

Engineering Courses

Power Market Fundamentals

Training objectives:

This course will focus on the economic forces that drive utility decisions, including new policies related to the energy transition and global decarbonization efforts. We will explore the structure of the utility and power generation businesses and focus on profitable utility operations, for both ratepayers and shareholders. This course will describe how generation owners, and utility and system operators make economic decisions in order to optimize power systems. Participants will obtain a basic knowledge of power economics to meet power system demand and will learn the impact of transmission and security constrained dispatch. This course will provide a general overview of operational costs including fuel, the physics of electricity generation and how these costs impact economics within the grid.

The course is intended for:

Engineers, equipment owners, managers, planners, policymakers, and analysts who work for electric utilities or power supply companies who make decisions that require an understanding of how the power system impacts the economics of generation and utility planning and operations.

Main features:

- Basic economic concepts, including application to electric utilities such as discounting, carrying charges, cost-benefit analysis, rates & pricing, and integrated resource planning
- Tools and techniques for economic studies including benefit/cost ratio determinations, comparing financial data and differences in future alternatives
- Understanding power market structures (regulated and restructured), including energy, capacity and ancillary services markets and their interaction with production costs, and how these markets are evolving as power systems decarbonize
- Relating the goals of an ISO/RTO to the operation of an ISO/RTO
- How generators costs are modeled for commitment & dispatch purposes
- How to minimize balancing area electricity production costs
- How generator features & functions can impact system dispatch including security constraints
- Relationship of generators costs of operation and their physics of operation. Fuel to electricity conversion rates (efficiencies) for most generation types are introduced.
- Simulation exercise to learn least cost commitment & dispatch decision criteria, using a portfolio of generation within a context similar to regulated utilities
- Simulation exercise to learn bidding behavior/revenue maximizing decisions, within a context of an IPP competing in a wholesale market ,including negotiation of fuel contracts versus spot market supply

Recommended prior knowledge:

Basic knowledge and familiarity with the electric power industry. The course is held in English.

Note: The course is held in English. Class subject to change. Class times are 8-4.

For more information visit: www.geenergyconsulting.com



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