

# ADVOCATE ENERGY STORAGE SYSTEMS TO MEET STANDARDS



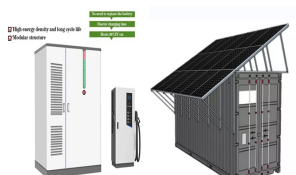
What is energy storage R&D? Under this strategic driver, a portion of DOE-funded energy storage research and development (R&D) is directed to actively work with industry to fill energy storage Codes & Standards (C&S) gaps. A key aspect of developing energy storage C&S is access to leading battery scientists and their R&D insights.



What safety standards affect the design and installation of ESS? As shown in Fig. 3, many safety C&S affect the design and installation of ESS. One of the key product standards that covers the full system is the UL9540 Standard for Safety: Energy Storage Systems and Equipment. Here, we discuss this standard in detail; some of the remaining challenges are discussed in the next section.



What if energy storage system and component standards are not identified? Energy Storage System and Component Standards 2. If relevant testing standards are not identified, it is possible they are under development by an SDO or by a third-party testing entity that plans to use them to conduct tests until a formal standard has been developed and approved by an SDO.



Do energy storage systems need a CSR? Until existing model codes and standards are updated or new ones developed and then adopted, one seeking to deploy energy storage technologies or needing to verify an installation's safety may be challenged in applying current CSRs to an energy storage system (ESS).



Does industry need energy storage standards? As cited in the DOE OE ES Program Plan, "Industry requires specifications of standards for characterizing the performance of energy storage under grid conditions and for modeling behavior. Discussions with industry professionals indicate a significant need for standards [1, p. 30]."

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What is a safety standard for stationary batteries? Safety standard for stationary batteries for energy storage applications, non-chemistry specific and includes electrochemical capacitor systems or hybrid electrochemical capacitor and battery systems. Includes requirements for unique technologies such as flow batteries and sodium beta (i.e., sodium sulfur and sodium nickel chloride).



A portfolio of 44 battery storage systems across San Diego County aimed at adding more emissions-free energy to California's electric grid is about to roll out, with one location in Chula Vis???



UL 9540, the Standard for Energy Storage Systems and Equipment, is the standard for safety of energy storage systems, which includes electrical, electrochemical, mechanical and other types of energy storage technologies ???



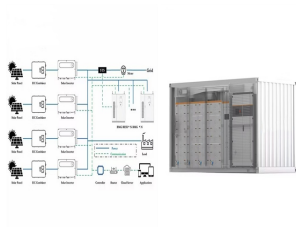
EPRI Battery Energy Storage System (BESS) Failure Event Database<sup>3</sup> showing a total of 16 U.S. incidents since early 2019. Nevertheless, failures of Li ion batteries in other Installation of ???



These committees advise the Clean Energy Council on policy and industry development issues in specific areas of the clean energy industry. Clean Energy Council committees bring together leading stakeholders to discuss the key ???

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The ESS project that led to the first edition of NFPA 855, the Standard for the Installation of Stationary Energy Storage Systems (released in 2019), originated from a request submitted on behalf of the California Energy ???