Future Energy Associates

Tariff Watch - Trading Warm This Winter Campaign

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Executive Summary

Low Churn Rate in UK power market:

- The report indicates that the UK's electricity trading market has a churn rate of approximately 3.5 to 4 times, compared to 15 to 20 times in the gas market. This low rate highlights a significant lack of liquidity, suggesting that private trading has failed to provide the active participation levels required for a competitive and efficient market, as intended by regulators.

Establishment of GB Energy as a market maker:

- The report proposes creating GB Energy as a central market-making body. This entity would be responsible for providing regular buy and sell quotes, potentially enhancing market liquidity, improving price transparency, and reducing volatility. Such a model could better reflect true generation costs and reduce reliance on speculative trading, which often exacerbates price instability.

Potential to fund support for households:

- Profits from UK power and gas trading are estimated to be between £1.5 billion and £3.91 billion annually. This revenue could fully cover the restoration of Winter Fuel Payments, which require around £1.3-£1.5 billion, or other support for households. This emphasises the sector's capacity to support social welfare while addressing high energy costs for low-income households.

Tax avoidance by trading houses:

- The report includes case studies of major trading firms, like Vitol, Trafigura, and Glencore, which are based offshore in tax-advantaged jurisdictions. These companies conduct significant energy trading within the UK but avoid paying UK taxes, raising concerns about equitable tax contributions in the energy market.

Comparing PPAs to wholesale prices:

- An analysis comparing the Ofgem wholesale price cap for July-October 2024 (12.5 p/kWh) with the average Power Purchase Agreement (PPA) price (7.5 p/kWh) reveals a 5.0 p/kWh cost difference. Eliminating intermediaries and inefficiencies could save UK electricity consumers approximately £3.78 billion annually, translating to about £135 in savings per household per year.

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Abbreviations:

- **EBIT:** Earnings Before Interest and Tax
- **OTC:** Over-the-Counter (trading market)
- **PPA:** Power Purchase Agreement
- **VAT:** Value-Added Tax

Introduction

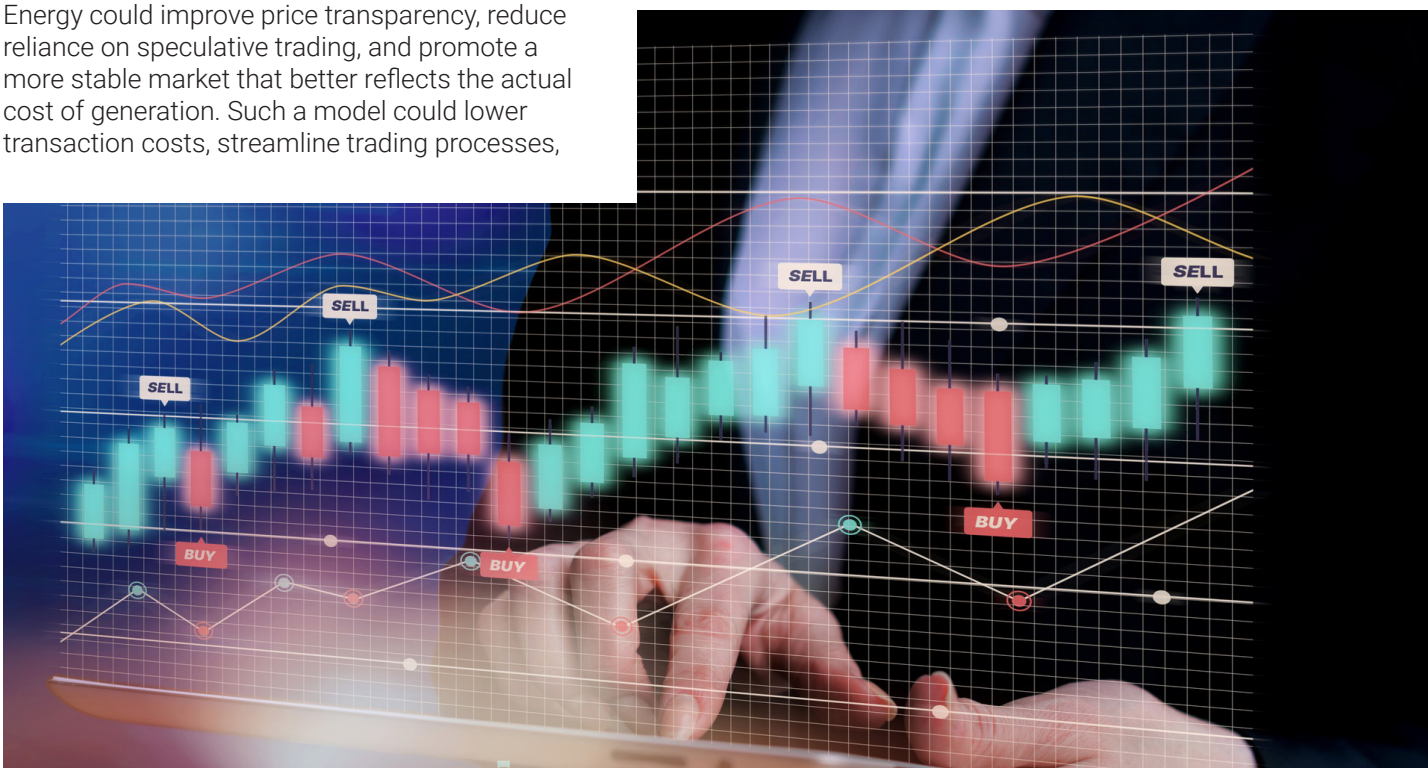
The energy trading landscape is a cornerstone of the UK's electricity market, facilitating the purchase and sale of power through various mechanisms. Trading not only enables suppliers to meet consumer demand but also drives the efficiencies and flexibility needed to integrate renewable energy sources effectively. However, with the complexities of this trading environment come significant impacts on consumer bills, market stability, and broader economic implications.

