



# Microgrids and Energy Storage for Emergency Grid Resilience Webinar Series

## Session 1: Introduction to Microgrids & Energy Storage

Friday, November 5, 2021

10:00 AM to Noon (CT)

Presented by:

**U.S. DOE Office of Electricity Energy Storage Program,  
Iowa State University Electric Power Research Center,  
and Sandia National Laboratories**

As extreme weather events and other potential disruptions to the electric grid increase in frequency, the need for new technologies and approaches for providing resilience in the grid increase as well. This five-session series will explore technologies, policies, economics, applications, and case studies associated with microgrids and battery energy storage as options to help emergency management agencies provide greater electricity resilience across the states in FEMA Regions 5 (IL, IN, MI, MN, OH, WI) & 7 (IA, KS, MO, NE).

### Agenda

#### November 5, 2021 – Introduction to Microgrids & Energy Storage

10:00 - 10:20	<b>Introductory Remarks</b> Dr. Imre Gyuk, Director, DOE Office of Electricity Energy Storage (ES) Program
10:20 - 10:40	<b>Introduction to Microgrids</b> Dr. Kevin Schneider, Pacific Northwest National Laboratory
10:40 - 10:50	<b>Discussion/Q&amp;A</b>
10:50 - 11:10	<b>Microgrids &amp; Energy Storage for Energy Equity, Resilience, and Underserved Communities</b> Dr. Summer Ferreira, Sandia National Laboratories
11:10 - 11:30	<b>Introduction to Microgrids &amp; Energy Storage Policy</b> William McNamara, Sandia National Laboratories
11:30 - 11:50	<b>Introduction to the Economics and Resilience Benefits of Microgrids</b> Patrick Balducci, Argonne National Laboratory
11:50 - 12:00	<b>Discussion/Q&amp;A</b>



## 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. Kevin Schneider, Pacific Northwest National Laboratory**

Kevin Schneider received his B.S. degree in Physics and his M.S. and Ph.D. degrees in Electrical Engineering from the University of Washington. His main areas of research are distribution system analysis and power system operations. He is currently a Laboratory Fellow at the Pacific Northwest National Laboratory, Manager of the Distribution and Demand Response Sub-Sector, and a Research Professor at Washington State University as part of the PNNL/WSU Advanced Grid Institute (AGI). Dr. Schneider is an Affiliate Associate Professor at the University of Washington and a licensed Professional Engineer in Washington State. He is a Fellow of the IEEE, past chair of the Power & Energy Society (PES) Distribution System Analysis (DSA) Sub-Committee, and the past Chair of the Analytic Methods for Power Systems (AMPS) Committee.



### **Dr. Summer Ferreira, Sandia National Laboratories**

Dr. Summer Ferreira is the Manager for the Renewable and Distributed Systems Integration program, which promotes the research and development of technologies that enable grid modernization and resiliency, along with the large-scale deployment of renewable and distributed energy sources. Prior to her role at RDSI, beginning in 2011, Summer led the Energy Storage Analysis Laboratory at Sandia in support of the DOE Office of Electricity program, after spending the two previous years here at a postdoctoral researcher in hybrid organic/inorganic photovoltaics.



### **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.



### **Patrick Balducci, Argonne National Laboratory**

Patrick Balducci is the Manager of the Power Systems and Markets Research Group in the Center for Energy, Environmental, and Economic Systems Analysis at Argonne National Laboratory. Prior to joining Argonne, Patrick served as a Chief Economist at the Pacific Northwest National Laboratory (PNNL), where he served for nearly 20 years. At PNNL, he led the energy storage analytics team where his research focused on storage valuation, integration, performance characterization, and control systems. In this role, he led research efforts evaluating the benefits of 1.6 GW / 18 GWh in energy storage capacity at 16 sites across the U.S. He also led efforts to enhance economic assessment tools for the U.S. Department of Energy. Patrick serves on the Board of Directors of the Pacific Northwest Regional Economics Conference. He holds a BS in Economics from Lewis and Clark College, where he graduated with honors, and an MSc in Applied Environmental Economics from the University of London, Imperial College of London.