CONCEPT

Electricity Markets and Power Trading: Market Design, Wholesale Pricing and Energy Risk

12 – 16 September 2027
Riyadh - KAFD district five-star



Electricity Markets and Power Trading: Market Design, Wholesale Pricing and Energy Risk

Ref: 369_15739 **Date:** 12 – 16 September 2027 **Location:** Riyadh - KAFD district five-star **Fees:** 20000 SAR

Introduction:

Electricity markets and power trading expose utilities, independent power producers and market bodies to price spikes, imbalance charges and counterparty losses when market rules, clearing prices and hedge positions are poorly understood. This Core Concept course explains how vertically integrated, single buyer, wholesale pool and bilateral market designs form wholesale prices through the merit order and marginal pricing, how capacity and ancillary services are paid, and how forwards, futures and contracts for differences hedge generation and retail load. Participants build a Power Portfolio Hedging and Market Risk Plan.

Course Objectives:

- Compare vertically integrated, single buyer, wholesale pool and bilateral market designs and explain how each allocates price, volume and dispatch risk between participants
- Construct a merit order stack and calculate system marginal prices, congestion effects and imbalance charges across day-ahead, intraday and balancing markets
- Evaluate capacity mechanisms, ancillary service payments and network tariff components as revenue and cost lines for generators and suppliers
- Structure hedges for generation output and retail load using baseload and peak forwards, power futures and contracts for differences
- Measure power portfolio risk with mark-to-market, Value at Risk and counterparty credit exposure and set trading limits from the results
- Apply market power screens and surveillance checks to bidding and trading data and prepare a Power Portfolio Hedging and Market Risk Plan

Target Audience:

- Utility commercial staff responsible for wholesale purchasing, power sales and tariff analysis
- Independent power producer trading and portfolio staff responsible for selling plant output and hedging fuel and power prices
- Retail supply staff responsible for forecasting customer load and buying shaped power volumes
- Energy risk and middle office staff responsible for mark-to-market, Value at Risk, limits and credit exposure on power books
- Regulatory and market monitoring staff responsible for market rules, price reviews and surveillance of participant behaviour
- System and market operations staff responsible for scheduling, balancing and settlement of electricity trades

Course Outline:

Day 1: Electricity Market Structures and the Physics Behind Power Prices

- Vertically Integrated Utility and Single Buyer Models: Tariff Setting and Dispatch Authority
- Wholesale Pool and Bilateral Trading Models: Bids to Buy, Offers to Sell and Self-Scheduling
- Non-Storability, Real-Time Balance and Load Duration Curve Analysis
- Market Participant Map: Generators, Retail Suppliers, System Operator and Market Operator
- Network Tariff Overview: Use-of-System, Connection and Loss Charges in the Delivered Price

Day 2: Merit Order, Marginal Pricing and Market Design Mechanisms

- Merit Order Stack Construction from Short-Run Marginal Cost and Heat Rates
- Pay-as-Clear Versus Pay-as-Bid Auctions and System Marginal Price Setting
- Locational Marginal Pricing, Congestion Rents and Financial Transmission Rights
- Day-Ahead, Intraday and Balancing Market Sequence with Imbalance Settlement
- Capacity Mechanisms, the Missing Money Problem and Ancillary Services Such as Frequency Response and Operating Reserves

Day 3: Power Trading Instruments and Hedging Generation and Retail Positions

- Baseload, Peak and Off-Peak Forward Products and Delivery Period Shaping
- Exchange-Traded Power Futures Versus Over-the-Counter Forwards: Clearing, Margin and Settlement Index
- Contracts for Differences Against a Strike Price: One-Way and Two-Way Settlement Calculation
- Generator Hedging with Spark Spread, Clean Spark Spread and Dark Spread Positions
- Retail Supplier Hedging of Shaped Load Profiles, Volume Risk and Imbalance Exposure

Day 4: Energy Risk Metrics, Regional Interconnection and Market Monitoring

- Power Portfolio Mark-to-Market and Value at Risk with Price Spike and Volatility Stress Tests
- Counterparty Credit Exposure: Potential Future Exposure, Collateral Thresholds and Netting Agreements
- Cross-Border Interconnection and Regional Trading Overview: Transfer Capacity Allocation and Market Coupling
- Market Power Indicators: Concentration Index, Pivotal Supplier Test and Capacity Withholding Screens
- Market Surveillance Checklist: Manipulation Red Flags, Trade Reporting and Front, Middle and Back Office Segregation

Day 5: Modelling Build: Power Portfolio Hedging and Market Risk Plan

- Case Data Pack: Gas-Fired Generator and Retail Supplier Hourly Price and Load Series
- Merit Order Price Forecast and Spark Spread Margin Scenario Model Build
- Hedge Ratio Selection Across Forwards, Futures and Contracts for Differences in a Spreadsheet
- Market Monitor Case: Reviewing a Price Spike Event and Generator Bidding Behaviour
- Power Portfolio Hedging and Market Risk Plan Presentation and Peer Challenge

Skills You Will Gain:

- Market Design Comparison
- Merit Order Modelling
- Wholesale Price Formation Analysis
- Imbalance Settlement Calculation
- Power Derivative Hedging
- Spark Spread Analysis
- Energy Credit Exposure Measurement
- Market Surveillance Screening

Why Attend This Course:

- Return with a Power Portfolio Hedging and Market Risk Plan modelled on hourly price and load data and tested before peers
- Read a clearing price, an imbalance invoice or a capacity payment and explain to management what drove it
- Work in the same terms as traders, system operators and market monitors when market rules change or prices spike
- Compare market practice with peers from utilities, independent producers, retail suppliers and market oversight bodies

Conclusion:

Electricity cannot be stored at scale, so every market design must balance supply and demand in real time and put a price on that balance. The course moves from market structures and network tariffs, through merit order pricing, balancing, capacity and ancillary services, to forwards, futures and contracts for differences for generators and retailers, then to Value at Risk, credit exposure, interconnection and market monitoring. The final day turns these methods into a Power Portfolio Hedging and Market Risk Plan ready for review by commercial, risk and regulatory colleagues.