



DOE OE ENERGY STORAGE PEER REVIEW 2019 SCHEDULE

Monday | September 23, 2019

2:00-3:00pm **Early Registration Begins**

3:00-4:00pm **Postdoctoral Poster Set-Up**

4:00-5:00pm **Peer Reviewer Orientation**

5:00-6:00pm **Postdoctoral Poster Session**

Energy Storage Planning Efforts for Regional Demonstrations Projects	Alexander Headley, Sandia National Laboratories Tu Nguyen (PI)
Energy Storage Valuation at San Carlos Apache Tribe	Rodrigo Trevizan, Sandia National Laboratories Tu Nguyen (PI)
Zincate-Blocking Polymeric Separators for Zn/MnO ₂ Batteries	Igor Kolesnichenko, Sandia National Laboratories Timothy Lambert (PI)
Interfacial Engineering in Sodium Batteries	Martha Gross, Sandia National Laboratories Erik Spoerke (PI)
Effect of ZnO-Saturated Electrolyte on Rechargeable Alkaline Zinc Batteries at High Depth-of-Discharge	Matthew Lim, Sandia National Laboratories Timothy Lambert (PI)
Synthesis of Advanced Magnetic Materials for Inductors and Transformers	Tyler Stevens, Sandia National Laboratories Todd Monson (PI)
Advanced Cathodes for Intermediate-Temperature Na-Metal Halide Batteries	Xiaowen Zhan, Pacific Northwest National Laboratory Guosheng Li (PI)
Reliability Testing of Lead Acid Battery Module for grid services	Nimat Shamim, Pacific Northwest National Laboratory David Reed (PI)
Dihydroxyphenazines as Anolytes for Aqueous Redox Flow Batteries	Nadeesha Wellala, Pacific Northwest National Laboratory Aaron Hollas (PI)
Operando Investigations of Bismuth Additives on the Rechargeability of MnO ₂ in Alkaline Batteries	Adrea Bruck, Northeastern University Matthew Kim, Northeastern University Joshua Gallaway (PI)

6:00-7:00pm **Meet & Greet Reception**





Tuesday | September 24, 2019

7:00-8:00am **Breakfast**

8:00-9:00am **Opening Plenary / Day 1 Overview
DOE Welcome** Jim Greenberger, NAATBatt
Dr. Imre Gyuk, DOE Office of Electricity

9:00-10:00am **Partnerships**

2020 Biennial Energy Storage Review	Ramteen Sioshansi, The Ohio State University
Engaging Academia: Creating Productive Networks	Erik Spoerke, Sandia National Laboratories
Update on Energy Storage System Reliability Codes & Standards Activities	Charlie Vartanian, Pacific Northwest National Laboratory
Energy Storage Projects Team Overview	Daniel Borneo, Sandia National Laboratories

10:00-10:15am **Break**

10:15-11:30am **Equitable Regulatory Environment**

Overview of Equitable Regulatory Environment Programs at PNNL	Jeremy Twitchell, Pacific Northwest National Laboratory
Regulatory Insights from the Southeastern Energy Storage Workshop	Rebecca O’Neil, Pacific Northwest National Laboratory
An Energy Storage Valuation Handbook for Regulators	Dhruv Bhatnagar, Pacific Northwest National Laboratory
Valuation of Energy Storage in the US Electricity and Frequency Regulation Markets	Felipe Wilches-Bernal, Sandia National Laboratories
Energy Storage Policy Initiatives	Will McNamara, Sandia National Laboratories

11:30am-12:45pm **Industry Acceptance**

Nantucket Island Energy Storage System Assessment	Patrick Balducci, Pacific Northwest National Laboratory
Demonstration of Energy Storage Benefits Around the Nation	Benjamin Schenkman, Sandia National Laboratories
Microgrid Evaluation Tool	Di Wu, Pacific Northwest National Laboratory
Technical Challenges for Energy Storage in Metro Rail Applications	Kevin Blackman, Helix Power Corporation Matthew Lazarewicz, Helix Power Corporation
BESS Control of A Grid to Liberate Renewables	Clay Koplín, Cordova Electric Cooperative (CEC)

12:45-1:45pm **Lunch provided**





1:45-3:00pm

Materials I

Zn/MnO₂ Batteries

Timothy Lambert, Sandia National Laboratories

Progress on the development of the Zn-MnO₂ rechargeable battery

Sanjoy Banerjee, Urban Electric Power

High Voltage Zn-MnO₂ batteries: Making Zn the new Li

Gautam Yadav, City College of New York

Discharge Mechanism of MnO₂ in Deep-Cycle Rechargeable Zn/MnO₂ Batteries

Igor Vasiliev, New Mexico State University

Advanced Manganese Oxide-based Cathodes for Rechargeable Aqueous Zinc-ion Batteries

Xingbo Liu, Pacific Northwest National Laboratory

3:00-3:15pm

Break

3:15-4:15pm

Safety Performance

Thermal Runaway Risks for Li-ion Batteries in Energy Storage Systems

Hsin Wang, Oak Ridge National Laboratories

Abuse Test Development: Mechanisms and Materials Impact of Abused Lithium-Ion Batteries

