



The Electricity Storage Association

Newsletter, May 2001

What's changed ?

We've changed our name !

Member resolution at the annual meeting changes the name of the ESA.

Our chairman, Dr Philip Symons of EECI quoted from the San Jose Mercury News. "Electricity cannot be stored ..." started an article on the ongoing crisis in California. "Oh yes it can!..."replied the members, and members voted in favour of endorsing the ESA' board's decision to change the formal name of the ESA to the ELECTRICITY STORAGE ASSOCIATION. We already have the website www.electricitystorage.org and a link has now been made to use this as the portal to our website. New materials are

now being produced to reflect the change of name.

If you spot a newspaper, magazine, article or whatever that is publishing similar statements that you can't store electricity, please let us know. If it is a website, perhaps you would e mail a link to info@electricitystorage.org as we may compile a "hall of shame" as part of our efforts to change the public's and the industry's perception of our activities.

The ESA annual meeting.....

..... Electricity storage is big!



The huge scale of the Raccoon Mountain Pumped Hydro Electric Storage plant reflected the great interest in electricity storage at the recent ESA meeting. This year, more than 80 people interested in electricity storage met in Chattanooga, Tennessee to hear about, discuss and look at electricity storage. There was plenty to talk about, and some highlights follow in this newsletter.

What do we have to do to keep the lights on?

Mike Gent of NERC in the opening session explained the operation of the NERC, set out the current status of transmission and generation in North America and implored the members of the ESA to do more to get their message across that electricity storage is a viable part of today's power networks. He commented that the approach in California had been to "let a thousand flowers bloom but the state had ended up with a weed patch."



Mike Gent of NERC smiling in the dark of the conference room.

John Wagemaker of American Superconductor followed Mike with a description of the D-SMES project for Wisconsin Public Service. 6 SMES units have been deployed to improve system reliability in Wisconsin, showing considerable financial savings over the alternative options.

Other speakers also built on the need for storage and illustrated its benefits. John Wehner of FPL described why battery storage would be ideal for California. A question from the floor about the demise of the Chino 10 MW

battery project emphasized the ongoing need for storage.

Electricity storage can be small too!

In contrast to the power capacity of large-scale batteries, Tom Geist of EPRI's PEAC gave a useful description of ultracapacitors. For those whose experience of capacitors was limited to low-power traditional devices, there was plenty of new information to capture their interest. New types of asymmetric ultracapacitors now allow high power devices to be built. Coupled with advanced voltage source power converters, a new range of electricity storage devices is now available. Some of these were on display at the visit to PEAC at the close of the conference.



A range of supercapacitors on display at PEAC

Later in the meeting Alfred Rufer, from the Ecole Polytechnic in Lausanne spoke about the use of supercapacitors in energy storage systems for elevators and trolleybuses. Supercapacitors are a new technology, worth watching.

Pork bellies and electricity price spikes

Terry Boston, Executive VP of the TVA returned to the theme of the meeting as he spoke over lunch “Pork bellies have freezers, grain has silos, but electricity has price spikes....that’s why we need electricity storage”. He went on to describe the public interest duties of TVA and its role in power system planning, which ultimately led to the construction of the Raccoon Mountain project, completed in 1979. With 1600 MW maximum output and the capability of discharging for 22 hours, this was a great example of storage being used to support a power network. TVA is building a new energy storage plant in Mississippi using the Regenesys technology. A description of this new project was given later by Joe Hoagland, also of TVA.

Brad Roberts of S&C Electric gave another example of real dollars being spent on real energy storage projects. S&C had just completed the installation of a 12.5 MVA storage project at a microelectronics factory in Arizona. With a payback of less than 24 months, and no interruptions to the utility service during installation, he illustrated how storage can be of benefit today. This was not an isolated case, as other follow-on projects by S&C are in the pipeline.

The international dimension

The audience needed no reminders that electricity storage is an international business. Johan Beukes of Stellenbosch University in South Africa gave a presentation on the results of field tests on energy storage systems in South Africa being undertaken by Eskom, the South African utility. Separate presentations by Sumitomo Electric Industries and NGK Insulators gave a flavor of the large number of projects under way in Asia, especially Japan. NGK have developed small and large-scale sodium sulfur batteries (up to 6 MW), which are now in use on a number of sites in Japan. Sumitomo Electric Industries have just completed a 3 MW project at a semiconductor plant in Japan and are also building projects associated with windpower and power quality based on the Vanadium Redox Battery. The relevance of storage to large windpower installations was dramatically illustrated in a following session by Kent Sobrink’s description of wind power in Denmark.

There are many types of batteries now available. Ian Grant of eVonix described his company’s refuelable, rechargeable zinc air battery, and Jim McDowall of SAFT followed last year’s presentation on lithium batteries by talking this year about supercapacitors in the members’ new section.

We also received presentations from EPRI, Sandia National Laboratories, and Venture Development Corporation and several updates from members in the “Member News” section.

Board elections

This year there were two vacancies on the ESA board. Mike Behnke of Xantrex stepped down after two and a half years' service. Anthony Price of Innogy stood for re-election. He was re-elected and Ali Nourai of American Electric Power was elected. Our thanks to Mike Behnke for his work and support for the ESA, especially for carrying out the duties of Secretary.

Phil Symons requested support from all members to assist us in our efforts. A number of members have already volunteered and the board will be co-opting them into service over the coming months.

