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Energy Storage Systems Course - Technology Integration

View Course Details

COURSE DATES AND TIMES

April 20-21 , 2026

10:00 am - 4:30 pm ET

Energy Storage Systems Course Overview

This course will provide students with a comprehensive understanding of the energy storage revolution. Specifically, students will gain insight into how to design and procure electrochemical energy storage systems, including the full life cycle process from sourcing to recycling.

Emphasis will be on grid-scale (or utility-scale) battery energy storage as a means of addressing the intermittency of renewable energy components (e.g. solar or wind power systems) and grid stability. Smaller energy storage systems will also be discussed such as residential and C&I energy storage systems.

Importance of Energy Storage

There is a global imperative to integrate electric utility grids and renewable energy supply. Driving innovation in energy storage technologies that have the potential to revolutionize how energy is stored.

Energy Storage Systems modernize the T&D grid by supporting power and energy in several important ways:

- Voltage and reactive power support
- Frequency regulation
- Spinning and operating reserves

- Decreasing the need for transmission upgrades
- Shifting Energy, Arbitrage and Firm Capacity
- Grid Smoothing, Black Start, and Backup
- Incorporating renewable assets into a smart grid

Energy Storage Systems will decrease the costs of supplying electricity. As Energy Storage System prices drop dramatically, especially with the mass production of lithium batteries in electric vehicles and ESS, this industry will see dramatic growth.

Training Course Highlights

- Challenges of Grid Stability
- Energy Storage System Technologies
- Energy Storage System Applications
- Energy Storage Systems and the Utility Grid
- Residential, Commercial Microgrids and Utility-Scale Energy Storage Systems
- Energy Storage Projects and Life Cycle
- Economics of Energy Storage
- Business Models for Energy Storage
- Policies and Future Technologies

Learning Outcomes

- Understand major energy storage system types and emerging technologies
- Evaluate current and future energy storage solutions and applications
- Analyze how energy storage systems interact with the electrical grid
- Address energy storage requirements from both policy and technology perspectives
- Design, correctly specify, and procure energy storage system components
- Integrate energy storage systems into existing electrical infrastructure
- Analyze operational performance and financial program data
- Support customers in developing practical energy storage solutions
- Communicate energy storage concepts clearly within and outside the organization
- Avoid costly mistakes when implementing new energy storage technologies

WHO SHOULD ATTEND

- Energy Service and Electrical Contractors
- Electric Utility T&D Infrastructure Managers
- Electrical Project Managers
- Electrical Engineers working in Industrial, Commercial and Institutional Power Systems

STUDENTS RECEIVE

- Energy Storage Systems Course Certificate

- 1.2 Continuing Education Unit (CEU) Credits (12 Professional Development Hours)
- **$100 Coupon** Toward Any Future Electricity Forum Event (Restrictions Apply)
- Our Latest Electrical Transformer Digital Handbook!! (Value $20)
- **FREE** Magazine Subscription (Value $50.00)
- Course Materials In PDF Format

COURSE OUTLINE

Energy Storage Systems Course Program Outline

DAY ONE

SESSION ONE: OVERVIEW

- Challenges of grid stability (Variable Renewable Energy (VRE) integration, demand changes, disruptions, etc)
- Energy storage system applications (use cases)
- Energy Storage Market overview

SESSION TWO: ENERGY STORAGE TECHNOLOGIES

- Mechanical storage (pumped hydro, compressed air, flywheel and other)
- Electrical storage (capacitor and supercapacitor)
- Electrochemical storage (lithium-ion, lead-acid, zinc-hybrid cathode, sodium-sulphur, redox flow and other)

SESSION THREE: BATTERY ENERGY STORAGE SYSTEMS

- System topology
- Energy Storage System Components
- Coupling alternatives (standalone or coupled to generation, AC and DC coupling, etc…)
- Characteristics and parameters
- System Sizing
- Fire safety

CASE STUDY

DAY TWO

SESSION FOUR: BATTERY ENERGY STORAGE PROJECTS

- Design
- Procurement
- Construction
- Testing and commissioning
- Operation
- Maintenance
- Decommissioning and recycling

SESSION FIVE: ECONOMICS AND BUSINESS MODELS

- Economics of energy storage
- Business models for energy storage
- Policies and energy storage future directions

SESSION SIX: OPEN SESSION

- Session dedicated to individual areas of interest

COURSE SCHEDULE

Both Days:

Start: 10:00 am Eastern Time

Finish: 4:30 pm Eastern Time

Contact us Today for a FREE quotation to deliver this course at your company's location.

Request Quote