DOE ENERGY STORAGE SYSTEMS RESEARCH

ANNUAL PEER REVIEW

October 20, 2005
Sir Francis Drake Hotel
San Francisco, California

Overview of Program

FY05 DOE Energy Storage Program
– John Boyes (Mgr, ESS Program/Sandia National Laboratories)

Economics and Policy

Comparing T&D Capacity Options, On a Risk Adjusted Cost Basis, Including Stationary and Transportable DERs – James Eyer (Distributed Utility Associates)

Benefit and Cost Comparisons of Energy Storage Technologies for Three Emerging Value Propositions – Susan Schoenung, (Longitude 122 West, Inc.)

NYSERDA / DOE Energy Storage Initiative

Long Island Bus Sodium Sulfur (NaS) Battery Storage Project
– Yan Kishinevsky (New York Power Authority)

Residential Energy Storage and Propane Fuel Cell Demonstration Project by the Delaware County Electric Cooperative, Inc (DCEC) – Mark Schneider (DCEC)

Electric Energy Storage Opportunities and Challenges in New York
– Rahul Walawalkar (Customized Energy Solutions)

Mini-CAES: Early Discussion of Ongoing Economic Feasibility Assessment
– Jim Jewitt (Tadanac Energy Advisors)

Status Update on the NYSERDA/DOE Joint Energy Storage Initiative Projects
– Jeff Lamoree (ENERNEX)

CEC / DOE Energy Storage Collaboration

Flywheel-Based Frequency Regulation Demonstration; Project Status
– Matt Lazarewicz (Beacon Power)

Ultracapacitor Energy Bridge UPS for Palmdale, CA, Water District
– Chris McKay (Northern Power Systems)

Demonstration of a 2-MWh Peak Shaving Z-BESS – Peter Lex (ZBB Energy Corp.)

Data Management for CEC/DOE – Doug Dorr (EPRI Solutions)

Advanced Batteries and Flywheels

Bipolar Nickel Metal Hydride High Power and Energy Storage Batteries for Utility Applications – James Landi (Electro Energy, Inc.)

Analysis of the NAS Battery and Multi-Technology Demonstration at AEP
– Benjamin Norris (Norris Energy Consulting)

Evaluation of Hybrid Energy Storage (HES) Devices – Benjamin Craft (MeadWestvaco)

The Design of VRLA Batteries for Successful Operation in a High-rate, Partial-state-of-charge Regime – Patrick Moseley (ILZRO)

Accelerated Cycle-Life Testing On The Cyclon Lead-Acid Battery
– Tom Hund (Sandia National Laboratories)

Design, Fabrication, and Testing of a 5 kWh Flywheel Energy Storage System Utilizing a High Temperature Superconducting Magnetic Bearing – Philip Johnson (Boeing)

Third Generation Flywheels – Jim Fiske (LAUNCHPOINT Technologies)

Renewable and Distributed Energy

Optimizing Off-Grid Hybrid Generation Systems – Garth Corey (Sandia National Laboratories)

Alternative Configurations to Optimize Lead-Acid Batteries for Renewable Generation and Storage – Phil Symons (Symons/EECI)

Hybrid Generation Simulator: HybSim 3.3
– David Trujillo (Sandia National Laboratories)

Study of Energy Storage Connection to Wind – Yilu Liu (Virginia Tech Univ.)

Overcoming Transmission Constraints: Energy Storage and Wyoming Wind Power
– Mindi Farber de Anda (Science Applications International Corp.)

Impact of CAES on Wind in TX, OK, NM – Jim Jewitt (Tadanac Energy Advisors)

The Iowa Stored Energy Plant – Kent Holst (Iowa Association of Municipal Utilities)

Development of the Conceptual Basis for the Optimal Application of Electrical Storage in an Energy Surety Microgrid – Dan Brown (Sandia National Laboratories)

Power Electronics

An Approach To Improving The Physical And Cyber Security Of A Bulk Power System With FACTS – Mariesa Crow (Univ. of Missouri – Rolla)

A Transmission UltraCAPacitor (TUCAP) utilizing Emitter Turn-Off thyristor (ETO) and UltraCAPacitor (UCAP) – Chong Han (No. Carolina State Univ.)

Laboratory Scale Demonstration of Power System Stabilization Using Energy Storage
– Satish Ranade (New Mexico State Univ.)

Development of a Low-cost PCS to be Used with Pb/C Asymmetric Capacitors
– Debosmita Das (American Electric Power)

Progress on a 100kw Low Cost Energy Storage Inverter
– Larry Rinehart (Rinehart Motion Systems)

High Power Silicon Carbide Inverter Design -- 100kW Grid Connect Building Blocks
– Leo Casey (SatCon Technology Corp.)

An Advanced Power Converter System Based on High Temperature, High Power Density SiC Devices – Timothy Lin (Aegis Technology)

A Very High-Temperature (400 °C) Inverter for Energy Storage Applications Utilizing Silicon-on-Insulator (SOI) and Silicon Carbide (SiC) Electronics
– Roberto Schupbach (Arkansas Power Electronics)

Universal Converter Using Silicon Carbide – Dallas Marckx (Peregrine Power)