



Illinois Commerce Commission Energy Storage Webinar Series

Session 3: Engineering Details

Tuesday, December 7, 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 7, 2021 – Engineering Details

1:00 - 1:10	Introductory Remarks Dr. Imre Gyuk, Director, DOE Office of Electricity Energy Storage (ES) Program
1:10 - 1:35	Project Development/Commissioning Dan Borneo, Sandia National Laboratories
1:35 - 2:00	Interconnection, Technical Dr. Mike Ropp, Sandia National Laboratories
2:00 - 2:25	Interoperability Charlie Vartanian, Pacific Northwest National Laboratory
2:25 - 2:50	Safety Matt Paiss, 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.



Dan Borneo, Sandia National Laboratories

Daniel Borneo is an Engineering Program/Project Lead at Sandia National Laboratory (SNL) where he leads a projects team that is part of Sandia's Grid-Tied Electrical Energy Storage Program. The main emphasis of Dan's work is to collaborate with utilities, industry partners, academia, and State Energy offices to develop Energy Storage (ES) projects and bring innovative electrical energy storage technologies to commercialization. He also specializes in the commissioning of ES systems, and does work both Nationally and Internationally. Dan earned his Bachelor's and Master's degrees in Electrical Engineering from the University of New Mexico, focusing on power and controls. He holds a professional engineering license in the state of New Mexico.



Dr. Michael Ropp, Sandia National Laboratories

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.



Charlie Vartanian, Pacific Northwest National Laboratory

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.



Matt Paiss, Pacific Northwest National Laboratory

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 firm). 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 and worked in the semiconductor industry as a service engineer prior to transitioning to the fire service. He has 10 years' experience on renewable energy Codes & Standards committees and currently represents PNNL on NFPA 855, UL 9540, and 1974, and is a national named expert on IEC TC120. He served as a subject matter expert for the National Fire Protection Association on energy storage and has contributed to the model fire code sections on PV & ESS. Mr. Paiss has delivered electrical safety training to over 8000 firefighters nationwide. He has spoken in Europe on fire safety and PV design and holds certificates as Registered CA State Fire Instructor, and Certified State Fire Officer.