

EESAT 2007 Agenda

ELECTRICAL ENERGY STORAGE APPLICATIONS AND TECHNOLOGIES

Schedule of Events

Sunday, September 23 (Tower Salon A, Anteroom)

- 5:00 PM - 6:00 PM Registration
- 6:00 PM - 8:00 PM Welcome Reception

Monday, September 24 (Tower Salon A)

- 7:30 AM Registration (All Day) and Continental Breakfast
- 8:00 AM - 8:20 AM Welcoming Remarks
- Dr. Imre Gyuk, Manager
Energy Storage Systems Research Program
US Department of Energy (DOE/ESS)
- Jim McDowall, Past-Chairman
Electricity Storage Association (ESA)
- 8:20 AM - 8:40 AM Opening Keynote Speaker
- Susan Patterson, President Board of Directors
Sacramento Municipal Utility District (SMUD)
Sacramento, California, USA

Economics - Business Model

Chair: Jim McDowall (Saft Batteries)

- 8:45 AM - 9:10 AM The Energy Storage Business Proposition Anthony Price,
Swanbarton Ltd (UK)
- 9:15 AM - 9:40 AM The Declining Significance of Rates Charles Koontz,
Integrus Energy Svcs (US)
- 9:45 AM - 10:10 AM Battery Energy Storage Systems for Primary Frequency Regulation Daniel Chartouni,
ABB Switzerland (CH)
- 10:10 AM - 10:25 AM Break

Economics - Benefit Studies

Chair: John Boyes (Sandia National Laboratories)

- 10:30 AM - 10:55 AM Evaluating Value Propositions for Four Modular Electricity Storage Demonstrations in California Jim Eyer,
DUA (US)
- 11:00 AM - 11:25 AM Electricity Storage for Capacity-Constrained Markets Under Demand-Side Management Programmes: Management and Revenues Lazaros Exarchakos,
Imperial College (UK)
- 11:30 AM - 11:55 AM Update on Benefit and Cost Comparison of Energy Storage Technologies for Four Viable Value Propositions Susan Schoenung,
Longitude 122 West (US)
- 11:55 AM - 12:55 PM Lunch (Victor's, 32nd floor)

Economics - Environment Benefit Studies

Chair: Gerard Thijssen (STORM)

- 1:00 PM - 1:25 PM The Role of Electrical Energy Storage in Mitigating the Green House Gas Challenge Pramod Kulkarni,
CEC (US)
- 1:30 PM - 1:55 PM Carbon Evaluation of Traditional and Flywheel Power Plants for Grid Regulation Ancillary Applications Richard Fioravanti,
KEMA (US)
- 2:00 PM - 2:25 PM Multi-Objective Valuation of Electricity Storage Devices Edwin Haesen,
KU Leuven (BE)
- 2:30 PM - 2:55 PM Utility-Scale CAES Technology with CO₂ Benefits Tom Key,
EPRI (US)
- 2:55 PM - 3:10 PM Break

Utility & Commercial Applications of Advanced Energy Storage Systems

Chair: Pramod Kulkarni (California Energy Commission)

3:15 PM - 3:40 PM	Performance of AEP's 1.2 MW Peak Shaving Energy Storage Unit	Ali Nourai, AEP (US)
3:45 PM - 4:10 PM	Iowa Stored Energy Park	Kent Holst, ISEP (US)
4:15 PM - 4:40 PM	Permanent Load Shifting and UPS Functionality at a Telecommunications POP Site Using the VRB-ESSTM – A Case Study	John Davis, VRB Power (CA)
4:45 PM - 5:10 PM	Design of 20 MW Flywheel-Based Frequency Regulation Plant	Chet Lyons, Beacon (US)
5:30 PM - 7:30 PM	RECEPTION – Courtesy: Electricity Storage Association (ESA); St. Francis Suite, 12 th floor	

Tuesday, September 25: CONCURRENT SESSIONS (Tower Salon A)

7:30 AM Registration (All Day) and Continental Breakfast

Rail Applications

Chair: Rick Winter (Distributed Utility Associates)

