

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

**Energy Storage Economics, Valuation, and Cost Benefit
Analysis**

February 22, 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, Sandia National Labs, and Pacific
Northwest National Lab**

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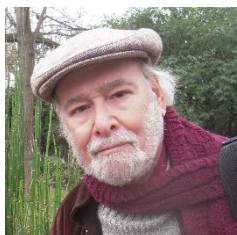
Meeting will be open ½ hour early so you can test your connections

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 22, 2021 – Energy Storage Economics, Valuation, and Cost Benefit Analysis

1:00 – 1:10	Introductory Comments Dr. Imre Gyuk, Director, DOE Office of Electricity Energy Storage (OE ES) Program
1:10 – 1:40	Introduction to ES Cost Benefit Analyses Dr. Ray Byrne, Sandia National Laboratories (SNL)
1:40 – 2:30	Panel Discussion – Energy Storage Economics Moderator: Dr. Ray Byrne, Sandia National Laboratories (SNL) Panelists: Dr. Howard Passell, Sandia National Laboratories (SNL) Will McNamara, Sandia National Laboratories (SNL) Josh Castonguay, Green Mountain Power, VT
2:30 – 2:40	Q&A/Discussion
2:40 – 2:50	Break
2:50 – 3:20	ES in PJM; Federal Energy Regulatory Commission (FERC) 841 & 2222 Scott Baker, PJM
3:20 – 3:50	Policy Levers for Making ES Cost Effective in NJ – Ownership Models, Solar+Storage Incentives Jeremy Twitchell, Pacific Northwest National Laboratory (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 energy storage field.



Raymond Byrne is manager of the Electric Power System Research department at Sandia National Laboratories, where he has been employed since 1989. He holds a BS in electrical engineering from the University of Virginia, an MS in electrical engineering from the University of Colorado, and a PhD in electrical engineering from the University of New Mexico. He also completed an MS in financial mathematics (financial engineering) at the University of Chicago. Previously, he was a distinguished member of the technical staff, which is limited to a maximum of 10 percent of the engineering staff at Sandia. Awards include 2001 Time magazine invention of the year in robotics, the Prize Paper award at the 2016 IEEE Power and Energy Society General Meeting, and the IEEE Millennium medal. Byrne was elevated to IEEE Fellow in 2017 for contributions to miniature robotics and grid integration of energy storage.



Howard Passell works in the Energy Storage Systems Department at Sandia National Laboratories (SNL) in Albuquerque, New Mexico. His work focuses on energy storage, grid modernization, energy security, and decarbonization. Over 23 years at Sandia he has worked on energy and water resource monitoring, modeling, management, capacity building, and policy-related projects at various scales in the US, Central Asia, the Middle East, and North Africa. This included helping to lead Sandia's efforts in DOE's Solar America Cities initiative and developing energy conservation software and methodology for large institutions. He has worked on emerging national security issues associated with energy, water, food, ecosystems, and population, with an emphasis on the relationships between resource scarcity and human security. He earned master's and doctorate degrees in conservation biology and hydrogeocology at the University of New Mexico. His undergraduate studies were in classical literature and the liberal arts at St. John's College in Santa Fe, NM and the Ohio State University in Columbus, Ohio.



Will McNamara serves as Grid Energy Storage Policy Analyst for Sandia National Laboratories with a focus on energy storage policy development at the federal and state levels. Will has spent his entire 23-year career in the energy and utilities industry with a concentration on regulatory and legislative policy. He has served as a lobbyist in California and has represented major utilities across the U.S. in numerous jurisdictions in proceedings pertaining to integrated resource planning, procurement, cost recovery, rate design, and the development of policymaking best practices. Will's areas of subject matter expertise, in addition to energy storage policy, include distributed energy resources, AMI/smart grid, renewables, and competitive retail markets.



Josh Castonguay is Vice President, Chief Innovation Officer at Green Mountain Power where he leads the teams on innovation, energy transformation, and engineering. Green Mountain Power is an energy transformation company serving 75% of Vermont. Josh is a pioneer, working on a distributed energy system for customers that is more resilient, more cost-effective, and better able to withstand climate change. He developed the country's first energy company partnership with TESLA to deliver home battery storage directly to customers,

which led to GMP having the first tariffed battery programs in the country, creating a roadmap for other utilities to also leverage energystorage to help cut costs and carbon for customers. Josh has had multiple leadership positions since joining GMP in 2003, including field operations, power generation and power supply. He also gives back to the community by serving on non-profit boards including the Vermont Energy Education Partnership, which helps teachers and students integrate more energy focused education into their schools. Josh also coaches youth sports and mentors. He graduated from the University of Maine in 2003 with a degree in Electrical Engineering Technology and now lives in Colchester, Vermont, with his wife Jen and two children, Garrett and Ella.



As a senior business solutions analyst, Mr. Baker evaluates emerging technology and policy issues in the electric power sector. In this role, he administers technology demonstration projects with PJM members, research institutions, and the industry at large for the purpose of deploying innovative solutions to emerging problems. Recently, this work has focused on PJM market evolution initiatives related to Distributed Energy Resources, Renewables, and Energy Storage technologies participating in the PJM Capacity, Energy, and Ancillary Services markets. Prior to joining PJM, Mr. Baker worked as a researcher at the University of Delaware's Center for Carbon-free Power Integration on electric Vehicle-to-Grid (V2G) technology, helping to successfully

deploy the first fleet of electric vehicles to provide ancillary services to a wholesale power market in 2007. Mr. Baker has a bachelor's degree in biology and environmental science from Ithaca College in New York and a Master's degree in Marine Policy from the University of Delaware, where he evaluated the offshore wind power potential in the Atlantic Ocean and related transmission system integration issues.



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.