



DOE OF ENERGY STORAGE PEER REVIEW POSTER SESSION | WEDNESDAY, SEPTEMBER 26TH, 2018

Poster Title	Presenter	Organization
NEW ENERGY STORAGE TECHNOLOGIES		
Oak Ridge National Laboratory		
Development of a Large Secondary Use System with Multi-Chemistry Aspects	Michael Starke	Oak Ridge National Laboratory
Determination of Thermal Runaway Risks of Li-ion Batteries Used in Energy Storage	Hsin Wang	Oak Ridge National Laboratory
MATERIALS I		
Pacific Northwest National Laboratory		
Flexible Na-metal Halide Electrolyte Development	Xiaochun Lu	Pacific Northwest National Laboratory
Neutral pH, Reversible Zn-MnO ₂ Battery Development	Huilin Pan	Pacific Northwest National Laboratory
Zn-MnO ₂ Battery Characterization	Hee Jung Chang	Pacific Northwest National Laboratory
Advances in Na-ion Battery Electrodes	Biwei Xiaa	Pacific Northwest National Laboratory
Mechanistic Understanding of Vanadium Electrolyte Additives	Zimin Nie	Pacific Northwest National Laboratory
SAFETY & RELIABILITY		
Pacific Northwest National Laboratory		
Redox Flow Reliability Testing with NRC	Bin Li	Pacific Northwest National Laboratory
REGULATORY		
Pacific Northwest National Laboratory		
Integrated Resource Planning (IRP) Analysis	Jeremy Twitchell	Pacific Northwest National Laboratory
INDUSTRIAL ACCEPTANCE		
Pacific Northwest National Laboratory		
Market Analysis Results for Shell North America's Small Modular Pumped Storage Hydro Unit	Kendall Mongird	Pacific Northwest National Laboratory
Washington Clean Energy Fund Energy Storage Demonstration Projects: GridScale Battery Operation Performance Test Results, Modeling & Reliability	Alasdair Crawford	Pacific Northwest National Laboratory



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SAFETY & RELIABILITY

Sandia National Laboratories

Physics-based Models for Thermal Runaway Heating Rates: Advanced Anode Models	Randy Shurtz John Hewson	Sandia National Laboratories
Predicting and Preventing Cascading Thermal Runaway	Andrew Kurzawski Randy Shurtz John Hewson	Sandia National Laboratories
Degradation Mechanisms of Overcharged Li-ion Batteries	Loraine Torres-Castro Josh Lamb	Sandia National Laboratories
Aging Behavior and Abuse Response of Commercial Lithium-ion Cells as a Function of Chemistry and Cycling Conditions	Yuliya Preger Summer Ferreira	Sandia National Laboratories
Modeling Lithium-ion Battery Internal Temperature Under Load with Convective Cooling	Austin Mier David Rosewater	Sandia National Laboratories
Simulated Venting Flow from 18650 Format Lithium-ion Batteries Incorporating Optical Diagnostics	Austin Mier Michael Hargather Summer Ferreira	Sandia National Laboratories
Modeling Uncertainty in Grid-Connected Electrochemical Energy Storage Systems	David Rosewater	Sandia National Laboratories

IA: DEMONSTRATIONS, DEPLOYMENT & OUTREACH

Sandia National Laboratories

Update on the Natural Energy Laboratory of Hawai'i Authority (NELHA) Energy Storage Systems Projects	Laurence Sombardier	NELHA
Helix Power Flywheel: Motor Back Iron Test – Eddy Current Heating	Matthew Lazarewicz	Helix Power Corporation
Cordova Electric Cooperative (CEC) – Applications that Reduce the Use of Diesel Gensets	Craig Kuntz	Cordova Electric Cooperative (CEC)
NEC Lithium-ion ESS Located at Howard Elementary: Resiliency and Utility Support (EWEB)	Matt Ibaraki	Eugene Water and Electric Board (EWEB)
Energy Storage Technology Advancement Partnerships (ESTAP) Program; Engaging the States	Todd Olinsky-Paul	Clean Energy States Alliance (CESA)
Energy Storage Demonstrations – Validation and Operational Optimization	Todd Olinsky-Paul	Clean Energy States Alliance (CESA)
An Overview of the Microgrid at Santa Fe Community College (SFCC)	Stephen Gomez	Santa Fe Community College (SFCC)
DOE/SNL Webinars: Expanding an Energy Storage Knowledge Hub	Mark Higgins	Strategen

ENERGY STORAGE FOR GRID RESILIENCE

Sandia National Laboratories

Energy Storage Lab – Test Controls for Energy Storage Systems	Ben Schenkman	Sandia National Laboratories
Navajo Tribal Utility Authority (NTUA): ESS Installations in Remote Locations	Frank Currie	Sandia National Laboratories
ESS Data Acquisition Project Update	Frank Currie	Sandia National Laboratories
Grid Stability Using Distributed Energy Storage	David Schoenwald	Sandia National Laboratories