8:00 AM - 8:25 AM	LIRR Flywheel BESS Demonstration	Guy Sliker, NYPA (US)
8:30 AM - 8:55 AM	The ACE ² System: A Kinetic Energy Storage for Railway Substations	Marcos Lafoz, CEDEX (ES)

Multi-Megawatt Applications

Chair: Ali Nourai (American Electric Power)

9:00 AM - 9:25 AM	Underground Pumped Hydroelectric Energy Storage Using Aquifer	Greg Martin, UC-Boulder (US)
9:30 AM - 9:55 PM	Analysis of Field Test Results for Stabilization of 30.6 MW Wind Farm with Energy Storage	Gentaro Koshimizu, EPD (JP)
9:55 AM - 10:10 AM	Break	
10:15 AM - 10:40 AM	Potential Pumped Hydroelectric Energy Storage Sites in Colorado	Jonah Levine, UC-Boulder (US)
10:45 AM - 11:10 PM	Progress of the 34 MW NAS Battery System for a 51 MW Wind Farm	Tomio Tamakoshi, NGK (JP)
11:15 AM - 11:40 PM	Large Scale Electricity Storage on Energy Island	Frits Verheij, KEMA (NL)
11:45 AM - 12:55 PM	Lunch (Victor's, 32 nd floor)	

Renewables & Distributed Energy Applications I

Chair: Gerry Woolf (*BEST* Magazine)

1:00 PM - 1:25 PM	Using Intelligent Storage to Smooth Wind Energy Generation	Peter Coppin, CSIRO (AU)
1:30 PM - 1:55 PM	GROW-DERS (Grid Reliability and Operability with Distributed Generation Using Flexible Storage)	Frits Verheij, KEMA (NL)
2:00 PM - 2:25 PM	Grid Services From Plug-In Hybrid Electric Vehicles: A Key to Economic Viability	Paul Denholm, NREL (US)
2:30 PM - 2:55 PM	Demonstration of Commercial Energy Storage Device Used to Load Shift Residential Sized Photovoltaic System — Preliminary Results	Ib Olsen, Gaia (US)
2:55 PM - 3:10 PM	Break	

Renewables & Distributed Energy Applications II

Chair: Brian Beck (VRB Power)

3:15 PM - 3:40 PM	Integrated WTG, Transportable Compressed Air Energy Storage (T-CAES) System and Desalination Device	Paul Lieberman, EnisWindGen (US)
3:45 PM - 4:10 PM	Thermal Analysis of Lithium-Ion Battery Pack for Future Grid and Renewable Energy Storage Applications	Chris Mi, Univ Mich-Dearborn (US)
4:15 PM - 4:40 PM	Distributed Energy Storage: Role in Building-Based PV Systems	Tyson Lawrence, TIAX (US)
6:00 PM - 10:00 PM	Dinner Event at the Carnelian Room	

Tuesday, September 25: CONCURRENT SESSIONS (Elizabethan D)

7:30 AM Registration (All Day) and Continental Breakfast

International Energy Storage Programs

Chair: Imre Gyuk (US Department of Energy)

8:30 AM - 8:55 AM	Canadian Electricity Storage Program	Melanie Chamberland, NRC (CA)
9:00 AM - 9:25 AM	The Status of Energy Storage Technologies and Demonstration Projects in Australia	Tony Vassallo, Invenergy (AU)
9:30 AM - 9:55 AM	The Need for Energy Storage in Africa	P.J. Frampton, Eskom (ZA)
9:55 AM - 10:10 AM	Break	
10:15 AM - 10:40 AM	Web-Based Energy Storage Monitoring – 2006-2007 Results	Doug Dorr, EPRI (US)
10:45 AM - 11:10 AM	Status Update on the NYSERDA/DOE Joint Energy Storage Initiative Projects	Jeff Lamoree, EnerNex (US)
11:15 AM - 11:40 AM	An Update On ACONF - Where Is It Now? Where Is It Going?	Garth Corey, SNL (US)
11:45 AM - 12:55 PM	Lunch (Victor's, 32 nd floor)	

