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COURSE BROCHURE

Advanced Electricity Supply and Demand Economics Training Course

14 – 25 February 2027
Abu Dhabi

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Advanced Electricity Supply and Demand Economics Training Course

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Electricity Supply and Demand Economics is a 2-week advanced training course for energy economists, system planners and commercial managers who build an electricity market outlook for investment and pricing decisions. Fuel price swings, fast demand growth and rising variable renewable output now move power prices and plant returns more sharply than before. Jupiter Prime Training delivers this course on the economics behind supply, demand and price in the power sector.

Why Electricity Supply and Demand Economics Matters Now

Three forces shape power sector economics today. Electrification of transport, cooling and industry is lifting consumption and reshaping peak hours. Solar and wind output is changing the daily supply shape and pushing down clearing prices at midday while raising the value of firm capacity in the evening. Fuel and carbon costs link electricity to gas and oil markets. Organisations that read these signals well commit capital at the right time and set retail prices that recover costs; those that misread them face stranded plant, reserve shortfalls or a mounting subsidy burden. The course rests on established tools of power economics: load duration curves, screening curves, merit order dispatch and discounted cash flow appraisal.

Who Gains Most from Electricity Supply and Demand Economics

- Specialists who forecast electricity consumption and peak load for utilities and system operators
- Analysts who model wholesale prices, fuel costs and plant dispatch
- Planners who set reserve margins and schedule new generation and storage
- Commercial leads who price offtake contracts and evaluate plant acquisitions
- Advisers who assess tariff reform, subsidy burden and carbon cost effects

A utility or ministry planning unit gains most when its forecasting, pricing and investment staff attend together and leave with one shared view of the power system.

Electricity Supply and Demand Economics Capabilities

Participants move from consumption data and plant cost curves to price paths and investment signals they can defend before boards and policy makers.

- Build demand scenarios from econometric and end-use methods — capacity planning committees
- Construct a supply stack and calculate clearing prices — wholesale trading and contract pricing
- Assess reserve margins and the missing money gap — reliability and capacity procurement decisions
- Test plant returns with simulation and real option methods — investment committees
- Weigh fuel allocation between domestic burn and export — energy ministries and national fuel suppliers
- Communicate subsidy and price reform effects on each customer group — finance and social policy leaders

Key Electricity Supply and Demand Economics Terms

- Merit order — The ranking of generating plants by short-run marginal cost, used to decide dispatch and the wholesale clearing price.
- Load duration curve — A chart that sorts hourly demand from highest to lowest, showing how many hours each load level occurs.
- Screening curve — A plot of annual cost per unit of capacity against running hours, used to pick the least-cost technology mix.
- Price elasticity of demand — The percentage change in electricity consumption that follows a one per cent change in price.
- Reserve margin — Installed firm capacity above expected peak demand, expressed as a share of that peak.
- Spark spread — The difference between the power price and the fuel cost of generating one unit from a gas plant.

Electricity Supply and Demand Economics Day by Day

Day 1: Forces Reshaping Power Sector Economics

- Demand Growth Drivers — Electrification, Cooling Load and Industrial Expansion
- Fuel Price Linkages — Gas, Oil and Coal Pass-Through to Power
- Variable Renewable Output — Shifts in Daily Supply Shape
- Market Structure Choices — Single Buyer Versus Competitive Wholesale
- Policy Signals — Carbon Pricing, Subsidy Reform and Efficiency Rules

Day 2: Load Curves and Consumption Behaviour

- Hourly Load Profiles — Peak, Shoulder and Base Segmentation
- Load Duration Curves — Sizing Need for Each Plant Type
- Price Elasticity Estimates — Response of Households and Industry
- Weather Normalisation — Separating Climate Effects From Trend Growth
- Sector Consumption Splits — Residential, Commercial and Industrial Outlooks

Day 3: Demand Forecasting Methods

- Econometric Demand Equations — Income, Price and Population Drivers
- End-Use Bottom-Up Models — Appliance Stock and Efficiency Gains
- Scenario Construction — High, Central and Low Demand Paths
- Peak Demand Projection — Coincidence Factors and Temperature Sensitivity
- Forecast Error Tracking — Back-Testing Against Recorded Consumption