Dr William Hassenzahl, our Executive Director for the ESA meeting will be reporting back to the ESA board on his interactions with members and non members.

We always try to include one or more site visits at the ESA meetings. This often provides an opportunity to look at energy storage in action. This year we visited the Raccoon Mountain pumped hydro storage plant and also visited EPRI's Power Engineering Applications Center in Knoxville. Most members find these trips worthwhile, especially as they provide many opportunities to meet and talk with other members and guests. This year we also held a dinner and social on the Southern Belle riverboat during an evening cruise on the Tennessee River.

We would like to thank TVA for all their support in assistance in organising this meeting. We appreciated the tour! Thank you also to PEAC for arranging the tour around their facility.

We are also very grateful for all the speakers and presenters who contributed to such a successful meeting.



Dale Bradshaw of TVA and Steve Eckroad of EPRI enjoying the river cruise.



The turbine hall of the Raccoon Mountain Pumped Hydro Storage Plant.

1600 MW, one thousand feet inside the mountain!

Bill Hassenzahl admiring the Urenco flywheel under demonstration at the PEAC.



EPRI's fork lift truck, powered by supercapacitors!

Meeting feedback

Thank you to all those who filled in their meeting feedback forms. We received 47 forms, which was a very good response rate. The replies are being looked at, there are many good points made, good suggestions and a number of offers of help.

Do also let us know if you have any suggestions for future meetings: either topics for sessions or nominations for presentations or keynote speakers. Your help is very welcome!

Meeting proceedings

We are producing a CD that will contain copies of the slide presentations made at the meeting. All the presentation materials have now been received, the proceedings have been compiled and the finishing touches are being put to the CD and it is about to be duplicated. These will be sent to everyone who attended as well as to the named contact of member organizations if they were not represented at the meeting. We are very pleased to have received a number of requests for the proceedings from non-members. Copies will be available for sale at a special rate of \$500. We have decided that we should charge for these documents as we are a membership organization and this is one of the key benefits to our members. (The CD will also include a copy of the proceedings from last year's meeting.)

CD's should be dispatched by June 10th. We will put an announcement on the website to confirm that they have been dispatched. If you would like to purchase one, please send an e mail to info@electricitystorage.org so that we can let you know the arrangements for payment details.

EESAT 2002, ESA Spring meeting 2002

We are looking at an arrangements for these important meetings in the electricity storage calendar. The dates initially selected for the EESAT meeting are during the week of April 15th, 2001. If you know of any significant clash of dates, please let Phil Symons know as soon as possible as these dates need to be confirmed very soon. The venue is probably to be San Francisco in California. More details of the conference and ESA meeting will be distributed as they become available.

ESA Board of Directors

The current board members and their affiliations are:

Officers:

Chairman: Dr Phil Symons Electrochemical Engineering Consultants
(pcsymons@ix.netcom.com)

Secretary: Ben Norris Gridwise Engineering Company

Treasurer: Les Fairchild Georgia Power

Members:

Dale Bradshaw (Tennessee Valley Authority)

Jim McDowall (SAFT America)

Ali Nourai (American Electric Power)

Anthony Price (Publicity) (Innogy)

Gerard Thijssen (KEMA)

Brad Roberts (Membership) (S&C Electric Company)

Secretarial and administrative assistance is provided by Cricket Rubino.

You can contact them directly through their company e mail (as listed on the ESA website) or by sending mail to info@electricitystorage.org and it will be forwarded to them.

The ESA website

The website is under continual review, and if members have information (but not direct advertising) that could be added please forward it by e-mail to info@electricitystorage.org **Please would members verify their public listing information on the website.** This free advertisement service is a member benefit. Many visitors to the site use the links as a means of contacting members so **please help us to keep this information accurate.**

We would also like to increase the amount of general information on the website. If you have any suggestions or material that could be displayed (for example details of completed or proposed projects) please let Ali Nourai know.

The IEEE Power Engineering Society

A panel session on energy storage will be run at the 2001 IEEE/PES Transmission & Distribution Conference and Exposition, to be held in Atlanta from October 28 - November 2. Our participation in this event is being co-ordinated by Jim McDowall (of SAFT) with Mike Behnke (of Xantrex) and Brad Roberts (of S&C) also on the panel .

The PES Stationary Battery Committee will also be organizing a series of papers on battery cycling issues, to be presented at the PES Winter Meeting 2002 in New York on January 27-31, 2002. The committee has invited the participation of ESA members in this effort, and an announcement will be made at the Annual Meeting. If you would like to contribute, contact Jim McDowall. jim.mcdowall@saftamerica.com,

Other news

We are looking at the possibility of an ESA meeting in Europe, probably Germany, in September 2001. The meeting will include visits to at least two energy storage sites, one battery, one SMES.! **Full details are not yet available but will be announced as soon as they are known.**

This newsletter is distributed by the ESA. It is posted on the ESA website and also sent by email to our members and to those on the “friends of the ESA” list. You can help by

- ◆ forwarding this newsletter to your personal contacts who have an interest in electricity storage
- ◆ letting us know if you have received this newsletter indirectly and would like to be put on our mailing list. The easiest way is to register on our website, alternatively send an e mail to info@electricitystorage.org
- ◆ letting us know if you have received this by e mail and want to be removed from our list. Please do this by email to info@electricitystorage.org
- ◆ sending us any relevant information for the newsletter or the website.

Thank you

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