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Sessions and Topics

The full text of many of the papers presented at EESAT 2011 are available for [download](#).
In the case of multiple authors, only presenters' names are listed here.

Monday, October 17

Session 1: Policy and Economics of Electrical Energy Storage (EES)

Chair: T. Vassallo, Univ. of Sydney

- **Don't Forget That: Past, Present, and Future Philosophy for Energy Storage** – A. Price, Swanbarton, Ltd.
- **The Impacts of Regulation, Policy, and Advanced Technologies, and Market Dynamics on the Deployment of Energy Storage Processes** – G. Miller, Hudson Clean Energy Partners
- **Evaluating Modular Distributed Electricity Resources for Utility Transmission and Distribution Upgrade Deferral and Life Extension** – J. Eyer, Distributed Utility Assoc.

Session 2: Grid Applications of EES

Chair: P. Kulkarni, CEC

- **Grid-Supporting Battery Energy Storage Systems in the Low-Voltage Distribution Grid** – F. Geth, K.U.Leuven, Belgium
- **Enabling Renewable Energy Transmission - Advanced Carbon Energy Storage System for Transmission Utilization Improvement** – J. Anderson, C&D Technologies, Inc.
- **Determining Storage Reserves for Regulating Solar Variability on the Electric Power Grid** – B. Norris, Clean Power Research
- **Recent Applications of Sodium-Sulfur (NAS) Battery System in the United States and In Japan** – T. Hatta, NGK Insulators, Japan

Session 3: UK Research - Innovative Technologies

Chair: J. Boyes

- **Techno-Economic Modeling of a Utility Scale Redox Flow Battery System** – E.P.L. Roberts, Univ. of Manchester

- **Substrates for the Positive Electrode Reaction in the Zinc-Cerium Redox Flow Battery** –L.E.A. Berlouis, C-Tech Innovation, Ltd.
- **The Development of Flow Batteries from Proof of Concept to Pilot Scale** – R. Wills, Univ. of Southampton, UK
- **Temperature Dependence of Key Performance Indicators for Aqueous Electrochemical Capacitors Containing Nanostructured Birnessite Manganese Dioxide** –R.C.T. Slade, Univ. of Surrey, UK

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Session 4: EES Electrochemistry

Chair: C. Lamontagne, Navigant

- **Exploration and Practice of Energy Storage Technology in Shanghai** – Z. Yu, Tech. & Dev. Ctr. of Shanghai
- **Applying a Variety of Battery Chemistries for Energy Storage** – B. Roberts, S & C Electric
- **MetILs: A Family of Metal Ionic Liquids for Redox Flow Batteries** –T. Anderson, SNL

Session 5: Emerging Energy Storage Technology

Chair: M. Sira, Kohler Co.

- **Zinc/Air - A Low-Cost, Long-Life, and Safe Battery Technology** – M. Oster, Eos Energy Storage
- **The Aqueous Electrolyte Sodium Ion Battery: A Low-Cost Solution From Aquion Energy** – J. Whitacre, Aquion Energy
- **Thermal Energy Storage as an Enabling Technology for Renewable Energy** – P. Denholm, NREL
- **Advanced Electrochemical Storage RD&D at Pacific Northwest National Laboratory for Renewable Integration and Grid Applications** – Z. Yang, PNNL

Session 6: Power Electronics

Chair: A. Price, Swanbarton

- **Battery Module Balancing with a Cascaded H-Bridge Multilevel Inverter** – M. Senesky, National Semiconductor
- **A Power Electronic Conditioner Using Electrochemical Capacitors to Improve Wind Turbine Power Quality** –M. Crow, Missouri S&T
- **Degradation Mechanisms and Characterization Techniques in Silicon Carbide MOSFETs at High-Temperature Operation** – R. Kaplar, SNL
- **Sanyo's Smart Energy System with a 1.5-Megawatt Hour Lithium-Ion Battery and 1-Megawatt Photovoltaic Solar System** – H. Hanafusa, SANYO Electric Co., Ltd.
- **Ultra-High-Voltage Silicon-Carbide (SiC) Thyristors - Next-Generation Power Electronics Building Blocks** – R. Singh, GeneSiC Semiconductor

Session 7: Modeling & Simulation of EES

Chair: G. Huff, SNL

- **Widespread Deployment of Electric Storage in the Industrial and Manufacturing Sectors** – P. Scalzo, EMB Energy, Inc.
- **Modeling of PV Plus Storage for Public Service Company of New Mexico's Prosperity Energy Storage Project** – O. Lavrova, UNM
- **Optimization Routine for Energy Storage Dispatch Scheduling in Grid-Connected, Combined Photovoltaic-Storage Systems** – B. Washom, Univ. of California, San Diego
- **Numerical Analysis on the Temperature Distribution in the Molten Sodium-Sulfur Battery Module** – J. Min, Pusan Nat'l Univ., Korea

