



PSERC WEBINAR

Large-Scale Electric Energy Storage Integration in Grids with Integrated Renewable Energy Resources

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The electricity business is the only industry sector that sells its MWh commodity without sizeable inventory. This marked lack of utility-scale storage makes electricity a highly perishable commodity produced by a prototypical just-in-time manufacturing system. Moreover, the limited storage capacity in today's grid severely limits the flexibility with which the grid can be operated – a particular concern for systems with deepening penetrations of integrated renewable energy resources.

A grid with integrated storage resources offers multiple benefits, such as the time shift of energy utilization to shave the peak demand, improved harnessing of energy from renewable resources and reduction in the reserves requirements that are met by power plants that pollute. Storage also has numerous applications in both short- and long-term planning and in operations over a broad time spectrum. While the pace of ESR deployment has been slow in the past, recent technology and regulatory developments indicate major shifts in the economics and deployment of storage in transmission/distribution networks.

This presentation discusses the critical importance of energy storage, its current status and the challenges/opportunities in the push for large-scale storage deployment. The effective resolution of these issues can harness the benefits of storage large-scale deployment and facilitate sustainable paths to meet future energy needs.

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George Gross is Professor of Electrical and Computer Engineering and Professor, Institute of Government and Public Affairs, at the University of Illinois at Urbana-Champaign. His research and teaching activities are in power system analysis, economics and operations, renewable, demand response and energy storage resource integration, utility regulatory policy and industry restructuring. He was formerly with the Pacific Gas and Electric Company, where, Dr. Gross founded the company's Management Science Department and held other key management, technical and policy positions. During 1992-93, Dr. Gross was at the Electric Research Power Institute to develop research directions on open access transmission. George Gross is a co-founder of POWERWORLD and served on its Board of Directors from 1996 – 2001.

A Fellow of IEEE, Dr. Gross received the Franz Edelman Management Science Achievement Award by the Institute of Management Science. Dr. Gross has consulted on electricity issues with utilities, government organizations and research institutions in North America, Europe, South America, Australia and Asia. He has lectured widely and has given numerous invited presentations at leading universities and research institutions throughout the world. George Gross did his undergraduate degree at McGill University in Montreal and completed his graduate studies at the University of California, Berkeley.