



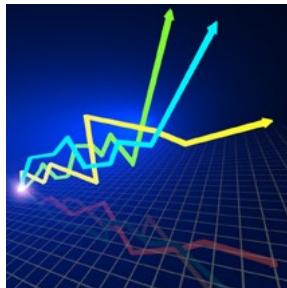
Course length: Two days

Prerequisites: None

CPE credits: 16

A two-day entry-level introduction to the business of electricity

The electric industry is a unique and complex mix of business, regulation, and technology. Understanding its language, markets, and operational practices can be overwhelming to those entering the workforce and can take years of on-the-job training. Electric Industry Basics is ideal for those new to the industry as well as those more experienced who seek a thorough overview of the electric industry and how it operates. This course examines electricity's physical system, customers, markets, regulation, and operations, and also explores the future of the electric business based on current trends and forces that are driving industry change.



WHO WILL BENEFIT FROM THIS SEMINAR?

- New hires, summer hires, and interns working in the electric industry
- Regulatory employees requiring a fundamental electric business overview
- Sales professionals and technical employees such as system operators, engineers, and information technology professionals requiring a fundamental electric business overview
- Professionals in the legal, finance, accounting, PR, and communications fields who are becoming active in the energy industry
- Virtually any industry employee with limited experience in the business side of the industry

WHAT PARTICIPANTS WILL LEARN

- A big-picture perspective of how the electric business operates
- The various types of electric customers, how they use power, their specific needs, and how services are designed to meet those needs
- How electricity is generated and how the transmission and distribution systems deliver that electricity to customers
- How system operators decide what types of generation to dispatch and how they operate the complex electric system at high levels of reliability
- Which segments of the industry are regulated and how regulation functions in setting rates, determining services, driving infrastructure decisions, and controlling utility profits
- How electric markets work, the various market structures used in different regions, and how competitive markets continue to evolve
- Who the key industry participants are and how they use physical and financial strategies to make money and manage risk
- The key forces driving the future of the electric business

COURSE AGENDA

Introduction

- What is electricity and how does it work?
- Why is electricity so important to our society?
- Electric units and additional concepts

Electric Customers

- The three key customer classes and how each uses electricity
- Daily and annual load shapes and why these drive much of the industry
- How customer demand is forecast in the short term and long term
- How customer behavior affects the cost to serve
- Services available to end-use customers including distribution, supply, and behind-the-meter services
- Typical rate options for customers in a regulated market
- How end users buy electricity in competitive markets

The Physical System

- How utilities and ISOs develop long-term planning for system resources
- How electricity is generated
- The various types of generation and their characteristics (fixed costs, variable costs, operational flexibility, locational value, environmental issues)
- How generation is scheduled in the day-ahead given these characteristics and how it is used in real-time operations
- How demand side management can be used as a resource
- What a transmission system is and the various components that it comprises
- Transmission system costs and characteristics
- The five transmission grids in North America
- What a distribution system is and the various components it comprises





- Distribution system costs and characteristics
- Three distribution system designs and when each is used

Operating an Electrical System

- The roles of an electric system operator
- NERC and reliability oversight of system operators
- How operators handle short-term and seasonal planning of their system
- How electricity is scheduled and why certain units are run and others are not
- How supply and demand are balanced on a moment-by-moment basis in real time
- Seven ancillary services, what they do, and why we need them

Regulation and Ratemaking

- What does regulation do? Why is it so important in the electric industry?
- Who the regulators are, and who regulates what
- Four key types of regulatory proceedings
- The eight steps in the regulatory process and what happens during each step
- How cost-of-service based rates are set: setting authorized rates of return, determining the rate base, determining the revenue requirement, forecasting usage, determining cost allocations, determining rate structures, calculating rates
- What is incentive regulation and why is this sometimes preferred to more traditional forms of regulation?
- When are market-based rates used?

Markets

- The concept of deregulation/restructuring and how it requires unbundling of vertically integrated utilities
- In which areas of the electric industry does it make sense to allow competition?

- Five electric market structures that exist in the U.S. today and the advantages/disadvantages of each
- The difference between an organized ISO marketplace and a bilateral vertically integrated marketplace and where each exists in North America
- How power is bought and sold under different market structures including how ISO markets work, services that are bought and sold, and what locational marginal pricing is
- How market prices vary over time and what drives prices
- Electric supply choice in North America today - which states have it and which do not and how this is evolving
- A look at the ideal outcome of deregulation, and then a look at what has really happened to date

Making Money and Managing Risk

- How various market participants make money and how it's different for regulated and unregulated companies
- Seven risk factors in the electric business and what a company can do to manage risk exposures
- Why electric prices are volatile and how they can they be hedged
- The physical and financial tools used in electric risk management and who provides them
- Using Value at Risk to measure levels of risks and the need for additional stress testing

The Future

- What you might expect in regulation, technology, and markets
- Utility challenges and opportunities
- Business issues associated with low load growth coupled with growing distributed energy
- Evolution of the delivery system to a "smart grid" with a web of distributed and centralized resources
- Impacts of climate change and greenhouse gas regulation

- The future engaged electric customer
- New utility business models
- The evolving workforce