Day 4: Generation Cost Structures

- Fixed and Variable Cost Split — Capacity Versus Energy Charges
- Heat Rate Curves — Fuel Burn at Part Load
- Screening Curves — Least-Cost Technology for Each Running Hour
- Levelised Cost Comparisons — Strengths and Blind Spots of the Metric
- System Integration Costs — Balancing, Curtailment and Network Reinforcement

Day 5: Merit Order and Wholesale Price Formation

- Supply Stack Construction — Ranking Plants by Short-Run Marginal Cost
- Marginal Pricing Logic — Who Sets the Clearing Price
- Scarcity Pricing — Price Spikes and Revenue for Peaking Plant
- Renewable Merit Order Effect — Falling Prices at Low Net Load
- Fuel and Carbon Sensitivity — Shifts in the Clearing Price

Day 6: Capacity Adequacy and Investment Signals

- Reserve Margin Targets — Reliability Standards and Loss of Load
- Missing Money Problem — Energy-Only Revenue Shortfalls for Firm Plant
- Capacity Payment Designs — Auctions, Contracts and Strategic Reserves
- Storage and Demand Response Value — Firm Capacity Contribution
- Retirement Economics — Mothballing, Life Extension and Replacement Timing

Day 7: Gas and Power Market Interactions

- Gas Supply Contracts — Take-or-Pay Terms and Flexibility Limits
- Spark Spread Analysis — Gas Plant Margin Under Price Scenarios
- Fuel Allocation Trade-Offs — Domestic Burn Versus Export Value
- Dual-Fuel Capability — Switching Economics During Supply Stress
- Liquid Fuel Displacement — Opportunity Cost of Oil Burn

Day 8: Project Appraisal Under Uncertainty

- Discounted Cash Flow Models — Net Present Value and Internal Return
- Discount Rate Selection — Cost of Capital for Power Assets
- Monte Carlo Simulation — Probability Ranges for Plant Returns
- Real Option Thinking — Value of Delay, Staging and Flexibility
- Offtake Contract Terms — Volume and Price Risk Allocation

Day 9: Policy Effects and Price Reform

- Subsidy Burden Measurement — Gap Between Cost and Retail Price
- Retail Price Reform Paths — Phasing, Targeting and Social Protection
- Carbon Cost Pass-Through — Effects on Dispatch and Investment
- Efficiency Standards Impact — Avoided Generation and Peak Reduction
- Distributional Analysis — Effects on Households, Industry and Treasury

Day 10: Practising the Electricity Market Outlook

- Demand Scenario Assembly — Applying Forecasting Methods to a Case System
- Supply Stack Modelling — Testing Prices Against Fuel and Carbon Paths
- Adequacy Check — Reserve Margin Gaps and Investment Timing
- Project Screening — Ranking Candidate Plants Under Uncertainty
- Electricity Market Outlook — Presenting Prices, Adequacy and Investment Signals

Applying Electricity Supply and Demand Economics After the Course

- Re-run the organisation's demand forecast with weather-normalised history and three scenarios, and present the peak load range to the planning committee.
- Build a supply stack for the current fleet and test how clearing prices and plant margins move under alternative gas and carbon cost paths.

Electricity Supply and Demand Economics Questions FAQ

What is electricity supply and demand economics and why does it matter now?

Electricity supply and demand economics explains how consumption, plant costs and fuel prices set power prices and investment needs. It matters now because electrification, renewable growth and volatile fuel costs are shifting peak hours, prices and the value of firm capacity at the same time.

Which roles gain most from electricity supply and demand economics training?

Demand forecasters, market price analysts, generation planners, commercial contract leads and tariff advisers gain most. Each uses the same forecasts, supply stacks and appraisal methods, so mixed teams from one utility or planning unit benefit from attending together.

How does electricity supply and demand economics differ from a power project finance course?

It works at system level rather than deal level. A project finance course structures debt and cash flows for one asset; this subject explains the demand, price and adequacy conditions that decide whether any asset is needed and what revenue it can expect.

What do you bring back from electricity supply and demand economics training?

You bring back an electricity market outlook built on a case system: demand scenarios, a supply stack with price paths, a reserve margin check and a ranked list of candidate plants, ready to adapt to your own fleet and data.

Electricity Supply and Demand Economics: The Way Forward

The electricity market outlook first informs how much new firm capacity to procure and when. Planners, commercial teams and finance leads use it to set reserve targets, price contracts and phase tariff reform. After its first use, revisit the demand elasticity assumptions and the fuel price paths, since these move fastest and change the investment signal most.