This report, prepared by Future Energy Associates for the Warm This Winter Campaign, examines the structures, participants, and challenges within energy trading. It explores key trading types—including forward contracts, day-ahead and intraday markets, and power purchase agreements (PPAs)—and assesses how these mechanisms influence liquidity, market prices, and ultimately, the bills that consumers pay. Through this analysis, we highlight the advantages and limitations of both physical and speculative trading and consider the role of over-the-counter (OTC) trades versus centralised exchanges.

The report also recommends that GB Energy could become a potential central trading body, designed to address many of the current market's inefficiencies. By acting as a unified platform, GB Energy could improve price transparency, reduce reliance on speculative trading, and promote a more stable market that better reflects the actual cost of generation. Such a model could lower transaction costs, streamline trading processes, and ultimately create a more equitable system where benefits are more readily passed on to consumers. The proposal emphasises the need for enforced seller participation and product standardisation to ensure that all market players can trade on fair and consistent terms.

This report delves into the profitability of trading firms and energy majors, their influence on wholesale prices, and the implications for consumer affordability. Given these challenges, we investigate whether trading profits could support initiatives such as a social tariff aimed at alleviating fuel poverty.

Through data-driven insights and a review of industry reports, the report proposes recommendations to enhance transparency, reduce speculative activity, and support low-income households. As energy markets evolve, it is crucial to balance the needs of consumers, suppliers, and regulators while fostering a resilient market that supports the transition to sustainable energy. The GB Energy model represents a forward-thinking approach to achieving this balance and creating a trading system that aligns with the UK's clean energy goals.



How is energy bought and sold?

Power can be bought and sold through a few key mechanisms, each with distinct structures, pricing methods, and levels of risk.

Forward Contracts

A forward contract is a financial agreement between two parties to buy and sell electricity at a set price on a future date. These contracts are usually short-term, allowing power to be traded for upcoming seasons, months, or weeks. To manage price risk, buyers and sellers often secure a large share of needed electricity through long-term contracts or hedging, locking in prices over time to avoid sudden price spikes.

In late 2021, Bulb declared bankruptcy. Wholesale prices had surged dramatically, and without adequate hedging, Bulb was forced to buy power at elevated prices, leaving them particularly exposed to price volatility and resulting in their insolvency.

Spot Market

Day ahead and intraday markets allow participants to buy and sell electricity close to real-time, for the next day and up to the next 30 minutes.

In the UK, power is traded in 30-minute chunks. For each 30-minute period, there is a forecast of how much power is needed, and generators bid at prices they can supply this power. The price is set based on the lowest-cost bids that meet the demand. The intraday market lets them buy or sell additional energy on the day to ensure they actually have the energy they committed to.

If a supplier or generator cannot deliver or consume the energy they have committed to, they must pay an imbalance price. Following intraday trading, the balancing mechanism (BM) comes into play as a crucial component of the spot market. Managed by the National Electricity System Operator (NESO), the balancing mechanism enables BM Units (BMUs)—including generators, suppliers, and large consumers—to submit offers to either increase or decrease their output in real time. This helps NESO ensure that supply exactly matches demand across the grid. The balancing mechanism is activated as needed, especially to address any unexpected fluctuations that occur after the intraday market closes.

