Grid Energy Storage at Sandia: Strategic Outreach

Sandia’s Strategic Outreach Program enables the sharing of resources, practices, and technologies for the large-scale adaptation of energy storage across the electricity infrastructure.

Sandia’s Energy Storage Program
Modernization of the electricity infrastructure is critical for the economic vitality and the future of the country. Sandia’s support for this grid modernization vision includes a broad research program in energy storage technologies and systems. The laboratories’ work is focused on making energy storage cost effective through research and development (R&D) in new battery technology development and advancements in power electronics and power conversion systems, improving the safety and reliability of energy storage systems, and enabling the deployment of new energy storage technologies in the electric grid. Sandia’s grid energy storage research is primarily supported by the U.S. Department of Energy’s (DOE) Office of Electricity Delivery and Energy Reliability (OE) – Energy Storage Program.

The Challenge
The new ideas, practices, and technologies that energy storage can contribute to grid modernization continue to grow as time goes on. In order to integrate them into the grid, however, they need to be reviewed, tested, and challenged by others so that only the most robust technologies are adopted.

In order to challenge new technologies and facilitate the exchange of ideas, Sandia’s Strategic Outreach program aims to connect public and private partners so that ideas can be shared and tested by relevant stakeholders.

Sandia’s Solution
Sandia has been the lead lab in grid energy storage for nearly 20 years and has a strong partnership with the DOE OE and Energy Storage Program Director, Dr. Imre Gyuk. Through demonstrated contributions to the development of grid storage technology, Sandia has enabled the introduction of new storage technologies into the U.S. electricity grid. As a trusted advisor for industry and researchers, Sandia shares the latest information in order to continue the advancement and deployment of energy storage systems.

Outreach Activities
Sandia provides an assortment of services that ultimately lead to a wealth of information regarding energy storage and potential for the continued exchange of this information:

- DOE/OE Energy Storage Systems Website
- The DOE Global Energy Storage Database
- The Electricity Storage Handbook
- The Southwest Public Utility Regulatory Commissions Energy Storage Workshop
- DOE/OE Energy Storage Program Annual Peer Review
- The Electrical Energy Storage Applications and Technologies (EESAT) Biennial Conference
DOE Global Storage Energy Database
Sandia maintains the DOE Global Storage Energy Database which provides free and up-to-date information on grid connected energy storage projects and any relevant state and federal policies. All information regarding the systems is vetted by a third-party, and it can be exported to Excel or a PDF format. The database contributes to the rapid development and deployment of energy storage and is accessible online at www.energystorageexchange.org.

Electricity Storage Handbook
The handbook is a resource that adds to the body of knowledge about electrical energy storage systems and serves as a how-to guide for utility and rural cooperative engineers, planners, and decision makers to plan and implement energy storage projects. The collection of information can also be used by academia, R&D professionals, and codes and standards reviewers, providing the latest developments in technologies, cost of current storage systems, and interconnection schematics. The Handbook is jointly sponsored by the U.S. Department of Energy and the Electric Power Research Institute in collaboration with the National Rural Electric Cooperative Association.

Southwest Public Utility Regulatory Commissions Energy Storage Workshop
Held in May 2016, this workshop established a platform for commissioners and their staff to exchange information about regulations, including how to integrate energy storage as a resource in the grid. The discussion between the national laboratories, state and federal government, industry, and congressional staff allowed the commissioners to develop a path forward to gathering state and regional data to promote energy storage.

DOE/OE Energy Storage Program Annual Peer Review
Peer review serves as a platform to present DOE/OE funded work before science and engineering colleagues to describe how the work met certain criteria. Some of the assessed criteria includes progress, valuable results, and innovations on basic and applied research projects, appropriateness of approaches and methods, and competency of personnel and adequacy of resource.

Electrical Energy Storage Applications and Technologies (EESAT) Conference
Since 1998, the biennial EESAT Conference provides a platform for industry and research institutions to revisit R&D, technologies, applications, and projects that have helped to shape the science and industry of energy storage. It also allows for presentations about new directions for energy storage and how it can address challenges of the smarter, more modern electricity grid.

Impact
Sandia collects key information on current and future storage technologies and acts as a clearinghouse for the information so that it can be effectively disseminated among key stakeholders and the community. Whether conducting strategic communication initiatives, managing websites and databases, or organizing reoccurring events, these activities further collaboration between energy storage professionals.

For more information please contact:
Jacquelynne Hernández
E-mail: jhernan@sandia.gov
Phone: (505) 844-6576
Website: energy.sandia.gov