Power Electronics I

Chair: Brad Roberts (S&C Electric)

1:00 PM - 1:25 PM	STATCOM with Energy Storage System for Wind Power Integration	Mesut Baran, NCSU (US)
1:30 PM - 1:55 PM	Energy Storage and Power Conditioning System for Clean, On-Site Energy Resources Supporting Grid-Interactive and Micro-Grid Operation	Leo Casy, SatCom (US)
2:00 PM - 2:25 PM	Cyber-Physical Systems Disturbed Control: The Advanced Electric Power Grid	Mariesa Crow, University of Missouri – Rolla (US)
2:30 PM - 2:55 PM	An Sic Power Converter System – Thermal Management and High Temperature	Timothy Lin, Aegis (US)
2:55 PM - 3:10 PM	Break	

Power Electronics II

Chair: Mariesa Crow (Univ. Missouri – Rolla)

3:15 PM - 3:40 PM	10 kW Silicon Carbide (Sic) Based Inverter for Renewable Energy Applications	Roberto Schupbach, APEI (US)
3:35 PM - 4:10 PM	Large Area Silicon Carbide GTO Thyristor Development	Ranbir Singh, GeneSiC (US)
4:15 PM - 4:40 PM	Integration of Ultracapacitor (UCAP) with STATCOM for Improved System Fault Performance	Mesut Baran, NCSU (US)
6:00 PM - 10:00 PM	Dinner Event at the Carnelian Room	

Wednesday, September 26: (Tower Salon A)

7:30 AM Registration (All Day) and Continental Breakfast

Innovations in Energy Storage Systems I

Chair: Joe Sayer (New York State Energy Research and Development Authority)

8:00 AM - 8:25 AM	Electrochemical Capacitor Characterization for Electric Utility Applications	Stan Atcitty, SNL (US)
8:30 AM - 8:55 AM	A 25 MW Pulse Power Modulator Based on SMES Technology	Rainer Gehring, Institute for Technical Physics (DE)
9:00 AM - 9:25 AM	Vanadium Redox Flow Battery Layout for Improved Efficiency	Martha Schreiber, Funktionswerkstoffe F & E GmbH (AT)
9:30 AM - 9:55 AM	Third Generation Redox Flow Battery	Mereille Schreurs, KEMA (NL)
9:55 AM - 10:10 AM	Break	

Innovations in Energy Storage Systems II

Chair: Matt Lazarewicz (Beacon Power)

10:15 AM - 10:40 AM	High Power Flywheels With Super Conducting Bearings – Design Considerations and Experiences	W.R. Canders, IMAB (US)
10:45 AM - 11:10 AM	Advances in Energy-Efficient Power Quality and Energy Storage	Mike Lasky, Pentadyne (US)
11:15 AM - 11:40 AM	Design and First Test Results of a Superconducting Magnetically Borne Flywheel Energy Storage System of 10 kWh and 250 kW	Gerhard Reiner, L-3 Communications (DE)
11:45 AM - 12:55 PM	Lunch with Speaker (Victor's, 32 nd floor)	

Innovations in Energy Storage Systems III

Chair: Anthony Price (Swanbarton Ltd)

1:10 PM - 1:35 PM	High Power and High Energy Wafer Cell Nickel Metal Hydride and Li-Ion Batteries for Utility and Transportation Applications	James Landi, EEI (US)
1:40 PM - 2:05 PM	Review Of CAES Systems Development and Current Innovations that Could Bring Commercialization to Fruition	Lee Kosla, Pearl Street, Inc. (US)
2:10 PM - 2:35 PM	Wind Integrated Compressed Air Energy Storage (CAES) – Developing Case Study in Colorado`	Richard Moutoux, UC-Boulder (US)
2:40 PM - 2:50 PM	Closing Remarks Dr. Imre Gyuk, Manager Energy Storage Systems Research Program US Department of Energy (DOE/ESS) Brad Roberts, Chairman Electricity Storage Association (ESA)	