

SOUTHEAST ENERGY STORAGE WORKSHOP SERIES

Presented by the DOE Office of Electricity Energy Storage Program, Southern Research, Sandia National Laboratories, and Oak Ridge National Laboratory.

Session 1: Introduction to Energy Storage

Tuesday, April 5, 2022

1:00 PM – 3:00 PM (Central Time)

The need to transition from fossil fuels to renewable energy is becoming ever more obvious and urgent. Energy storage is a critical component of the energy transition. Advances in energy storage technology, policy, and applications are quickly increasing around the world, and keeping up with those changes is an ongoing challenge. This workshop series—targeting many issues specific to the Southeast—addresses those advances in energy storage to help stakeholders stay up to date on energy storage roles and capabilities.

Agenda

Session 1: Introduction to Energy Storage (4/5/2022)

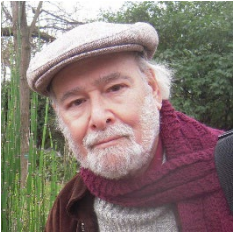
1:00 – 1:10	Welcome Dr. Josh Carpenter, Chief Operating Officer, Southern Research
1:10 – 1:20	Introductory Remarks Dr. Imre Gyuk, Director, Energy Storage Program, U.S. DOE Office of Electricity
1:20 – 1:50	Introduction to Energy Storage Technologies Dr. Howard Passell, Energy Resource Analyst, Sandia National Laboratories
1:50 – 2:00	Q&A / Discussion
2:00 – 2:30	Introduction to Energy Storage Economics Dr. Ray Byrne, Manager, Power Electronics & Energy Conversion Systems, Sandia National Laboratories
2:30 – 3:00	Introduction to Energy Storage Policy Will McNamara, Policy Analyst, Sandia National Laboratories
3:00 – 3:10	Q&A / Discussion



Speaker Biographies



Josh Carpenter, Ph.D., joined Southern Research in June 2021. Dr. Carpenter most recently served as Director of Innovation and Economic Opportunity for the City of Birmingham, where he led the city's efforts in workforce development, COVID recovery and business expansion. Previously, he served as the Director of External Affairs at the University of Alabama at Birmingham. He earned his doctorate in political economy from the University of Oxford where he studied on a Rhodes Scholarship.



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.



Howard Passell works in the Energy Storage Systems Department at Sandia National Laboratories 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.



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.



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.