



2010 Update Conference — U.S. Department of Energy
Energy Storage Systems Program (ESS)
 Washington Marriott Hotel, Washington DC, 1221 22nd St. NW



AGENDA

Tuesday, Nov. 2

www.sandia.gov/ess



TIME	PROJECT	SPEAKER
7:00 am	Registration (all day) & Complimentary Breakfast	
	<i>Session Chair: Dr. Imre Gyuk, DOE</i>	
8:00	Welcome	Imre Gyuk — US Department of Energy / Office of Electricity Delivery & Energy Reliability
8:10	DOE Perspective	Pat Hoffman & Arun Majumdar — US Department of Energy
8:30	DOE / OE Program Overview	Imre Gyuk — US Department of Energy / Office of Electricity Delivery & Energy Reliability
8:40	DOE / ARRA Program Overview	Eddie Christy — National Energy Technology Laboratory
8:50	OE / SNL Program Overview	John Boyes — Sandia National Laboratories
9:00	OE / PNNL Program Overview	Jun Liu — Pacific Northwest National Laboratory
9:10	DOE / ARPA-E Program Overview	Mark Johnson — US Department of Energy / Advanced Research Projects Agency-ENERGY
9:30	Energy Storage and Grid Analysis	Michael Kintner-Meyer — Pacific Northwest National Laboratory
9:50	AEP Systems Performance	Emeka Okafor — American Electric Power
10:10	BREAK	
	<i>Session Chair: Terry Aselage, SNL</i>	
10:30	Advanced Stationary Electrical Energy Storage R&D at PNNL	Z. Gary Yang — Pacific Northwest National Laboratory
10:50	Development of High Performance Redox Flow Batteries	Liu Li — Pacific Northwest National Laboratory
11:10	Low Cost, Long Cycle Life, Li-ion Batteries for Stationary Applications	Daiwon Choi — Pacific Northwest National Laboratory
11:30	Emerging Technologies for Large-scale Energy Storage: Towards Low Temperature Sodium Batteries	Jun Liu — Pacific Northwest National Laboratory
11:50	LUNCH (On Your Own)	
	<i>Session Chair: Jun Lui, PNNL</i>	
1:30 pm	Establish Feasibility of New Ionic Liquid Flow Battery	Travis Anderson — Sandia National Laboratories
1:50	Develop N ₂ – O ₂ Battery	David Ingersoll — Sandia National Laboratories
2:10	Advanced Flywheel Materials	Tim Boyle — Sandia National Laboratories
2:30	Carbon-enhanced VRLA Batteries	David Enos — Sandia National Laboratories
2:50	Superconducting Flywheel Development	Mike Strasik — The Boeing Company
3:10	BREAK	
	<i>Session Chair: John Boyes, SNL</i>	
3:30	Large-scale Diurnal Storage Study	Poonum Agrawal — Sentech, Inc.
3:50	CAES Modeling	Steve Bauer — Sandia National Laboratories
4:10	Iowa Stored Energy Plant (ISEP)	Kent Holst — Iowa Stored Energy Plant Mike King — Hydrodynamics
4:30	Storage Valuation Model	Jim Brainard — Sandia National Laboratories
5:30	NO-HOST RECEPTION	



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AGENDA

Wednesday, Nov. 3

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TIME	PROJECT	SPEAKER
7:30 am	Registration (all day) & Complimentary Breakfast	
	<i>Session Chair:</i> Dr. Imre Gyuk, <i>DOE</i>	
8:30	Grid-Scale Energy Storage Demonstration for Ancillary Services Using the Ultrabattery Technology	John Wood — <i>Ecoult</i>
		Jeff Seasholtz — <i>East Penn</i>
8:50	PV Plus Storage for Simultaneous Voltage Smoothing and Peak Shifting	Steve Willard — <i>Public Service Company of New Mexico</i>
9:10	Tehachapi Wind Energy Storage Project Using Li-Ion Batteries	Loic Gaillac — <i>Southern California Edison</i>
9:30	Flow Battery Solution for Smart Grid Renewable Energy Applications	Sheri Nevins — <i>Ktech</i> Craig Horne — <i>EnerVault</i>
9:50	Premium Power Distributed Energy Storage System Demonstration	Bill O'Donnell — <i>Premium Power</i>
10:10	BREAK	
	<i>Session Chair:</i> Bill Ayres, <i>NETL</i>	
10:30	EnergyPod™: Smart Grid Storage	Rick Winter — <i>Primus Power Corp.</i>
10:50	Painesville Municipal Power Vanadium Redox Battery Demonstration Program	Joseph Startari — <i>Ashlawn Energy</i>
11:10	Notrees Wind Storage	Jeff Gates — <i>Duke Energy Business Services</i> Jim Arseneaux — <i>Beacon Power Corporation</i>
11:30	Beacon Power 20MW Flywheel Frequency Regulation Plant	
11:50	LUNCH (On Your Own)	
	<i>Session Chair:</i> Ron Staubly, <i>NETL</i>	
1:30 pm	Detroit Edison's Advanced Implementation of A123's Community Energy Storage Systems for Grid Support	Hawk Asgeirsson — <i>The Detroit Edison Company</i>
1:50	Compressed Air Energy Storage	Hal La Flash — <i>Pacific Gas & Electric</i>
2:10	Demonstration of Isothermal Compressed Air Energy Storage to Support Renewable Energy Production	Dax Kepshire — <i>SustainX</i>
2:30	Energy East Advanced CAES Demonstration Plant (150MW) Using an Existing Salt Storage Cavern	James Rettberg — <i>New York State Electric & Gas Corp.</i>
2:50	BREAK	
	<i>Session Chair:</i> Kim Nuhfer, <i>NETL</i>	
3:10	Demonstration of a Sodium Ion Battery for Grid Level Applications	Ted Wiley — <i>Aquion Energy</i> Mohit Singh — <i>Seeo</i>
3:30	Solid State Li Metal Batteries for Grid-Scale Energy Storage	
3:50	Amber Kinetics Flywheel Energy Storage Demonstration	Edward Chiao — <i>Amber Kinetics</i>
4:10	Data Analysis	Jacquelyn Bean — <i>National Energy Technology Laboratory</i>



