



2003 Annual Meeting
May 21, 22
Sheraton Gateway Suites



Chicago Illinois



A fair wind for storage in Chicago

Fifty-five members and guests attended the ESA 2003 Annual Meeting in Chicago on May 21st and 22nd. We had switched the venue from Toronto only a few weeks previously, so it was very encouraging to see so many present at the introductory session. Dr. William Hassenzahl, the meeting Chairman, opened the meeting and introduced Dr. Philip Symons, the ESA chairman. Phil reminded us that although we had a great message, it was not necessarily getting through to the right people. He quoted a member of the Californian senate who had recently repeated the oft misconception; "Electricity deregulation would not ever work because electricity cannot be stored." Phil said that the purpose of this meeting was to show that this was not true.

Electricity Storage and the electric grid of the future

The meeting showed that the ESA is changing – with an emphasis on commercial, regulatory and institutional matters – we were moving into areas of debate that continue to affect the core business of our members. A key feature of the expanded program this year was more time for interaction and networking – a vital part of our meeting.

The presentations of the first session set our thinking at high level. Dr. Imre Gyuk, of the Department of Energy (DOE) brought us up to date with the latest changes in the organization and strategy of the Department. The new Office of Electricity Transmission and Distribution (OETD) will impact on the strategy for development of the power network, and provide enhanced opportunities for research and development projects in many technologies. Dr. Gyuk expected the budget for storage development to rise to \$18 million in year 2005 – a major increase from the present level of \$5 million. Dr. Gyuk's talk was wide ranging and thought provoking – challenging us to make sure that energy storage will be recognized as a technology of benefit to society. Dr. Gyuk closed by reminding us of three major projects which illustrated the relevance of storage: the 1 MW 1 minute flywheel system for the New York subway, the 120 MWh flow battery for TVA and the 27 MW battery for Golden Valley.

The theme of renewed interest in storage was developed further by Pramod Kulkarni of the California Energy Commission (CEC). Pramod explained a CEC initiative to seek proposals for projects that will demonstrate electrical energy storage, show cost effectiveness and reliability and be capable of replication and wider adoption in the future. Offline discussions relayed the importance of this initiative. Members who are not aware of

the CEC program on energy storage may wish to check the CEC website for more details.

Further signs that electricity storage is gaining a much higher standing include a recent "Vision Report" of the Department of Energy, which highlights energy storage. Brad Roberts of S&C Electric attended DOE's Vision meeting and he reported back to us about this initiative. Sixty-five senior executives from utilities, equipment manufacturers, academia, and government agencies gathered to hear an announcement of a major governmental effort on the electrical system and to assist in identifying the key elements needed to transform the electric grid in North America and revolutionize electric power. The attendees collectively agreed that energy storage is an essential ingredient in revolutionizing the grid and enhancing power quality.

The ESA is viewed by the DOE as a key resource for identifying and enabling breakthrough storage technologies that support the vision for the electric grid of the future.

Late Breaking News

DOE's Dr. Gyuk announced that a follow on Roadmap Workshop for the new DOE Office of Electricity Transmission and Distribution will take place in Washington, D.C. on July 8-9. It will be an open meeting to develop a National roadmap for electricity delivery. Breakout sessions will cover National, Regional, and Local distribution. It is desirable that Electricity Storage be well represented at the meeting and ESA members are urged to attend. Details will appear on the ESA website.

Other conference news

Deregulation and Electricity Storage

Dr. Robert Schinker of EPRI and Dr. William Hassenzahl of Advanced Energy Analysis made two complementary presentations covering regulatory impacts on energy storage and the current status of transmission reform by the Federal Energy Regulatory Commission (FERC). The discussion was right up to date and included discussions of the just published white paper that negates several of the suggestions in the Notice of Proposed Rule Making that would have established a published by FERC in 2002. Robert and Bill expanded on the content of the white paper and highlighted many areas where energy storage could and should make an impact in the future.

Technologies

Pumped storage plants account for just under 3% of generating capacity in the US. The latest plants have a cycle efficiency of about 80%, compared to 60% achieved by plants built in the 1960's. Peter Donalek of MWH used some interesting statistics to illustrate the improvements in efficiency that could be achieved by using adjustable speed generator motors in new or refurbished pumped hydro plants. Besides a 3% improvement in efficiency, Peter explained that adjustable speed motors could also be used to regulate system frequency in the pumping mode, allow the plant to pump at part load and operate with reduced vibration. Peter gave many examples of this new technology being used and

highlighted the Goldisthal project in Germany which was partially commissioned this year.

