

EESAT 2002 SESSIONS & TOPICS

OVERVIEW OF ELECTRICAL ENERGY STORAGE APPLICATIONS & TECHNOLOGIES

Technical and Market Aspects of Innovative Storage Opportunities – Joe Iannucci, Distributed Utility Associates

Characteristics of Energy Storage Technologies for Short- and Long-Duration Applications – Susan M. Schoenung, Longitude 122 West, Inc.

Comparison of Energy Storage and Electric Conversion for Bridging Power Applications – Tom Key, PEAC

MULTI-MEGAWATT APPLICATIONS

System Justification and Vendor Selection for the Golden Valley BESS

– Tim DeVries, Golden Valley

Vanadium Redox-flow Battery for Voltage Sag – Tsuyoshi Shinzato, Sumitomo

CAES for Today's Market – Septimus van der Linden, Alstom

ADVANCED BATTERY APPLICATIONS

Battery Energy Storage (ZnBr) for Grid Support Applications – Vince Scaini, Thomas Rhae, Peter Lex,

SatCon Power, Detroit Edison, ZBB **A Vanadium Energy Storage System Field Trial** – John Hawkins,

Vantack **Market Development for the Sodium Sulfur Battery** – David K. Nichols, AEP, TEPCO

POWER ELECTRONICS & CONVERSION SYSTEMS

Using Advanced Power Electronics to Develop a 2200kVA Rotary Flywheel UPS

– Gene Weaver, SatCon

An Optically Isolated, HV-IGBT Based, Mega-Watt Cascade Inverter Building Block for DER Applications – Paul Grems Duncan, Airak, Inc.

Development of Novel Power Electronic Topologies for the Integration of Battery Energy Storage in FACTS Devices – Mariesa Crow, University of Missouri

The Gen-3 Emitter Turn-Off Thyristor – Bin Zhang, Virginia Tech

DESIGN AND SYSTEM STUDIES

Using Energy Storage with Wind Energy for Arbitrage – Robert Taylor, TVA

Energy Storage/Distributed Resource Options at the University of Maryland

– Mindi Farber De Anda, Ndeye Fall, Energetics

The Advent of Energy Storage for Transmission Voltage Stability Support via Superconducting Magnetic Energy Storage (SMES) and UltraCAPacitors (UCAP)

– Dale Bradshaw, TVA

Pre-Conceptual Design of the Boulder City Battery Energy Storage Demonstration Project – Larry Stoddard, Black & Veatch

FLYWHEEL APPLICATIONS

Investigation of the Stability of a 600 MJ Energy Storage System Based on Paralleled Flywheel Generators – Heiko Cordt, Piller GmbH

Introducing Pentadyne Power Flywheel Energy Storage System – David Townley, Pentadyne Power

CleanSource2 Battery-Free Energy Storage Theory of Operation – Scott Richey, Active Power

CAPACITOR AND SUPER CAPACITOR DEVELOPMENT AND APPLICATIONS

High Energy Density Capacitor Storage System – Michio Okamura, Okamura Lab. A Boost Life & Reliability Power Capacitor: Theory, Analysis, Design and Experiments
– Tauqeer H.Shah, Iran University of Science & Technology

Energy Feeding with Sequential Storage: Properties of the Fast Energy Transfer Between Supercapacitive Banks – Alfred Rufer, Ecole Polytechnique Fédérale de Lausanne

Applications for Short-Term Energy Storage Using Ultracapacitors – Mike Howard, PEAC

Extending DER Transient Loadability Using Electrochemical Capacitors – Satish Ranade, NMSU

HIGH SPEED FLYWHEEL DEVELOPMENT

Flywheel Technology Development at the NASA Glenn Research Center – Rob Wagner, University of Toledo

Flywheels with All-Passive, Non-Contact Magnetic Suspensions – Arthur Day, Boeing **DC Power Management with a High Performance Flywheel** – Donald Bender, AFS Trinity

Composite Flywheels for Energy Storage - Design Considerations – R. Hebner, University of Texas at Austin

A Description of the Beacon Power High Energy and High Power Composite Flywheel Energy Storage Systems – Matt Lazarewicz, Beacon Power Corp.

BATTERY DEVELOPMENT AND APPLICATIONS

Reliability of Valve-Regulated Lead-Acid Batteries for Stationary Applications

- Mindi Farber De Anda, Jennifer Miller, Energetics, Inc.
- **High Power Storage Technologies for Distributed Generation** – Jim McDowall, SAFT
- **Introducing Cerium Based High Energy Redox Batteries** – Stephen Clarke, Plurion Systems

MULTI-MEGA WATT APPLICATIONS

High Charge and Discharge Cycle Durability of the Sodium Sulfur (NAS) Battery

– Makoto Kamibayashi, Kazuhito Furuta, TEPCO, NGK

A Comparative Assessment of Flow Battery Technologies – Chris Lotspeich, Second Hill Group

Determination of Commercial Viability of Flow Batteries – H. Kroon and G. Thijssen, REMU and KEMA TDC

CLOSING SESSION

Energy Storage For Ancillary Services – Robert E. Taylor, TVA

The Certs Microgrid – Abbas Akhil, Sandia National Laboratories

What Value Does Energy Storage Have? – Phil Symons, EECl