Loraine Torres-Castro, Sandia National Laboratories

Predicting and Mitigating Cascading Failure in Stacks of Lithium-Ion Cells

John Hewson, Sandia National Laboratories

Update on Energy Storage System Safety Codes & Standards Activities

Matthew Paiss, Pacific Northwest National Laboratory

4:30-6:00pm

Poster Session I

Reliability

Analytics

Materials II

Power Electronics





Wednesday | September 25, 2019

7:00-8:00am **Breakfast**

8:00-8:15am **Plenary Review & Overview** Jim Greenberger, NAATBatt

8:15-9:30am **Reliability**

Long-term Performance Assessment of Li-ion Battery Chemistries under Grid Services	Daiwon Choi, Pacific Northwest National Laboratory
Safety and Performance of Commercial Lithium-Ion Cells	Yuliya Preger, Sandia National Laboratories
Heat Release from Thermal Decomposition of Layered Metal Oxide Cathodes in Lithium-Ion Batteries	Randy Shurtz, Sandia National Laboratories
Battery State of Health Model	Vish Viswanathan, Pacific Northwest National Laboratory
Washington Clean Energy Fund Battery Testing Program Results	Alasdair Crawford, Pacific Northwest National Laboratory

9:30-9:45am **Break**

9:45-11:00am **Analytics**

Overview of Sandia's Energy Storage Analytics Work/ Equitable Regulatory Environment Thrust Area	Raymond Byrne, Sandia National Laboratories
Operating Cost Model for Battery Energy Storage System	Tu Nguyen, Sandia National Laboratories
Energy Storage Financing & System Pricing Survey Study Series	Richard Baxter, Mustang Prairie Energy
Optimization Performance Evaluation Tool	Jan Alam, Pacific Northwest National Laboratory
QuEST: An Energy Storage Application Suite	Ricky Concepcion, Sandia National Laboratories

11:00am-12:15pm **Materials II**

Elucidating Molecular Transport through Membranes in Flow Batteries	Travis Anderson, Sandia National Laboratories
Materials and Membranes for High Energy Density Non-Aqueous Redox Flow Batteries	Jagjit Nanda, Oak Ridge National Laboratory
Phenazine-Based Anolyte Materials in Aqueous Redox Flow Batteries	Aaron Hollas, Pacific Northwest National Laboratory
Capacity fade with aqueous-soluble organics: its measurement, minimization, and reversal.	Michael Aziz, Pacific Northwest National Laboratory
Predicting functionality and resiliency of aqueous organic redox flow battery	Vijay Murugesan, Pacific Northwest National Laboratory





12:30-1:30pm

Lunch provided

1:30-3:15pm

Materials II, Cont.

Low Temperature Molten Sodium Halide Batteries	Erik Spoerke, Sandia National Laboratories
Component Research for Redox Flow Batteries and Open Batteries	Tom Zawodzinski, Oak Ridge National Laboratory
Battery Systems Based on Naturally Abundant, Low Cost Materials	Amy Marschilok, Stony Brook University Esther Takeuchi, Stony Brook University Kenneth Takeuchi, Stony Brook University
Advanced Membranes for Flow Batteries: Anion Exchange Membranes	Cy Fujimoto, Sandia National Laboratories
Understanding the Mechanical Behavior of Materials for Electrochemical Energy Storage	Yang-Tse Cheng, University of Kentucky
Investigation of Intermediate-Temperature Na-Metal Halide (Na-MH) Batteries and Large Cell Demonstration	Guosheng Li, Pacific Northwest National Laboratory
Development of high-performance Na-ion battery with layered transitional metal oxide cathodes	Xiaolin Li, Pacific Northwest National Laboratory

3:15-3:30pm

Break

3:30-4:45pm

Power Electronics

Development of the Sandia Advanced Power Electronic Conversion Systems Laboratory	Jacob Mueller, Sandia National Laboratories
Smart GaN-based Inverters for Grid-tied Energy Storage Systems	Medhi Ferdowsi, InnoCit
Low Voltage and High Current Bidirectional Converter for Grid-tied Flow Battery Energy Storage System	Alex Huang, University of Texas at Austin
High Frequency Link Converters using Advanced Magnetics	Todd Monson, Sandia National Laboratories
Medium-voltage Power Electronics for Grid-tied Energy Storage	Kristen Booth, The Ohio State University Anant Agarwal, The Ohio State University

4:45-6:15pm

Poster Session II

Partnerships: *Academia, Industry, Professional Organizations, Standards Boards*
Equitable Regulatory Environment
Industry Acceptance
Materials I
Safety Performance





Thursday | September 26, 2019

7:00-8:45am **Breakfast**

8:45-9:00am **Plenary Review** Jim Greenberger, NAATBatt

9:00-10:45am **Energy Storage Equitable Regulatory Environment Workshop**

Raymond Byrne
Patrick Balducci
Howard Passell
Will McNamara
Bobby Jeffers
Jeremy Twitchell
Dhruv Bhatnagar

Facilitator, Sandia National Laboratories
Facilitator, Pacific Northwest National Laboratory
Sandia National Laboratories
Sandia National Laboratories
Sandia National Laboratories
Pacific Northwest National Laboratory
Pacific Northwest National Laboratory

10:45-11:00am **Break**

11:00am **Peer Reviewer Evaluations Due
Lunch provided**

11:00am-12:00pm **Session Wrap-Up**

Vincent Sprenkle / Wei Wang
Michael Starke
Babu Chalamala
Dr. Imre Gyuk

Pacific Northwest National Laboratory
Oak Ridge National Laboratory
Sandia National Laboratories
DOE Office of Electricity