Many ESA members were unaware of the significance of ice thermal storage, but Mark McCracken of Calmac Corp. soon cleared up any misunderstandings with an excellent description of ice making and storage as part of a building management strategy. It was not just a question of demand side management, as the operating schedule for the plants aimed to minimize the life cycle cost to the customer including the total power bill and the capital cost of the ice storage facility.

The energy saving theme was developed further by Ben Norris who was able to show photographs and give a progress report on the Greenpoint Photovoltaic/Storage hybrid project in Brooklyn, New York. Again, it was interesting to see the operating schedule for this facility, which optimized the use of PV, without comprising the local distribution network.

Bob Hanes, of Haddington Ventures provided an update on the Norton CAES plant with some views on regulatory matters which affect the introduction of storage plants. He included in his comments some views on national security and the benefit of including energy storage as part of the plans to improve security of the power infrastructure. The Norton project will have 2700 MW of CAES when completed, and Bob commented that there were other project developers who were looking to develop CAES projects elsewhere in the US. There is now a considerable resurgence of interest in CAES and we are looking forward to the start of a new project in the near future.

50 MW every year

Kazohuto Furata of NGK Insulators Ltd showed some updated information on the manufacturing capability of NGK to produce the NAS battery. The plants at Nagoya and Komaki in Japan could produce 50 MW of NAS batteries each year and would be capable of increasing production to 65 MW in 2004. Ali Nourai of AEP, followed Mr Furata, by reporting on the first six months of the NAS demonstration at AEP. Ali passed on many useful comments about this first NAS demonstration in the US.

International Capacity

Haresh Kamath of EPRI / PEAC and Philippe Barrade of the Ecole Polytechnic Federal de Lausanne both spoke about new developments in capacitors. Haresh proposed the establishment of standards as a means of characterizing electrochemical capacitors. In contrast, Philippe talked about a specific application on an electric trolley bus line in Switzerland where capacitors could be used to improve the concurrent operation of several vehicles without having to upgrade the electrical feeder.

Back to the bottom line

Costs and benefits were the subject of two presentations by Joe Iannucci of Distributed Utility Associates and John Boyes of Sandia National Laboratories. Matt Lazarewicz followed this with a new look at the way of

comparing energy storage devices – questioning the rationale for sticking to \$/kW or \$/kWh as the only metrics to be considered.

Spinning reserve and spinning energy

Jim McDowall should have been in Alaska during the conference watching the birth of the Golden Valley 27 MW battery. He managed to find time to present a progress report to the meeting, highlighting the scale of the project and covering the commercial and technical reasoning for the project. Andy Ranson of Urenco Power Technologies left us in no doubt that the 1 MW bank of flywheels installed for the New York Transit Authority were a major advance – providing a range of benefits to the user and setting high standards for follow on projects elsewhere.

The Energy Storage Council

Jason Makansi of the Energy Storage Council introduced the work of the ESC to our members. He suggested that the two organizations should have complimentary roles. He gave the background to the ESC and emphasized his objectives for promoting energy storage in the public policy arena. He was looking to build coalitions with similarly minded organizations and promote the interests of his members. His talk was topical and timely and it encouraged a wide debate on several key issues.

Member News

There was a real international flavor to the member updates section of the program, and many members took up our offer to make brief announcements or presentations to the meeting.

Subhas Chalasani of Valence Technology told us of the recent developments in the safe Safion™ technology used in their Lithium ion battery. Valence has launched a new battery system and this has now been extensively tested prior to commercial launch.

Violaine Dorval of Avestor, the Canadian lithium metal polymer battery manufacturer, gave their first presentation at an ESA meeting. She talked about the battery's characteristics and their manufacturing capability of 120 MWh / year this year to convince us that this was a technology worth watching.

High numbers of storage plants were also the watchword in Brad Roberts' presentation. Brad, representing S&C Electric Company,

told us that there were now over 50 MW of large scale UPS installed by his company in operation. This is one of the major successes of DOE's energy storage program. S&C were now moving into new areas such as transmission voltage support projects and wind energy voltage stabilization. This was also developed by Gerard Thijssen of KEMA, in the Netherlands, who reported on a recent study to examine how a greater proportion of wind power could be developed in the Netherlands and how storage might be a suitable enabling technology.

The closing presentations developed the theme of rotation. Vince Scaini of SatCon and Alex Rojas of Beacon Power Corporation both had messages about their companies' use of flywheel based energy storage systems. The final message reflected reciprocating machinery rather than just rotation. A novel internal combustion engine (The isoengine) with high operating efficiency could be operated as a compressed air energy storage system. The system had been developed at Innogy in the UK and was announced by one of the designers' former colleagues.



