Certified Professional Course in Hedging Techniques in Energy Markets

Futures and Options in Energy Trading

1. Futures and Options in Energy Trading: Futures and options are financial instruments commonly used in energy trading to hedge against price fluctuations. Futures contracts obligate the buyer to purchase an asset at a specified price on a future date, while options give the buyer the right, but not the obligation, to buy or sell an asset at a predetermined price within a specified time frame.

2. Futures Contract: A futures contract is a standardized agreement to buy or sell a specific quantity of a commodity or financial instrument at a predetermined price on a future date. Futures contracts are traded on organized exchanges and are used by market participants to hedge against price risk.

3. Options Contract: An options contract gives the holder the right, but not the obligation, to buy or sell an underlying asset at a specified price within a specific time frame. There are two types of options: call options, which give the holder the right to buy the asset, and put options, which give the holder the right to sell the asset.

4. Hedging: Hedging is a risk management strategy used by energy market participants to protect against adverse price movements. By taking an offsetting position in the futures or options market, market participants can reduce their exposure to price risk and ensure a more predictable revenue stream.

5. Speculation: Speculation is the act of trading in the futures or options market with the goal of profiting from price movements. Unlike hedging, which is used to mitigate risk, speculation involves taking on risk in the hopes of making a profit.

6. Long Position: A long position is a trading position where a market participant buys a futures contract or option with the expectation that the price of the underlying asset will rise. Long positions benefit from price increases.

7. Short Position: A short position is a trading position where a market participant sells a futures contract or option with the expectation that the price of the underlying asset will fall. Short positions benefit from price decreases.

8. Margin: Margin is the amount of money or collateral that market participants must deposit with their broker to cover potential losses on their futures or options positions. Margin requirements are set by exchanges and brokers to ensure that market participants can meet their financial obligations.

9. Exercise: Exercise is the act of using an options contract to buy or sell the underlying asset at the specified price. For call options, exercise involves buying the asset, while for put options, exercise involves selling the asset.

10. Settlement: Settlement is the process by which futures contracts are closed out before the expiration date. Settlement can occur through physical delivery of the underlying asset or through a cash settlement,

where the difference between the contract price and the market price is paid.

11. Clearinghouse: A clearinghouse is an organization that acts as an intermediary between buyers and sellers in the futures and options market. The clearinghouse guarantees the performance of futures contracts and ensures that both parties meet their financial obligations.

12. Contango: Contango is a market condition where the futures price of a commodity is higher than the spot price. Contango typically occurs when there is an oversupply of the commodity in the market, leading to higher storage costs and higher futures prices.

13. Backwardation: Backwardation is the opposite of contango, where the futures price of a commodity is lower than the spot price. Backwardation often occurs when there is a shortage of the commodity in the market, leading to higher spot prices and lower futures prices.

14. Volatility: Volatility is a measure of the degree of variation in the price of an asset over time. High volatility indicates that the price of the asset fluctuates significantly, while low volatility indicates that the price remains relatively stable.

15. Arbitrage: Arbitrage is the practice of buying and selling the same asset in different markets to take advantage of price discrepancies. In the energy market, arbitrage opportunities can arise when there are differences in prices between different regions or delivery points.

16. Basis Risk: Basis risk is the risk that the price of a hedging instrument, such as a futures contract, does not move in perfect correlation with the price of the underlying asset being hedged. Basis risk can result in losses for market participants who use futures or options for hedging purposes.

17. Commodity Swap: A commodity swap is a financial contract where two parties agree to exchange cash flows based on the price of a commodity. Commodity swaps are used by market participants to manage price risk and can be customized to meet specific hedging needs.

18. Spread Trading: Spread trading is a strategy where market participants simultaneously buy and sell related futures contracts or options to profit from price differentials between the contracts. Spread trading can be used to capitalize on changes in the price relationship between different commodities or delivery months.

19. Calendar Spread: A calendar spread is a type of spread trade where market participants buy and sell futures contracts or options with different delivery months. Calendar spreads are used to capitalize on changes in the price difference between contracts with different expiration dates.

20. Intra-Commodity Spread: An intra-commodity spread is a spread trade involving futures contracts or options on the same underlying commodity but with different delivery months. Intra-commodity spreads are used to hedge against seasonal price fluctuations or to take advantage of price differentials between different delivery months.

21. Inter-Commodity Spread: An inter-commodity spread is a spread trade involving futures contracts or

options on different but related commodities. Inter-commodity spreads are used to capitalize on price relationships between related commodities, such as crude oil and natural gas.

22. Options Greeks: Options Greeks are a set of risk measures that quantify the sensitivity of an options price to changes in various factors. The main options Greeks include Delta, Gamma, Theta, Vega, and Rho, which help market participants assess and manage the risks associated with options trading.

23. Delta: Delta is a measure of the rate of change in the price of an options contract relative to changes in the price of the underlying asset. Delta indicates the probability that an option will be in-the-money at expiration and ranges from 0 to 1 for call options and -1 to 0 for put options.

24. Gamma: Gamma is a measure of the rate of change in Delta for an options contract. Gamma measures the sensitivity of Delta to changes in the price of the underlying asset and indicates how the Delta of an option will change as the price of the underlying asset fluctuates.

25. Theta: Theta is a measure of the rate of time decay of an options contract. Theta indicates how much the value of an options contract will decrease as time passes and is an important factor to consider when trading options with a limited time frame.

26. Vega: Vega is a measure of the sensitivity of an options price to changes in implied volatility. Vega indicates how much the value of an options contract will change for a one-point change in implied volatility and helps market participants assess the impact of volatility on their options positions.

