



# Meeting Proceedings

**ESA Annual Meeting**  
Chattanooga, Tennessee  
April 26-27, 2001



# From the Chair

The Annual Meeting of the ESA was held in Chattanooga, TN, on April 26 and 27, 2001. For the first time, the Proceedings of the meeting are being distributed on CD-ROM. The 2001 Proceedings will be available in hard copy form on request. We are including the Proceedings for the ESA 2000 Meeting on the CD-ROM also. We hope in this way to provide a further valuable benefit to members.

Chattanooga was chosen as the site for the meeting for one main reason, it is the home of the Tennessee Valley Authority, an ESA member that, as shown in the attached Proceedings, is heavily engaged in electricity storage activities. Holding the meeting in Chattanooga afforded attendees the opportunity to visit two local facilities of interest: The Raccoon Mountain Pumped Hydro Plant close to Chattanooga, and the EPRI Power Electronics Applications Center (PEAC) in Knoxville, TN. Both of these visits proved to be extremely interesting to those able to participate.

Apart from a very stimulating and timely set of presentations of interest to ESA members (all of which are included on the CD), and the technical visits to Raccoon Mountain and PEAC, there was one other significant event at the Annual Meeting. The membership of the ESA, following a recommendation of the Board of Directors, agreed that the name of our organization should be changed to the Electricity Storage Association. We hope that this change will help those who come across our Web site ([www.ElectricityStorage.org](http://www.ElectricityStorage.org)) or who receive our publicity materials, to focus on the solutions to power supply problems that ESA members can help provide. We also hope that attention to our new name will help those active in power supply, on either side of the electric meter, to realize that electricity can indeed be stored for future use, and that such storage of electricity can provide an economically viable solution to many power supply problems.

If you have any comments on these Proceedings, or have ideas on ways in which the Electricity Storage Association can be better, please contact us by Email at [info@ElectricityStorage.org](mailto:info@ElectricityStorage.org). We would be delighted to hear from you.

**Philip C Symons**  
**ESA Board Chair**



# Program (1)

- **Opening Session:** Welcome and Introductions,  
Phil Symons, ESA Chairman and Dale Bradshaw, TVA Meeting Chairman
- Welcome from TVA:  
Terry Boston, Executive Vice President, Transmission and Power Supply
- **Keynote Address:** *What Do We Have To Do To Keep The Lights On?*,  
Mike Gent, President, North America Electric Reliability Council (NERC).
- **Energy Storage for Improving T & D System Reliability**  
Session Chair: Dale T. Bradshaw, Tennessee Valley Authority
  - *Distributed SMES Improves Transmission Reliability and Delays Need for Transmission Upgrades*,  
John Wagemaker, American Superconductor Corporation
  - *What Drives Battery Storage Value in California?*,  
John Wehner, Florida Power and Light
  - *Ultracapacitors for Use in Multi-Megawatt Applications*,  
Thomas D. Geist, EPRI Power Electronic Applications Center
  - *Electric Grid Reliability Issues*, John Boyes, Sandia National Laboratories



## Program (2)

- **Keynote Addresses:** *Energy Storage for Reliable Electricity*, Terry Boston, Executive Vice President, Transmission and Power Supply
- *The Importance of Energy Storage in a Digital Society*, Dr. Robert Schainker, Product Line Manager of Transmission and Substation, EPRI
- **Energy Storage for Improving Power Quality and Premium Power**  
Session Chair: Mike Ingram, Tennessee Valley Authority
  - *Overview of Experience of Medium Voltage Uninterruptible Power Supplies in a Utility Substation*, Brad Roberts, S&C Electric Company
  - *A Supercapacitor-Based Energy Storage System for Elevators with Soft Commutated Interface*, Professor Alfred Rufer, Ecole Polytechnique Federale de Lausanne
  - *Characteristics and Various Applications of Vanadium Redox Flow Battery*, Takushi Hara, Hiroshi Sato, Toshio Shigematsu, Yasumitsu Tsutsui; Sumitomo Electric USA, Inc.
  - *The North American Market for Distributed Generation and Back-up Power*, Joan Plante, Venture Development Corporation



# Program (3)

- **Energy Storage to Improve T&D Asset Management and Remove Transmission Constraints**

Session Chair: Dr. William Hassenzahl, Advanced Energy Analysis

- *North America, Transmission Bottlenecks or Golden Opportunities?*,  
Dr. Steve Lee, EPRI
- *Innogy's Regenesys Bulk Energy Storage for Improving TVA's Transmission Reliability and Cost*,  
Dr. Joe Hoagland and Mick Ray, Tennessee Valley Authority
- *Benefits of a STATCOM + SMES in a Transmission Network*,  
Stuart Macdonald, Siemens/Westinghouse
- *UPS Substation*, Steve Eckroad, EPRI
- *Large-Scale Wind Power and Energy Storage*, Kent Sobrink, Eltra (Denmark)



# Program (4)

- **Energy Storage Technology Update**  
Session Chair: Steve Eckroad, EPRI
  - *Latest Developments in Evonyx Zinc Air Storage Systems*, Ian Grant, Evonyx
  - *The Use of High Power Lithium Ion Batteries to Support Distributed Generation*, Jim McDowall, Saft
  - *Recent Application of Sodium Sulfur Battery in Japan*, Tomio Tamakoshi; NGK Insulators Ltd.
  - *Report on Field Tests of Energy Storage Demonstrations in South Africa*, Dr. Johan Beukes, University of Stellenbosch / Eskom
- Closing Session: Phil Symons, ESA Chairman
- **Industry News by Members**
  - *Saft Supercapacitor Update*, Jim McDowall, Saft
  - *Power Electronic and Storage Activities at KEMA*, Johan Enslin & Gerard Thijssen, KEMA
  - *Sentech News*, Jonathan Hurwitch, Sentech
- Closing Discussions