

Economic and Policy Analyses Provide Key Perspectives on Energy Storage

Sandia National Laboratories identifies opportunities for economical investment in grid energy storage technologies by integrating economic criteria and policy examination.

Establishing Economic Competitiveness

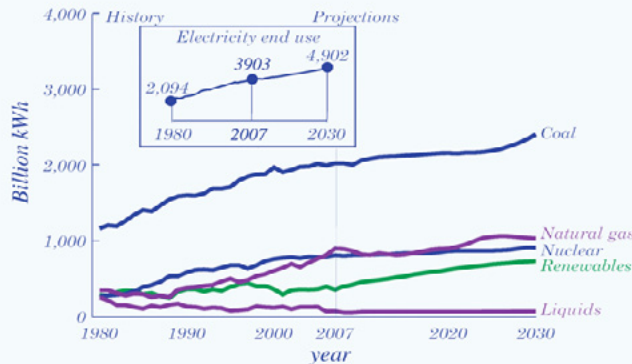
Energy storage technologies can transform electric systems operation by providing flexibility. This can improve the efficiency of electric system operation. For example, energy storage systems can smooth the

otherwise variable production of renewable energy technologies and help shift the peak demand to reduce peak electric prices.

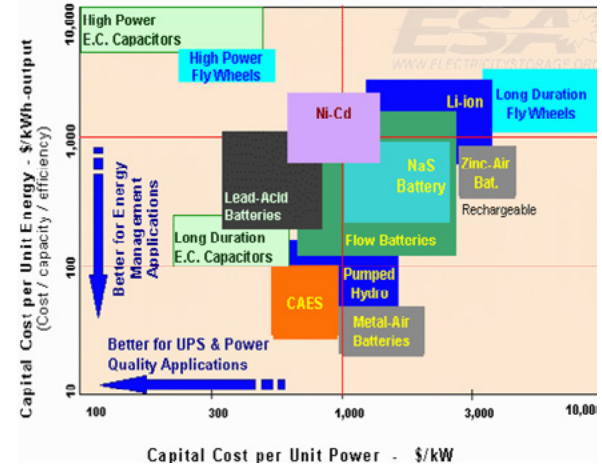
Though energy storage technologies can be game-changing grid technology, they must inevitably compete with alternative

technologies solving similar problems. This means they must offer greater value at lower cost, while continuing to adhere to industry regulations and policy requirements. To this end, Sandia National Laboratories identifies opportunities for investment in grid energy storage technologies by integrating economic criteria and policy examination. This allows researchers to evaluate their economic competitiveness.

US electricity consumption projected to increase by 1% per year to 2030. Increase of 25% by 2030.



source: Annual Energy Outlook 2009 Early Release Overview, Energy Information Administration



Increasing Economic Benefit in Energy Storage Technology

Sandia also develops methods to evaluate the economics of energy storage technologies. Researchers combine multidisciplinary expertise with sophisticated computational modeling to demonstrate how energy storage technologies can be effectively deployed in the grid. Illuminating specific developments that improve the economics of energy storage technologies, these evaluations unearth opportunities for improving energy storage. This input is used to produce and optimize increasingly competitive and economically-beneficial technology.

Filling the Gaps and Improving Systems

Given the dynamic relationship of economics, engineering and technology, Sandia's use of economics and policy analysis is an innovative approach to solving complex problems in the grid. Currently Sandia is working with state and local utility commissions by offering perspectives on the opportunities for investing in energy storage in regulated utility areas. Several projects are underway working with utilities dedicating a portion of their grid to storage technologies. Performance and cost evaluations are done using a production cost model. In addition to increasing involvement with local utilities, this facilitates an increasingly active exchange addressing local utilities' problems and national grid challenges.

Exploring Integration Opportunities

Sandia investigates how energy storage technologies contribute to electric systems using detailed economic and policy analyses. These approaches analyze the value energy storage technologies can provide in restructured wholesale markets and regulated utility environments in an era of emerging retail markets, smart grids and penetration of renewable energy. Combining diverse multidisciplinary expertise, researchers evaluate critical dimensions of the dynamic and highly complex environment to identify the best opportunities where energy storage technologies will be the most competitive and beneficial.

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