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Session 8: Emerging EES Technologies

Chair: B. Washom, UCSD

- **A New Fe/V Redox Flow Battery** – L. Li, PNNL
- **Lifetime of Vanadium Redox Flow Batteries** – M. Schreiber, Cellstrom GmbH, Austria
- **Demonstration of Energy Storage Using A Breakthrough Redox Flow Battery Technology** – C. Horne, EnerVault Corp.

Session 9: EES Demonstrations

Chair: T. Aselage, SNL

- **Commercialization of Silicon Carbide Power Modules for High-Performance Energy Applications** – J. Hornberger, APEI
- **Second-Generation Compressed Air Energy Storage Technology Meeting Renewable Energy/Smart Grid Requirements** – M. Nakhamkin, Energy Storage & Power, LLC
- **Systems Integration Strategies for the 10-kWh Redflow Zinc Bromine Battery Module** – S. Hickey, RedFlow Limited
- **Managing the State of Charge of Energy Storage Systems Used for Frequency Regulation** – M. Lazarewicz, Beacon Power Corp.

Session 10: EES Special Applications

Chair: R. Guttromson, SNL

- **Why Aren't We Building New, Grid-Scale Energy Storage Projects?** – M. Manwaring, HDR Engineering, Inc.
- **Energy Storage -- A Cheaper, Faster, and Cleaner Alternative to Conventional Frequency Regulation** – G. Damato, StrateGen
- **Ultracapacitor Technology for Utility Applications** – A. Burke, Univ. of California, Davis

- **Ultrabattery Storage Technology and Advanced Algorithms at the Megawatt Scale**
– P. Coppin, CSIRO Energy Transformed, Australia

Session 11: Compressed Air Energy Storage (CAES)

Chair: J. Eyer, Distributed Utility Assoc.

- **New York State Electric and Gas American Recovery and Reinvestment Act Advanced Compressed Air Energy Storage Demonstration Plant - 2011 Status** – R. Schainker, EPRI
- **Iowa Stored Energy Park "Lessons From Iowa"** – K. Holst, Iowa Stored Energy Park
- **Small-Scale Scalable Compressed Air Energy Storage System with Thermal Management** – J. H. Simmons, Univ. of Arizona

Poster Sessions

Monday, October 17

- **A Battery Storage System for Distributed Demand Response in Rural Environments** – R. McCann, Univ. of Arkansas
- **The State/Federal Energy Storage Technology Advancement Partnership Project** – A. Margolis, Clean Energy States Alliance
- **Applying Renewable Storage to the Commercial Environment** – J. Hires, GS Battery (USA), Inc.
- **Recent U.S. Policy and Legal Implications for Energy Storage vis-à-vis RPS Mandates** – J. Hernandez, SNL
- **Use of Storage to Mitigate Frequency Variations in a Load Frequency Control Model** – M. Lim, Univ. of Colorado at Boulder

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- **Silicon Nano-Scoop Anodes for High-Power Li-Ion Batteries** – N. Koratkar, Rensselaer Polytechnic Institute
- **Economic and Cost Modeling of the Repurposing Electrical Vehicle Batteries for Stationary Storage Applications** – S. Jaffe, IDC Energy Insights
- **Experimental Approach for Thermal Modeling of Sodium-Sulfur Battery Based on Isothermal Chamber Test** – C. Lee, RIST, Korea
- **Preliminary Findings of National Renewable Energy Laboratory's Electric Vehicle Lithium-Ion Battery Secondary-Use Project** – J. Neubauer, NREL
- **Effects of Operating Parameters on the Single-Cell Performance of the Vanadium Redox Flow Battery for Energy Storage** – Chun-Hsing Wu, Green Energy and Environmental Research Lab

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- **PG&E Compressed Air Energy Storage in California** – A. Narang, PG&E
- **Characterization and Assessment of Novel Bulk Storage Technologies** – P. Agrawal, Senetech/SRA International

- **Compressed Air Energy Storage and Geographic Aggregation: Mutually Reinforcing Strategies for Integrating Wind Power** – S. Succar, National Resources Defense Council
- **Simulation and Optimization of a Flow Battery in an Area Regulation Application** – R. F. Savinell, Case Western Reserve Univ.

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