



Energy Storage Systems Program at Sandia National Laboratories

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Sandia National Laboratories is a multiprogram Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

FY10 SNL ESS Program

FY10 Budget ~\$11 M

- **System and Prototype Development**
 - HYBSIM model development
 - Boeing Superconducting Flywheel
 - ABMASS Hybrid Controller
 - Iowa Stored Energy Project
 - CEC Support
 - NYSERDA Support



Molecules to Megawatts

FY10 SNL ESS Program

- **Applied Research increased to \$2.3 M**
 - **Develop Ionic Liquid Electrolytes for Flow Batteries**
 - **N2-O2 Battery Feasibility**
 - **CRADA formed with East Penn Manufacturing Co. to study carbon additions to plate structure of lead acid battery**
 - **Advanced Flywheel Materials**
- **\$2.8 M University Solicitation**
- **Power Electronics**
 - **ETO Statcom**
 - **FACTS Advanced Control Algorithms**
 - **High Temperature Controller**
 - **PE Reliability**



Molecules to Megawatts

FY10 SNL ESS Program

- **Testing**
 - 1 MW Energy Storage Test Facility (ESTF) initiated
 - Lead Carbon, Li Ion Battery Testing to Several Application Profiles
- **Economics, Applications and Benefits**
 - Economic Analysis
 - Benefits Analysis
 - Societal Benefits Study Targeting Regulators



Molecules to Megawatts

FY10 SNL ESS Program

- **Modeling and Analysis**
 - Solicitation for energy storage modules for utility planning software
 - CAES Cavern Modeling
 - Value of Storage for Renewables

Molecules to Megawatts

Personnel Changes

- **Nancy Clark Retiring Dec., 2010**
- **John Boyes Retiring Dec., 2010**
- **Ross Guttromson hired as Energy Storage Program Manager**
- **Terry Aselage will lead Applied Research Area**
- **Karen Waldrip will assume Nancy's Electrochemical Research Lead Role**