermal and Physical Storage program. For the past two decades he has directed the Electrical Energy Storage research program in the Office of Electricity, developing a wide portfolio of storage technologies for a broad spectrum of applications. He supervised the \$185MARRA stimulus funding for Grid Scale Energy Storage Demonstrations and is now partnering with the States on numerous storage projects for grid resilience. His work has led to 12 R&D 100 awards, two EPA Green Chemistry Challenge Award, and Lifetime Achievement Awards from ESA and NAATBatt. He is internationally recognized as a leader in the energystorage field.



Jeremy Twitchell is an energy research analyst at the Pacific Northwest National Laboratory, where he leads the equitable regulatory environment area of the PNNL Energy Storage Program and assists in distribution system planning research. In those roles, he is responsible for reaching out to states to provide technical assistance in analyzing energy storage and other developing energy resources and incorporating them into utility planning and procurement activities. Prior to joining PNNL, Jeremy spent five years at the Washington Utilities and Transportation Commission, where he was the staff lead for the development of policies associated with the treatment of energystorage in utility resource planning and rulemaking. His work has supported integrated resource planning, which included development of a distribution planning rule. He participated in multiple utility advisory groups on energy efficiency and resource planning, provided expert testimony in the areas of rate design and resource acquisition, and oversaw renewable resource portfolio standard compliance. He also testified before the Washington State Legislature and prepared a report to the Legislature on best practices in distribution system planning. He has presented on the topics of energy storage, renewable resource portfolio standards, and renewable resource integration at regional, national, and international conferences.



Abe Silverman returned to government service as the General Counsel of the New Jersey Board of Public Utilities in early 2019. The NJ BPU is the lead energy regulator for the State of New Jersey. At the BPU, Abe works on advancing New Jersey's clean energy agenda, with a special emphasis on carbon policy and market design issues, as well as the A-to-Z of regulating New Jersey's public water, electric and gas utilities.

Prior to joining the BPU, Abe worked for more than a decade at NRG Energy, Inc., ultimately holding the positions of Vice President of Regulatory Affairs & Deputy General Counsel. Abe got his accidental start as an energy regulator in 2002, when he joined the Federal Energy Regulatory Commission's Office of General Counsel. Abe graduated from the University of Maryland with a B.S. in Geology and a B.A. in English, and then received his Juris Doctor from The George Washington University School of Law.



ANDREW POWERS Manages PSE&G's Solar 4 All (S4A) and Energy Storage programs. Andrew has been involved in strategizing and developing solar and energy storage programs for PSE&G. His involvement in the S4A program has included project development, financial modeling and forecasting, system design, budgeting, contract and lease negotiations, community outreach, identifying plant controls and O&M services, product specifications, and overseeing the deployment and operations of a 158 MW solar fleet. The solar fleet consists of a 40 MW pole attach solar facility, 86 MW of landfill and brownfield solar, 29 MW of centralized solar (rooftop, ground, and parking lots), and 3 MW of solar integrated with energy storage to mitigate the impact solar has on the grid and to provide resiliency for critical facilities in the event of a significant storm.

Prior to joining PSE&G Andrew worked in the Compound Semiconductor industry for 16 years in various capacities including domestic and international site development, design, and the construction and operations of semiconductor fabrication facilities, Asset and EH&S Management, Quality Management, and Product Safety.



Ryan Quint is a Senior Manager at the North American Electric Reliability Corporation where he supports the electric utility industry tackle emerging reliability risks and grid transformation topics for the bulk power system. Ryan leads a number of industry efforts focused on integrating inverter-based resources to the bulk power system, ensuring reliability with increasing amounts of distributed energy resources, and incorporating cybersecurity into traditional system planning, operations, and design practices. Ryan received his PhD from Virginia Tech and worked at the Bonneville Power Administration and Dominion Virginia Power prior to joining NERC in 2015.



Charlie Vartanian is a Technical Advisor at the Pacific Northwest National Laboratory where he focuses on integration of energy storage with power systems. Charlie has 25 years of industry experience deploying advanced grid technologies, performing system studies, and contributing to standards development. Prior employers include Mitsubishi Electric, the California Energy Commission, and Southern California Edison. During his 15 years at SCE, his activities ranged from T&D planning through grid R&D.



Michael Ropp received the Bachelor's degree in Music from the University of Nebraska-Lincoln in 1991, and the Masters and Ph.D. in Electrical Engineering in 1996 and 1998, respectively, from the Georgia Institute of Technology, Atlanta, GA. He is presently a Principal Member of Technical Staff at Sandia National Laboratories, Albuquerque, NM.

Dr. Ropp has over twenty years of experience in research and education in power engineering, power electronics, and photovoltaics. He has authored over eighty technical publications and holds six patents. He is a Senior Member of the IEEE and is active in standards creation, and is a registered Professional Engineer in South Dakota and Hawaii. His primary technical interests are in power electronics, especially solid-state transformers; the planning, design, modeling and simulation, control, dynamics, protection, reliability, diagnosis and event analysis of low-inertia, distributed and inverter-dominated power systems; and electrified transportation. Dr. Ropp is passionate about the education of future electrical engineers and engages in education, mentorship and outreach whenever possible. He does occasionally still get to use his musical skills.



Matthew Paiss serves as a Technical Advisor in the Battery Materials & Systems group. Prior to joining PNNL, he was the President of Energy Response Solutions, Inc (a Training & Consultation). He brings 28 yrs of emergency response experience retiring as a Fire Captain with the San Jose CA Fire Department. His background in renewable energy started in 1982 at ARCO Solar in Camarillo, CA before studying Solar Technology and Fire Science in Santa Cruz, CA. Matt has 10 years' experience on RE Codes & Standards committees and currently serves on NFPA 855 Energy

Storage Systems, UL Standards Technical Panels 9540, 1974, and IEC TC120. He served as a subject matter expert for the National Fire Protection Association on energystorage and has contributed to the model Fire Code sections on PV & ESS. He has delivered electrical safety training to over 8000 firefighters nationwide and has spoken across North America and in Europe on fire and PV/ESS safety.



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New Jersey Board of Public Utilities



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