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AGENDA
Thursday, Nov. 4

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TIME	PROJECT	SPEAKER
7:30 am	Registration (all day) & Complimentary Breakfast	
	Session Chair: Ross Guttromson, <i>SNL</i>	
8:00	Summary Of NYSERDA Collaborations	Georgianne Huff — <i>Sandia National Laboratories</i>
8:30	Module Testing	Tom Hund — <i>Sandia National Laboratories</i>
8:50	Large Scale Battery Testing	Dan Borneo — <i>Sandia National Laboratories</i>
9:10	FACTS/Energy Storage Project	Keyou Wang — <i>Missouri Univ. of Science & Technology</i>
9:30	ETO Device, Converter, and Controls Development	Alex Huang — <i>North Carolina State University</i>
9:50	Design, Development, Testing, and Demonstration of a 10-MVA ETO-based StatCom	Dr. Harshad Mehta — <i>Silicon Power</i>
10:10	BREAK	
	Session Chair: Stan Atcitty, <i>SNL</i>	
10:30	NMSU Projects	Satish Ranade — <i>New Mexico State University</i>
10:50	High Temp Controller	Joe Henfling — <i>Sandia National Laboratories</i>
11:10	PE Reliability	Mark A. Smith — <i>Sandia National Laboratories</i>
11:30	GaN Project	Karen Waldrip — <i>Sandia National Laboratories</i>
11:50	LUNCH (On Your Own)	
1:30 pm	(Main Conference Room) One-minute Summaries of Poster Session Projects by All Presenters	
2:00	(Lobby Area) POSTER SESSION: SBIR and ARPA-E Projects [See page 4 for List of Projects and Presenters]	
3:30	BREAK	
	Session Chair: Mark Johnson, <i>ARPA-E</i>	
3:50	Electrochemical Energy Storage for the Grid	Yet-Ming Chiang — <i>Massachusetts Institute of Technology</i>
4:10	High Energy, Low Cost, Planar, Liquid Sodium Beta Batteries for Grid-Scale Electrical Power Storage	Dr. Vince Sprenkle — <i>Pacific Northwest National Laboratory</i>
4:30	DOE Loan Guarantee Program	Dan Tobin — <i>US Department of Energy</i>
4:50	CLOSE	Dr. Imre Gyuk — <i>US Department of Energy</i>



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POSTER SESSION

Thursday, Nov. 4

Session Chair: [Mark Johnson, ARPA-E](#)

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PROJECT	PRESENTER
Fuel-Free, Ubiquitous, Compressed Air Energy Storage and Power Conditioning	David Marcus – <i>General Compression</i>
Transformative Renewable Energy Storage Devices Based on Neutral Water Input	Luke Dalton – <i>Proton Energy</i>
Low Cost, High- Energy Density Flywheel Storage Grid Demonstration	Michael Strasik – <i>Boeing</i>
An Inexpensive and Robust Iron-Air Battery for Grid-Scale Energy Storage	Dr. Andrew Kindler and Dr. Robert Aniszfeld – <i>University of So. Calif</i>
Development of a 100 kWh/100 kW Flywheel Energy Storage Module	Jim Arseneaux – <i>Beacon Power</i>
Flow-assisted Zinc Anode Batteries for Grid-scale Electricity Storage	Sanjoy Banerjee – <i>CUNY</i>
Hydrogen-Bromine Flow Batteries for Grid-Scale Energy Storage	Venkat Srinivasan – <i>Lawrence Berkeley National Lab.</i>
Superconducting Magnet Energy Storage System with Direct Power Electronics Interface	V.R. Ramanan – <i>ABB, Inc.</i>
Soluble Lead Flow Battery Technology	David Keogh– <i>General Atomics</i>
Low Cost, High Performance 50 Year Electrodes	Rick Winter – <i>Primus Power</i>
Transformative Electrochemical Flow Storage System	Michael Perry – <i>UTRC</i>
Enhanced Metal-Air Energy Storage System with Advanced Grid-Interoperable Power Electronics Enabling Scalability and Ultra-Low Cost	Kurt Kinzler – <i>ARPA-E</i>
Development of High Energy, Low Temperature Rechargeable Battery for Load Leveling Application	Josip Caja – <i>Electrochemical Systems, Inc.</i>
A Novel Li Conducting Solid State Electrolyte by Sol Gel Techn	Dr. Davorin Babic – <i>Excellatron Solid State</i>
Highly Selective Proton-Conducting Composite Membranes for Redox Flow Batteries	Dr. Yongzhu Fu – <i>Lynntech, Inc.</i>
Energy Storage System Model Development for Grid-Tied Renewable Applications	Daniel Fregosi – <i>NCSU</i>
6500 V SiC Thyristor Development for Energy Efficient Power Conversion	Sid Sundaresan – <i>Sid Sundaresan</i>
Advanced Electrodes for Low-Cost, Long Cycle Life, Li-Ion Batteries	Chris Rhodes – <i>Lynntech, Inc.</i>
Development and Commercialization of a SiC Fault Current Controller and SiC Power Modules	Jack Bourne & Ty McNutt – <i>Arkansas Power Electronics International, Inc</i>