The ESA website

Ben Norris's work on the ESA website has been well received by our members. We are able to analyze the sessions on the website and a short report on the statistics will be sent to ESA members only. This gives useful information on the range and number of enquiries through our website – and, in particular, a comparison between inquiries related to specific technologies. ESA members should expect to receive their report by email in the next three or four weeks.

Membership and subscriptions

We are still expecting to receive membership dues from a few of our members. If you haven't yet paid your dues for 2003, please process these as soon as possible. You can pay on line through our website using your credit card. For members who require an invoice please contact our treasurer Les Fairchild by email on L.Fairchild@electricitystorage.org

ESA meeting proceedings

A CD containing copies of the presentations made in Chicago is being prepared and will be sent within a few weeks to all those who attended the meeting and to all members who have paid their dues.

Future events

EESAT 2003

EESAT 2003 will be held in the popular city of San Francisco from Monday October 27 to Wednesday October 29. The venue is the Sir Francis Drake, a very convenient city center hotel. As well as an interesting program of presentations and papers, there will also be a banquet in the Tommy Toy's restaurant, with French / Chinese Cuisine. More information is available on the Sandia website www.sandia.gov/eesat/ The ESA is a sponsor of EESAT, and there are preferential rates for ESA members.

Global Business Continuity, London October 7 – 9

This conference is being organized by IIR conferences and will include sessions on the importance of power in business continuity. We hope that a number of ESA members will present papers at this conference and that others will find it of interest. More details on www.iir-conferences.com/gbcc

Flemish engineers

A major European Meeting on energy storage will be held at the Technical Institute of royal Flemish engineers in Ostende on June 21-23, 2004. The ESA is a sponsor of this meeting and will host a reception during the meeting. The EPRI European office is also assisting in its organization. Watch the ESA website for details.

ESA 2004 and 2005

Our next meeting will be held in Columbus, Ohio on May 18 – 21, 2004 . We shall hold our 2005 meeting in Toronto, from 23 – 25 May. Again details to follow in subsequent newsletters and on the ESA website.

The ESA Board

On the day before the ESA meeting, members of the ESA's board of directors met for the final session of the term. As well as finalizing the arrangements for this meeting, the board discussed and agreed changes to the bylaws in order to establish a rotation of the chairmanship. Committee memberships for the Advisory Committee, Publicity Committee and Membership Committee were filled. The board also agreed to hold the next annual meeting in Columbus Ohio in May 2004 and to take up the offer to visit Toronto in 2005.

The ESA elections

Directors of the ESA are elected by the members at the Annual meetings and serve for a period of two years. This year, Phil Symons, Les Fairchild, Ali Nourai, Bill Hassenzahl and Anthony Price reached the end of their term. Phil and Anthony did not offer themselves for re-election. Two candidates had been nominated for election, Mike Hoffman of BPA and Mark Kuntz of Regenesys Technologies. They were duly elected. Note that appointments to the board of directors are held in a personal capacity and not that of the member company or organization.

At the first meeting of the new board of directors, Les Fairchild was elected treasurer, Ben Norris was elected secretary. Bill Hassenzahl was elected Chairman and Jim McDowall was elected to a new position of Vice Chair, and Chair elect. It is expected that Jim will become Chairman in two years' time. Bill Hassenzahl appointed Phil Symons to the board as a voting member with the title Immediate Past President.. At the conference dinner on Wednesday, Phil received a vote of thanks for his sustained hard work since the formation of the ESA .



New members

We have had several new members joining us this year. We shall be adding their details to our website over the next few weeks. These include:

Vycon Inc, a company which designs and manufactures a line of high-speed energy storage flywheel systems with power outputs ranging from 100 kW to 1.5 MW. Further information is available from Louis Romo by email to LROMO@VYCONENERGY.COM

Symmorphix, a materials development and process company with a range of expertise of relevance to many electrical energy storage developers. Their website is www.symmophix.com

Swanbarton Consultants, a new firm of energy and technology consultants with a special interest in electrical energy storage. They are based in the UK with a website at www.swanbarton.com

Please would all new members who wish to be included in future Newsletters send their details to newsletter@electricitystorage.org

We are always happy to include some short items from members for this newsletter. If you have information about projects, products or other news that you would like published in this format please send them to newsletter@electricitystorage.org

ESA website www.electricitystorage.org



**The Electricity Storage Association
1295 Kelly Park Circle
Morgan Hill
CA 95037
USA**

telephone +1 408 607 2899