



Illinois Commerce Commission Energy Storage Webinar Series

Session 4: Energy Storage Benefit Cost Analysis (BCA) and Valuation

Tuesday, December 14, 2021

1:00 PM to 3:00 PM (CT)

Presented by:
U.S. DOE Office of Electricity Energy Storage Program,
Illinois Commerce Commission,
and Sandia National Laboratories

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. Illinois Commerce Commission Staff & Stakeholders are invited to participate in a series of energy storage webinars presented in collaboration with US DOE Office of Electricity Energy Storage Program and Sandia National Laboratories. Experts from the national labs, regional agencies and other organizations and institutions will provide content, with time for discussion and questions.

Agenda

December 14, 2021 – Energy Storage Benefit Cost Analysis and Valuation

1:00 - 1:10	Introductory Remarks Dr. Imre Gyuk, Director, DOE Office of Electricity Energy Storage (ES) Program
1:10 - 1:35	Intro to Energy Storage Benefit Cost Analysis Dr. Ray Byrne, Sandia National Laboratories
1:35 - 2:00	BCAs Applied to Energy Storage in Various States Dr. Howard Passell, Sandia National Laboratories Will McNamara, Sandia National Laboratories
2:00 - 2:25	Energy Storage Valuation Modeling Dr. Tu Nguyen, Sandia National Laboratories
2:25 - 2:50	Policy Levers for Making Energy Storage Cost Effective in Illinois Jeremy Twitchell, Pacific Northwest National Laboratory
2:50 - 3:00	Discussion/Q&A



Speaker Biographies



Dr. Imre Gyuk, Director, DOE Office of Electricity Energy Storage (ES) Program

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 \$185M ARRA 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 Awards, and Lifetime Achievement Awards from ESA and NAATBatt. He is internationally recognized as a leader in the energy storage field.



Dr. Ray Byrne, Sandia National Laboratories

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.



Dr. Howard Passell, Sandia National Laboratories

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 hydrogeoecology 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, Sandia National Laboratories

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.



Jeremy Twitchell, Pacific Northwest National Laboratory

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 energy storage 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.



Dr. Tu Nguyen, Sandia National Laboratories

Tu A. Nguyen is a Senior Member of the Technical Staff at Sandia National Laboratories. He is also a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and an editor of IEEE Transactions on Sustainable Energy. He received his B.S degree in Power Systems from Hanoi University of Science and Technology, Vietnam in 2007 and his Ph.D. degree in Electrical Engineering from Missouri University of Science and Technology in 2014. Before joining Sandia National Laboratories in September 2016, he worked as a Postdoctoral Research Associate at University of Washington. His research interests include energy storage analytics, microgrid modeling and analysis, and the integration of distributed resources into power grids.