ADVANCED ENERGY ECONOMICS



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Introduction

Advanced Energy Economics Training Course develops the analytical framework that governs how energy markets price, allocate, and invest. Energy sits at the intersection of commodity markets, geopolitics, regulation, and long-lived capital. Decisions made on a faulty economic reading carry consequences for decades. This course builds that reading systematically. It covers supply and demand fundamentals, price formation, and market structures across oil, gas, and power. Furthermore, it applies marginal cost analysis, rent capture, fiscal regimes, and energy transition economics. In addition, it covers investment appraisal, risk analysis, and policy impact assessment. As a result, participants evaluate energy decisions with rigorous economic reasoning.

Advanced Energy Economics Course Objectives

- Explain energy supply and demand fundamentals across oil, gas, and power.
- Apply price formation concepts and interpret market structures.
- Analyse marginal cost, scarcity rent, and resource depletion economics.
- Evaluate fiscal regimes including royalties, production sharing, and taxes.
- Apply netback, gross margin, and project economics to energy assets.
- Appraise energy investments using NPV, IRR, and real options.
- Model energy price scenarios and quantify uncertainty.
- Assess energy transition economics including renewables and storage.
- Evaluate carbon pricing, subsidies, and policy interventions.
- Analyse energy security, geopolitics, and market risk exposure.

Course Methodology

- Interactive lectures with real energy market and project cases.
- Supply and demand modelling and price curve workshops.

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- Fiscal regime and netback calculation exercises.
- Energy investment appraisal and scenario modelling practice.
- Structured peer review with facilitator feedback on economic analysis.

Who Should Take This Course

- Energy analysts and economists.
- Oil, gas, and power sector professionals.
- Corporate planning and strategy specialists.
- Investment and project finance analysts.
- Regulators and policy advisors in energy.
- Consultants advising on energy markets and transactions.

Advanced Energy Economics Course Outlines

Day 1: Energy Fundamentals and Market Structure

- Energy supply and demand fundamentals.
- Primary energy mix and the role of oil, gas, and coal.
- Electricity markets and power pool structures.
- Market participants: producers, traders, and consumers.
- Liberalised versus regulated market models.
- Energy balances, statistics, and data sources.
- Case study: analysing an energy market's structure and pricing.

Day 2: Price Formation and Market Dynamics

- Commodity price formation and the role of benchmarks.

- Brent, WTI, and gas hub pricing mechanisms.
- Contango, backwardation, and storage economics.
- Refining margins and crack spread analysis.
- Seasonality, inventory cycles, and demand patterns.
- Price volatility drivers and speculation.
- Workshop: building an energy price scenario curve.

Day 3: Resource Economics and Fiscal Regimes

- Marginal cost, average cost, and scarcity rent.
- Reserve depletion and Hotelling's principle.
- Petroleum fiscal regimes: royalties, PSCs, and tax systems.
- Government take, contractor take, and netback calculation.
- Cost recovery mechanisms and profit oil splits.
- Fiscal modelling and sensitivity to price and cost.
- Workshop: modelling netback and take under a fiscal regime.

Day 4: Project Economics and Investment Appraisal

- Cash flow modelling for energy assets.
- NPV, IRR, payback, and profitability index in energy projects.
- Discount rate selection and cost of capital for energy.
- Real options and staged investment decisions.
- Sensitivity, scenario, and Monte Carlo analysis.
- Break-even price and economic limit calculation.
- Workshop: appraising an energy project and its break-even.

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Day 5: Energy Transition, Policy, and Risk

- Renewables economics: LCOE and capacity factors.
- Storage, flexibility, and grid economics.
- Carbon pricing, emissions trading, and CCUS economics.
- Subsidies, incentives, and policy intervention analysis.
- Energy security, geopolitics, and supply disruption risk.
- Stranded asset risk and transition scenario planning.
- Course review, assessment, and action planning.

Conclusion

By successfully completing Advanced Energy Economics, participants will gain a thorough understanding of energy market fundamentals, price formation, resource and fiscal regime economics, project appraisal, energy transition economics, carbon pricing, and policy and risk assessment. They will also acquire practical skills in energy market and price analysis, fiscal regime and netback modelling, energy project appraisal and scenario analysis, and transition policy and risk assessment. In addition, the course prepares them to support energy investment and policy decisions with rigorous economic evidence. Gentex Training Center delivers this programme with a strong focus on applied energy economics and defensible analytical conclusions.

FAQs for Advanced Energy Economics course

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Q1 What is the "Advanced Energy Economics" course about?

It is a five-day programme on the economics that drive energy markets and investments. It covers supply and demand fundamentals, price formation and market structures, resource and fiscal regime economics, energy project appraisal, energy transition economics, carbon pricing, and policy and risk analysis.

Q2 What are the key benefits of the "Advanced Energy Economics" course?

Participants evaluate energy decisions with disciplined economic reasoning rather than market intuition. The course improves price and market analysis, sharpens fiscal regime and netback comparison across jurisdictions, strengthens project appraisal and break-even calculation, quantifies price and policy uncertainty, prepares for transition and stranded asset risk, and raises the quality of investment and policy recommendations.

Q3 What skills will I gain from the "Advanced Energy Economics" course?

Participants gain energy market and price formation analysis, fiscal regime and netback modelling, energy project appraisal and scenario analysis, and energy transition policy and risk assessment. These four skills cover the practical core of energy economics work.

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Q4 What tools, methods, or standards are covered in the "Advanced Energy Economics" course?

The course covers energy supply and demand fundamentals, primary energy mix analysis, electricity market and power pool structures, liberalised and regulated market models, energy balance and statistical data sources, benchmark pricing including Brent, WTI and gas hub mechanisms, contango and backwardation analysis, storage economics, refining margin and crack spread analysis, seasonality and inventory cycle analysis, marginal and average cost analysis, scarcity rent, reserve depletion and Hotelling's principle, petroleum fiscal regimes including royalties, production sharing contracts and tax systems, government take and contractor take calculation, netback analysis, cost recovery and profit oil split mechanisms, price and cost sensitivity modelling, energy asset cash flow modelling, net present value, internal rate of return, payback and profitability index appraisal, discount rate and cost of capital selection, real options and staged investment analysis, Monte Carlo simulation, break-even price and economic limit calculation, levelised cost of electricity and capacity factor analysis, storage and grid flexibility economics, carbon pricing and emissions trading, CCUS economics, subsidy and incentive analysis, energy security and supply disruption risk assessment, stranded asset risk evaluation, and transition scenario planning.

Q5 How is the "Advanced Energy Economics" course applied in real-world practice?

Participants apply the methods to live market and project questions. They analyse supply and demand balances, build price scenario curves, calculate refining and netback margins, compare fiscal regimes across jurisdictions, model project cash flows, appraise investments with NPV and IRR, determine break-even prices, run Monte Carlo and transition scenarios, and assess stranded asset exposure. Many leave with a price scenario model, a fiscal and netback template, and a project appraisal workbook ready to use.

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