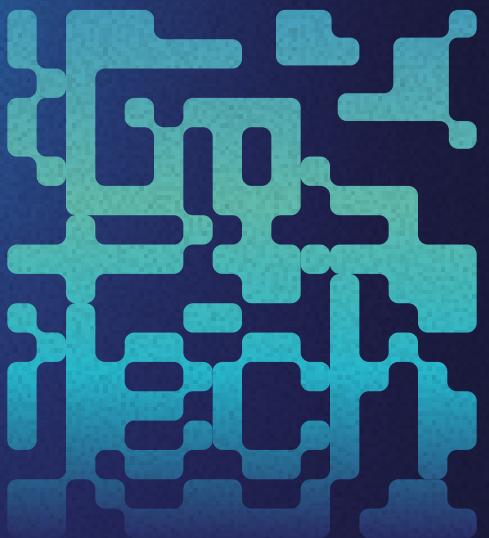




KRITI'25

The GB Electricity Market

Organizer :
Finance and Economics Club



Low Prep
| 250 Pts

The GB Electricity Market 250 Points

Start : 28/01

End : 05/02

The Great Britain (GB) electricity market operates as a liberalized and competitive market, allowing electricity to be traded between generators, suppliers, and other market participants. It comprises two main segments: the wholesale market, where electricity is traded in bulk via contracts or spot markets, and the retail market, where suppliers sell electricity to end consumers. The purpose of this problem statement is to analyze the price trends (intraday) in spot markets.

Your Task

Your goal is to study the intraday electricity price data for the Great Britain (GB) electricity market during the period of **01/10/2022 - 31/12/2024**. You need to identify price volatility patterns and propose a simple intraday trading strategy to take advantage of these patterns.

Key Objectives:

1. Data Acquisition:

- Gather half-hourly (intraday) electricity price data for the GB market for the specified time period.
- Make sure to properly cite all sources of the data you use.

2. Data Analysis:

- Identify the periods during the day when price fluctuations are low or high.
- Identify any other trends that are followed due to environmental factors, renewable energy contributions (e.g., wind/solar), grid load, or government policies, change in supply/demand etc.

3. Trading Strategy Proposal:

- a. Suggest a simple intraday trading strategy based on your findings to make a profit from the identified patterns.
- b. Clearly explain the rationale behind your strategy and why you chose this strategy and any assumptions you made while creating it.
- c. Backtest the strategy and analyze the key metrics (return, drawdown, etc.)
- d. Identify the main risks that could impact your trading strategy. Discuss how you plan to reduce or manage these risks.

4. Visualization: Present key insights visually through comprehensive charts and graphs. Clearly illustrate how the strategy performs over time.

Guidelines:

- Assumptions and Sources: Clearly explain any assumptions you made and cite your data sources.
- Remember to close the positions **within the same day**.
- Assume an initial capital of **GBP 10,000**.
- Performance Evaluation: Evaluate the strategy's risk-adjusted returns using key metrics such as: Cumulative returns, Annualized Sharpe Ratio, Maximum Drawdown
- Your documentation should be in line with the following template:
 - Identification of regimes (high / low) price fluctuations
 - Identification of any price trends
 - Trading Strategy and Signal Generation Method
 - Risk Management Measures
 - Performance Metrics (mentioned above)
- For simplicity, assume no transaction costs.
- If you are using any ML/DL models, make sure to have a testing period of at least 2 months. You may also use data before 1st October, 2024 for training purposes.

Evaluation Criteria:

- Regime Identification (**22.5%**): The effectiveness and logic in identifying different regimes.
- Price Trends Identification (**22.5%**): The effectiveness and logic in recognizing price trends.
- Strategy Development (**20%**): The quality, robustness, and effectiveness of the trading strategy and signal generation.
- Performance Metrics (**5%**): The performance and success of the trading strategy.
- Code Quality (**5%**): The readability and organization of the code.
- Visualizations (**5%**): The clarity and impact of charts and plots.
- Documentation (**10%**): The completeness and clarity of all components in the report.
- Presentation (**10%**): The overall quality and delivery of the presentation.

Final Submission Format:

Each team must submit two files: a code file (**.ipynb**) and a detailed report (**.pdf**) that strictly adhere to the specified guidelines.

- Length: Your main report should be no more than 6 pages (excluding cover page).
- The code file should be named as **[HostelName]_KritiQuantPS.ipynb**
- The report file should be named as **[HostelName]_KritiQuantPS.pdf**

FAILURE TO COMPLY WITH THE ABOVE POINTS WILL RESULT IN IMMEDIATE DISQUALIFICATION