CONCEPT

Weather Derivatives and Weather Risk Management: HDD, CDD and Parametric Hedging

7 – 11 June 2027
London - Central London four-star



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Introduction:

Weather derivatives and weather risk management matter when a mild winter, a cool summer, a still week or a dry season cuts sales volumes and moves prices at the same time, leaving utilities, renewable generators, agribusinesses and insurers with earnings swings that price hedges alone cannot absorb. This Core Concept course shows how to measure weather sensitivity, build HDD, CDD, cumulative and event indices, compare swaps, options, collars and parametric cover, price them with burn analysis and index modelling, and control basis and station data risk. Each participant produces a Weather Hedge Design and Pricing Proposal.

Course Objectives:

- Quantify how temperature, wind, solar irradiance and rainfall move sales volumes, prices and gross margin using regression on historical weather data
- Specify HDD, CDD, cumulative and event weather indices, including base temperature, reference station, accumulation period, strike and tick value
- Compare weather swaps, futures, options, collars and parametric insurance on payout profile, premium cost and counterparty exposure
- Price weather contracts with burn analysis and index modelling, including detrending and daily temperature simulation
- Diagnose basis risk and weather data risk and reduce them through station selection, multi-station baskets and data cleaning rules
- Design a governed weather-risk programme with hedge documentation, accounting treatment at overview, approval limits and board reporting

Target Audience:

- Enterprise and market risk staff responsible for measuring weather-driven earnings volatility and setting hedge limits
- Energy and utility trading staff responsible for demand-driven volume positions in gas, power, heating and cooling
- Treasury staff responsible for hedge execution, counterparty credit checks and hedge documentation
- Renewable generation commercial staff responsible for wind and solar production shortfall exposure
- Agribusiness finance and procurement staff responsible for rainfall and temperature driven yield and input cost risk
- Insurance and reinsurance underwriting staff responsible for designing and pricing parametric weather cover

Course Outline:

Day 1: Weather Exposure: Drivers, Sensitivity and Earnings Impact

- Weather Risk Taxonomy: Temperature, Wind, Solar Irradiance and Rainfall as Drivers of Volume and Price
- Volume Versus Price Weather Exposure and the Natural Offset Between Them
- Weather Data Sources: Station Records, Reanalysis Grids and Satellite Irradiance Series
- Regression of Sales Volumes and Gross Margin on Degree Days and Rainfall Totals
- Weather Sensitivity Profile: Earnings Distribution Across Historical Seasons

Day 2: Weather Indices and Contract Specification

- Heating Degree Days and Cooling Degree Days: Base Temperature, Daily Averaging and Accumulation Period
- Cumulative Rainfall, Average Temperature and Wind Speed Indices for Non-Heating Exposures
- Event Indices and Critical-Day Counts: Frost Days, Heatwave Days and Wind Speed Triggers
- Reference Station Selection, Fallback Stations and Data Cleaning Clauses
- Weather Term Sheet Elements: Strike, Tick Value, Payout Cap and Settlement Period

Day 3: Weather Hedging Instruments and Pricing Methods

- Weather Swaps and Exchange-Listed Degree Day Futures: Payoff Profiles and Margining at Overview
- Weather Call, Put and Collar Structures with Capped Payouts
- Parametric Insurance: Trigger Design, Tiered Payout Schedules and Claims Speed
- Burn Analysis: Detrending, Historical Payout Replay and Expected Payout Calculation
- Index Modelling and Daily Temperature Simulation with Seasonal Mean and ARMA Terms

Day 4: Basis Risk, Data Risk, Sector Structuring and Hedge Governance

- Spatial and Temporal Basis Risk: Station-to-Asset Correlation and Multi-Station Baskets
- Data Risk Controls: Missing Readings, Station Relocation and Climate Trend Adjustment
- Sector Structuring Cases: Utility Degree Day Swap, Wind and Solar Production Index, Agribusiness Rainfall Put
- Hedge Accounting Overview: Derivative Versus Insurance Treatment and Hedge Documentation
- Weather Risk Programme Governance: Policy, Approval Limits, Counterparty Credit and Board Reporting

Day 5: Modelling Build: Weather Hedge Design and Pricing Proposal

- Case Data Pack: Company Earnings, Weather History and Candidate Station Series
- Exposure Regression and Hedge Notional Sizing in a Spreadsheet Model
- Burn Analysis and Simulated Index Pricing of the Chosen Structure
- Hedge Effectiveness Test: Residual Earnings Volatility and Basis Risk Check
- Weather Hedge Design and Pricing Proposal Presentation and Peer Challenge

Skills You Will Gain:

- Weather Exposure Regression
- Degree Day Index Construction
- Weather Term Sheet Drafting
- Burn Analysis Pricing
- Temperature Simulation Modelling
- Basis Risk Diagnosis
- Parametric Trigger Design
- Weather Hedge Governance

Why Attend This Course:

- Return with a Weather Hedge Design and Pricing Proposal built on a case company's earnings and weather history and tested by peers
- Explain to management how much of a season's earnings shortfall came from weather and how much a hedge would have recovered
- Read a weather term sheet or parametric policy and spot station, trigger and payout clauses that leave losses uncovered
- Compare weather exposures with peers from utilities, renewable generators, agribusinesses, insurers and corporate treasuries

Conclusion:

Weather rarely appears as a line in a results statement, yet degree days, wind speed, sunshine and rainfall explain much of the gap between budget and actual for weather-sensitive businesses. The course moves from measuring that exposure to specifying indices, comparing swaps, options, collars and parametric cover, pricing them and controlling basis and data risk, then to accounting and governance at overview. The final day produces a Weather Hedge Design and Pricing Proposal. The content is educational and does not constitute investment advice.