

# 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 2: System Integration

Tuesday, April 19, 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.

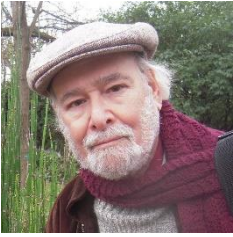
## Agenda

### Session 2: System Integration (4/19/2022)

1:00 – 1:10	<b>Introductory Remarks</b> Dr. Imre Gyuk, Director, Energy Storage Program, U.S. DOE Office of Electricity
1:10 – 1:35	<b>Co-Op Projects</b> Lauren Khair, Director, Business Transformation, NRECA
1:35 – 1:55	<b>System Integration – Real World Experiences</b> Steve Baxley, Manager, Renewables, Storage and Distributed R&D, Southern Company
1:55 – 2:15	<b>System Integration – Real World Experiences</b> Hans Jacob, Business Development Director, Energy Storage and Microgrid Projects, Duke Energy
2:15 – 2:30	Q&A/Break
2:30 – 2:50	<b>Safety</b> Matthew Paiss, Technical Advisor, Battery Materials & Systems Group, Pacific Northwest National Laboratory
2:50 – 3:00	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 \$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.



**Lauren Khair** is a Director in NRECA's Business and Technology Strategies department. Prior to NRECA, she worked for the Department of Energy's Energy Information Administration (EIA), where she developed and led the quality assurance process for the three major electricity surveys. At NRECA, she currently leads the Department of Defense engagement initiative. Lauren manages research projects totaling more than \$8 million, primarily focused on military energy. A native of Northern Virginia, Lauren earned her B.A. from James Madison University and a Master's in Public Policy from George Mason University's Schar School of Policy and Government.



**Steve Baxley** currently serves as a research and development manager for Southern Company, America's premier energy company. In this role, he directs a variety of research, development and demonstration projects within the renewable, storage and distributed generation program area. This includes a portfolio of technologies ranging from battery energy storage, fuel cells and microgrids to photovoltaic solar and wind energy systems. Baxley serves as program chair for the Electric Power Research Institute's Energy Storage and Distributed Generation Program, which provides knowledge sharing for the energy industry on implementing energy storage to manage peak loads and variability while enhancing grid reliability. Under his leadership, Southern Company in 2020 was awarded the industry's most prestigious honor – the EEI Edison Award – for its portfolio of energy storage research and development initiatives. Prior to joining Southern Company in 2013, Baxley was a principal engineering manager with Applied Research Associates Inc., where he directed research and development efforts for energy, environmental and defense technology needs in

support of the U.S. Department of Defense. Baxley holds U.S. patents in both energy- and water-related technologies. In 2012, he received a national award from the Society of American Military Engineers for his work developing and demonstrating a novel process for production of military-specification jet fuel from renewable energy sources. Baxley earned a bachelor's degree in chemistry and a master's degree in civil and environmental engineering from Florida State University, and is a registered professional engineer. He has served as an adjunct professor in engineering at Florida State University.



**Hans Jacob** is a Business Development Director focused on developing Energy Storage and Microgrid projects in Duke Energy's regulated service territories. In this role, Hans is responsible for identifying optimal projects to solve utility grid issues and improve service to customers. Hans began his career with Duke Energy over 10 years ago after graduating from the University of Florida with a degree in Mechanical Engineering. Hans is a licensed Professional Engineer in the state of Florida and is certified by the North American Electric Reliability Corporation (NERC) as a system operator. He lives in Tampa with his wife and one son.



**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.