Energy &
Homeland Security
energy.sandia.gov

GRID ENERGY STORAGE AT SANDIA: STRATEGIC OUTREACH

Sandia's Strategic Outreach Program enables the sharing of resources, practices, and technologies for the large-scale adaption 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 website, accessible at www.sandia.gov/ess, serves as a trusted communication portal to accurately report the achievements, projects, publications, and upcoming events supported by the DOE/OE Energy Storage Program. It also improves the collaboration between the three leading labs in energy storage: Sandia, Pacific Northwest National Laboratory, and Oak Ridge National Laboratory.

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.

OUTREACH ACTIVITIES INCLUDE THE FOLLOWING:

- The 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

U.S. DEPARTMENT OF ENERGY | NNSA National Nuclear Security Administration

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND2010-6954P

Sandia National Laboratories

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.

ENERGY STORAGE CONFERENCES, WORKSHOPS, AND FORUMS

The Energy Storage Strategic (ESS) Outreach program develops and supports communication and outreach activities that target specific audiences; its goal is to demonstrate the societal benefits of electrical energy storage. The ESS Outreach established a platform that encourages information exchange through technical conferences, workshops, and other forums to clearly demonstrate how energy storage is (can be) an integral part of how the electrical grid is managed. The discussion between national laboratories, industry partners, academia; and local, state, tribal, and federal governments contribute to the roadmap for a much smarter grid.

DOE ANNUAL PEER REVIEW MEETING

The Office of Electricity Delivery and Energy Reliability (OE) annual Peer Review and Update Meeting is a programmatic review of projects funded by the DOE OE Energy Storage Program. The DOE OE Energy Storage Program includes a broad and comprehensive portfolio of projects covering storage technologies (e.g., advanced batteries, flywheels, electrochemical capacitors, CAES) for utility-scale and standalone applications, power electronics research, and modeling and analytical studies on reliability, performance, and economic benefits for grid integration and off-grid applications.

DOE OE PEER REVIEW
Santa Fe, New Mexico | September 25-27, 2018

DOE OE Peer Review 2017

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.

CONTACT:

Will McNamara
jwmcnam@sandia.gov
(505) 206-7156

U.S. DEPARTMENT OF ENERGY | NNSA National Nuclear Security Administration

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND2017-8254 M.

Sandia National Laboratories