27. Rho: Rho is a measure of the sensitivity of an options price to changes in interest rates. Rho indicates how much the value of an options contract will change for a one-point change in interest rates and is important for market participants trading options in environments with changing interest rates.

28. Straddle: A straddle is an options trading strategy where market participants simultaneously buy a call option and a put option with the same strike price and expiration date. Straddles are used to profit from significant price movements in the underlying asset, regardless of the direction of the price movement.

29. Strangle: A strangle is an options trading strategy similar to a straddle, where market participants buy a call option and a put option with different strike prices but the same expiration date. Strangles are used to profit from high volatility in the underlying asset without the need for a significant price movement.

30. Collar: A collar is an options trading strategy where market participants simultaneously buy a protective put option and sell a covered call option on the same underlying asset. Collars are used to limit downside risk while capping potential gains on an existing position.

31. Butterfly Spread: A butterfly spread is an options trading strategy that involves buying a call option and a put option with the same strike price and selling two options with a higher and lower strike price. Butterfly spreads are used to profit from a limited price range in the underlying asset.

32. Condor Spread: A condor spread is an options trading strategy similar to a butterfly spread, where market participants buy and sell four options with different strike prices to profit from a specific price range

in the underlying asset. Condor spreads are used to capitalize on low volatility in the market.

33. Iron Condor: An iron condor is an options trading strategy that combines elements of a condor spread and a strangle. Market participants simultaneously buy and sell four options with different strike prices to profit from a narrow price range in the underlying asset while minimizing risk.

34. Energy Derivatives: Energy derivatives are financial instruments whose value is derived from the price of an underlying energy commodity, such as crude oil, natural gas, or electricity. Energy derivatives include futures, options, swaps, and other instruments used by market participants to manage price risk in the energy market.

35. Energy Market Risk: Energy market risk refers to the uncertainty and potential financial losses that market participants face due to fluctuations in energy prices. Energy market risk can result from factors such as supply and demand imbalances, geopolitical events, weather conditions, and regulatory changes.

36. Counterparty Risk: Counterparty risk is the risk that one of the parties to a financial transaction will fail to meet its obligations. In energy trading, counterparty risk can arise when a trading partner defaults on a futures or options contract, leading to financial losses for the other party.

37. Liquidity Risk: Liquidity risk is the risk that market participants will not be able to buy or sell an asset at a desired price due to a lack of market liquidity. In the energy market, liquidity risk can impact the trading of futures and options contracts, leading to wider bid-ask spreads and increased transaction costs.

38. Regulatory Risk: Regulatory risk is the risk that changes in government regulations or policies will impact the energy market and the trading of energy derivatives. Regulatory risk can result in increased compliance costs, restrictions on trading activities, and changes in market dynamics.

39. Market Manipulation: Market manipulation is the illegal practice of artificially influencing the price of a commodity or security to profit from price movements. In the energy market, market manipulation can take the form of insider trading, false reporting, or other fraudulent activities that distort market prices.

40. Price Discovery: Price discovery is the process by which market participants determine the fair market price of an asset based on supply and demand dynamics. In the energy market, price discovery is essential for establishing the value of energy commodities and derivatives traded on exchanges.

41. Volatility Trading: Volatility trading is a strategy where market participants buy and sell options to profit from changes in implied volatility. Volatility traders seek to capitalize on fluctuations in market volatility by taking positions in options contracts that are sensitive to changes in volatility levels.

42. Quantitative Analysis: Quantitative analysis is the use of mathematical and statistical models to analyze and interpret market data. In energy trading, quantitative analysis is used to develop trading strategies, forecast price movements, and assess risk exposures based on historical and real-time market data.

43. Algorithmic Trading: Algorithmic trading is the use of computer algorithms to execute trading orders automatically based on predefined criteria. In energy markets, algorithmic trading strategies can be used to

capitalize on price differentials, execute trades at optimal times, and manage risk in fast-paced trading environments.

44. High-Frequency Trading: High-frequency trading is a form of algorithmic trading that involves the rapid execution of a large number of trades in fractions of a second. High-frequency trading strategies rely on high-speed data connections and powerful computers to capitalize on small price differentials in the market.

45. Market Making: Market making is a trading strategy where market participants provide liquidity by continuously quoting bid and ask prices for a particular asset. Market makers profit from the spread between bid and ask prices and help maintain an orderly and efficient market for futures and options trading.

46. Risk Management: Risk management is the process of identifying, assessing, and mitigating risks in the energy market. Effective risk management involves developing hedging strategies, setting risk limits, and monitoring exposures to ensure that market participants can navigate volatile market conditions.

47. Position Limits: Position limits are restrictions set by exchanges and regulatory authorities on the maximum number of futures or options contracts that market participants can hold in a particular commodity or market. Position limits are designed to prevent market manipulation and excessive speculation.

48. Margin Call: A margin call is a demand by a broker for additional funds from a market participant to cover potential losses on their futures or options positions. Margin calls are triggered when the value of the account falls below the required margin level, and market participants must deposit additional funds to meet margin requirements.

49. Mark-to-Market: Mark-to-market is the process of valuing futures or options contracts based on their current market price. Market participants' accounts are adjusted daily to reflect changes in the value of their positions, ensuring that they have sufficient margin to cover potential losses.

50. Regulatory Compliance: Regulatory compliance refers to the adherence to laws, rules, and regulations governing the trading of energy derivatives in the financial markets. Market participants must comply with regulatory requirements related to position limits, reporting obligations, and risk management practices to operate legally and ethically in the energy market.