

# Integrated Energy Price Forecasting and Model Validation Training Course

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Istanbul

AGILE LEADERS
Training Center

# Integrated Energy Price Forecasting and Model Validation Training Course

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## Overview

Integrated Energy Price Forecasting and Model Validation Training Course is a one-week advanced course for energy analysts, economists, strategists, planners, and commercial functions who leave with an Integrated Energy Price Forecast and Validation File. Participants connect crude oil price forecasting, natural gas price forecasting, refined product price forecasting, energy market balance analysis, and forecast model validation to produce scenario ranges, diagnose errors, and support decisions. Agile Leaders Training Center presents integrated energy price forecasting and model validation.

## Who Should Attend

- Market analysis functions responsible for supply, demand, inventory, benchmark, and price outlooks
- Refinery planning functions responsible for product yields, margins, cracks, and feedstock assumptions
- Natural gas commercial functions responsible for weather, storage, transport, and seasonal price views
- Risk and procurement functions responsible for forecast ranges, exposure assumptions, and decision thresholds
- Corporate planning functions responsible for macroeconomic, policy, and market scenario inputs

The course assumes participants can work with market data and spreadsheet-based analysis, and it leaves out trading execution, derivatives hedging, generic chart analysis, and corporate financial forecasting.

## Departments and Industries

The course supports departments and industries that build, challenge, or use energy price outlooks.

- Oil and gas market analysis and commercial planning
- Refining, fuels marketing, and supply optimization
- Power generation and industrial energy procurement
- Transportation, aviation, and logistics planning
- Banking, consulting, and commodity risk analysis

## Learning Objectives

By the end of this course, participants will be able to:

- Build linked balances for crude oil, natural gas, and refined products
- Analyze benchmarks, differentials, curves, seasonality, and inventories
- Apply econometric and time-series models to price forecasts
- Evaluate refinery margins, crack spreads, and transport constraints
- Diagnose forecast errors through backtesting and model validation
- Use scenario ranges and governance controls in decisions

## Course Agenda

### Day 1: Structure Linked Energy Markets

- Crude Oil Supply-Demand Balance Model
- Natural Gas Storage and Weather Driver Map
- Refined Product Yield and Availability Balance
- Benchmark and Location Differential Matrix
- Integrated Market Assumption Register

### Day 2: Interpret Curves and Conversion Economics

- Forward Curve and Term-Structure Analysis
- Seasonality and Inventory Cycle Decomposition
- Refinery Margin and Crack Spread Model
- Transportation Constraint and Basis Risk Map
- Cross-Market Price Transmission Diagram

### Day 3: Build Forecast Models

- Econometric Driver Selection Framework
- Time-Series Trend and Seasonality Model
- Lag Structure and Variable Stability Test
- Scenario Assumption and Price Range Matrix
- Forecast Combination and Weighting Method

### Day 4: Validate and Govern Forecasts

- Rolling Backtest Design and Benchmark Comparison
- Forecast Error Metric and Bias Dashboard
- Residual Diagnosis and Model Failure Log
- Model Governance and Change-Control Record
- Decision-Use and Forecast Communication Pack

## Day 5: Practice Integrated Forecasting

- Suggested Exercise: Reconcile Oil, Gas, and Product Balances
- Suggested Exercise: Interpret Curves, Cracks, and Differentials
- Suggested Exercise: Build Scenario Price Ranges
- Suggested Exercise: Backtest and Diagnose a Forecast Model
- Capstone Exercise: Complete the Integrated Energy Price Forecast and Validation File

## Practical Exercises

The course uses suggested activities to connect market evidence, models, validation, and decision communication.

- Suggested activity: reconcile supply, demand, inventory, storage, refinery, and transport assumptions across linked markets.
- Suggested activity: build base, upside, and downside price paths using econometric and time-series evidence.
- Suggested activity: compare forecast errors, diagnose bias and instability, and record model changes.
- Suggested activity: present forecast ranges, assumptions, uncertainties, and decision implications in one file.

## FAQs

### Who suits integrated energy price forecasting training, and what does it assume?

Integrated energy price forecasting training suits analysis, economics, commercial, refinery, risk, procurement, and planning functions. It assumes participants can interpret market data and use spreadsheet-based analysis.

### How does integrated energy price forecasting differ from energy trading and hedging training?

Integrated energy price forecasting develops linked market balances, statistical models, scenario ranges, backtests, and governance records. Trading and hedging training concentrates on transaction execution, instruments, positions, and risk-transfer decisions.

### How are crude oil, natural gas, and refined product forecasts linked?

Linked forecasts reconcile supply, demand, inventories, storage, refinery conversion, product yields, transport constraints, benchmarks, and differentials while preserving the distinct drivers of each market.

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## How is an energy price forecast model validated?

Energy price forecast validation compares out-of-sample results with benchmarks, measures error and bias, examines residual patterns and instability, tests assumptions, and records model changes and limits.

## How should energy price forecast uncertainty be communicated?

Energy price forecast uncertainty is communicated through scenario ranges, explicit assumptions, driver sensitivities, model limits, error history, and decision thresholds rather than a single unsupported point estimate.

## Conclusion

Participants take back an Integrated Energy Price Forecast and Validation File linking balances, market drivers, models, scenarios, backtests, errors, and governance controls. The file changes separate outlook calculations into one traceable forecasting record. It supports planning assumptions, procurement reviews, refinery decisions, risk discussions, and forecast updates.