ES PARTNERSHIPS & COLLABORATIONS

Pacific Northwest National Laboratory

The IEEE Energy Storage Task Force – A New Team to Address Energy Storage Challenges	Charlie Vartanian	Pacific Northwest National Laboratory
Battery Reliability Laboratory at PNNL	David Reed	Pacific Northwest National Laboratory
Comprehensive Cell Design and Testing for Low Cost Na-metal Halide Batteries	Guosheng Li	Pacific Northwest National Laboratory



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EQUITABLE REGULATORY ENVIRONMENT

Sandia National Laboratories

Optimal Time -of- Use Management with Power Factor Correction Using Behind-the-Meter Energy Storage Systems	Tu Nguyen	Sandia National Laboratories
Evaluation of Grid-Scale Energy Storage for T&D Deferral and Resiliency	Tu Nguyen	Sandia National Laboratories
Optimal Sizing of Behind-the-Meter Energy Storage with Stochastic Load and PV Generation for Islanded Operation	David Copp	Sandia National Laboratories
QuESt: An Energy Storage Evaluation Application Suite	Ricky Concepcion	Sandia National Laboratories
Electrical Energy Storage Participation in the NYISO Electricity and Frequency Regulation Markets	Felipe Wilches-Bernal	Sandia National Laboratories
Models for Evaluation and Optimization of Grid-Scale Energy Storage	Atri Bera Joydeep Mitra	Michigan State University

POWER ELECTRONICS

Sandia National Laboratories

Power Dense Converter Electronics for Grid-tied Energy Storage Systems	Bruce Pilvelait	Creare
All SiC Power Module for Grid-Tied Energy Storage	Ranbir Singh	GeneSiC Semiconductor
Smart Ga N-Based Inverters for Grid-Tied Energy Storage Systems	Medhi Ferdowsi	Innocit
Reliability Characterization of Wide-Band Gap Semiconductor Switches	Robert (Bob) Kaplar Slobodyan Oleksiy	Sandia National Laboratories
Power Electronics Laboratory for Energy Storage Optimization (PELESO)	Jacob Mueller M A Moonem	Sandia National Laboratories
Advanced Magnetics for Next Generation Power Converters used in Grid-tied Energy Storage Systems	Ryan Reeves	Mainstream Engineering Corp
Nanoengineered Soft Magnetics Materials	Haixiong Tang	Powdermet, Inc.
Extreme Distributed Storage for Photovoltaic Systems	Valerio De Angelis Satish Ranade	Urban Electric Power New Mexico State University
Medium-voltage Power Electronics for Grid-tied Energy Storage	Anant Argawal	The Ohio State University
Low Voltage and High Current Bidirectional Converter for Grid-tied Flow Battery Energy Storage System	Alex Huang	University of Texas at Austin
Connecting Alaska Remote Villages using Medium Voltage Intertie System	Mariko Shirazi	University of Alaska Fairbanks
Micro Dual Active Bridge for Grid Storage	Satish Ranade	New Mexico State University
Monolithic SiC Semiconductor Switch Development	Ranbir Singh	GeneSiC Semiconductor
Advanced Capacitors for Future Power Conversion System	Bruce Gnade	Southern Methodist University
High Frequency Link Converters using Advanced Magnetics	Todd Monson	Sandia National Laboratories
High Temperature Reliable Dielectrics for DC-link Capacitors	Harlan Brown-Shaklee	Sandia National Laboratories
Reliable High-performance Gate Oxides for WBG Devices	Peter Dickens	Sandia National Laboratories
Designing High Temperature Optocoupler for Future High Density Power Module	Syam Madhusoodhanan	University of Arkansas, Fayetteville



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MATERIALS II

Sandia National Laboratories

Flow Battery Prototyping and Testing Facility	Harry Pratt, III	Sandia National Laboratories
Ions on the Loose: Quantifying Crossover in Aqueous-Organic Redox Flow Batteries	Travis Anderson Leo Small	Sandia National Laboratories
Membrane Development for Flow Batteries	Cy Fujimoto	Sandia National Laboratories
Rechargeable Alkaline Zinc-Manganese Oxide Batteries for Grid Storage	Matthew Lim Tim Lambert	Sandia National Laboratories
Evaluation of a Ceramic Separator for use in Rechargeable Alkaline Zn/MnO ₂ Batteries	Jonathon Duay Tim Lambert	Sandia National Laboratories
Soluble Metal Sulfide Super Atoms for Aqueous Flow Batteries	Christopher Bejger	University of North Carolina (Charlotte)
Molten Salt Catholyte Development for Low Temperature Na-Halide Batteries	Erik Spoerke	Sandia National Laboratories
Sodium Ion-Conducting Separator Development	Erik Spoerke	Sandia National Laboratories
Open Data, Models, and Codes for Static Redox Flow Batteries	Seongbeom Lee Venkat Subramanian	University of Washington
Advanced Battery Manufacturing Initiative	Sanjoy Banerjee Valerio De Angelis	City University of New York Urban Electric Power
Stable Zinc Anodes for High-Energy-Density Rechargeable Aqueous Batteries	Damon Turney	City College of New York
Ab Initio Studies of Electrolytic MnO ₂ in Shallow-Cycled Rechargeable Zn/MnO ₂ Batteries	Igor Vasiliev Birendra Ale Magar	University of Arkansas, Fayetteville