Power Purchase Agreements (PPAs)

A PPA is a long-term contract between a power producer (like a renewable energy developer) and a buyer (usually a retailer, corporate buyer, or large consumer). It specifies a fixed price for electricity, volume commitments, and delivery terms over a period, typically 10–20 years. In 2023, the uptake in PPAs hit a record high with 16.2 GW in disclosed contracted volumes, around 20% of the installed UK electricity capacity. That's 40% more than the year before, and 65% more than the year before that.

Types of Energy Trading

Energy trading is carried out by various players for different purposes.

Physical Trading

Physical traders facilitate the actual exchange of electricity, meaning there is a physical delivery of a unit of power at the end of each transaction. One party buys a specific amount of electricity, while the other sells it, ensuring that real demand on the grid is met.

1.1. Generators

Generators often secure long-term offtake contracts, but a significant portion of the energy is sold on a wholesale market close to real-time. Flexible assets, such as gas turbines and batteries, benefit the most from this approach because they can respond to fluctuations in power markets. Many of these assets provide additional grid services and optimise the timing of their energy sales to combine revenues from energy trading with income from grid services.

Renewables benefit less from real-time trading, as they are non-dispatchable—meaning we cannot control when they generate energy. Most renewable energy is sold through Power Purchase Agreements (PPAs) on a fixed profile, and traders then optimise by buying or selling additional energy to match the agreed profile.

1.2. Suppliers

On the demand side of the energy market, suppliers purchase electricity on behalf of their customers. They start by forecasting customer demand, relying on historical usage patterns, seasonal variations, weather predictions, and other influencing factors. Most customers follow a standard consumption profile, which aids retailers in estimating demand throughout the day.

Historically, retailers bought most of their energy in advance rather than actively trading in the wholesale market. However, this is changing due to new, dynamic tariffs and evolving demand patterns, especially with the growth of electrification in sectors like transport. Retailers must always secure enough energy to meet customer needs, but demand uncertainty means they must factor risk into the final prices offered to consumers.

Speculative Trading (Non-Physical Trading):

In speculative, or non-physical, trading, companies trade energy solely for financial gain without directly delivering electricity to consumers. This type of trading adds liquidity and "market churn" by increasing the frequency and volume of trades, which can impact overall market prices. Speculative traders attempt to profit from price fluctuations, buying low and selling high, which can sometimes lead to price volatility. Brokers play a key role in facilitating these transactions, connecting buyers and sellers in exchange for fees. While brokers enhance market accessibility, their margins and transaction fees can indirectly contribute to higher costs that may eventually pass through to consumers' bills, especially in times of market volatility.

Mechanisms for trading:

OTC (Over-the-Counter) Trading:

OTC trading refers to direct transactions between two parties without using a centralised exchange. This type of trading is typically facilitated by brokers, or directly between counterparties. In the energy market, OTC trades allow buyers and sellers to negotiate bespoke contract terms that may not be available on public exchanges.

Marketplace trading:

Marketplace trading refers to transactions conducted on formal exchanges such as the European Energy Exchange (EEX) or the Nordic Power Market (Nord Pool). These markets provide a structured platform where energy is bought and sold in standardised contracts under transparent pricing mechanisms.

Why is trading important?

Trading plays a key role in balancing supply and demand and creating a more efficient energy market. Historically, the market had limited liquidity, with a few large players agreeing to buy and sell energy months or weeks in advance. This is now changing. As we transition to a renewable energy system, where generation is less predictable, the ability to respond quickly to fluctuations in renewable output is essential for balancing the grid.

This responsiveness is achieved through a competitive market where many players offer to buy or sell at the lowest available price. Such market behaviour helps to keep costs down for everyone, but this only works effectively when there is a free and liquid market that encourages broad participation and price transparency.

Benefits of power trading

Supply and Demand Matching: Power trading enables the precise matching of electricity supply with real-time demand, preventing overproduction or underproduction. For example, power prices going negative in the middle of the day in Spain means there is a strong market signal for being able to store energy.

Cost Reduction: By promoting competition, power trading helps keep energy prices lower, allowing market participants to buy power at the most economical price, driving efficiency.

Grid Flexibility and Renewable Integration: Power trading markets allow operators to access flexible resources (like batteries, EVs, or demand response) to balance the grid during sudden demand spikes or dips and support renewable energy integration by managing surplus or shortages in generation.

To represent the importance of trading this report provides an example:

Imagine a solar generator has contracts with multiple consumers that require it to deliver 150 MWh within the same timeframe. It is cloudy so it can only produce 100 MWh of electricity for that period, so it needs additional 50 MWh to fulfil these commitments.

1. **Initial Sale of 100 MWh:** The generator sells the 100 MWh it produces to its primary buyers via Power Purchase Agreements (PPAs), fulfilling a portion of its commitments.

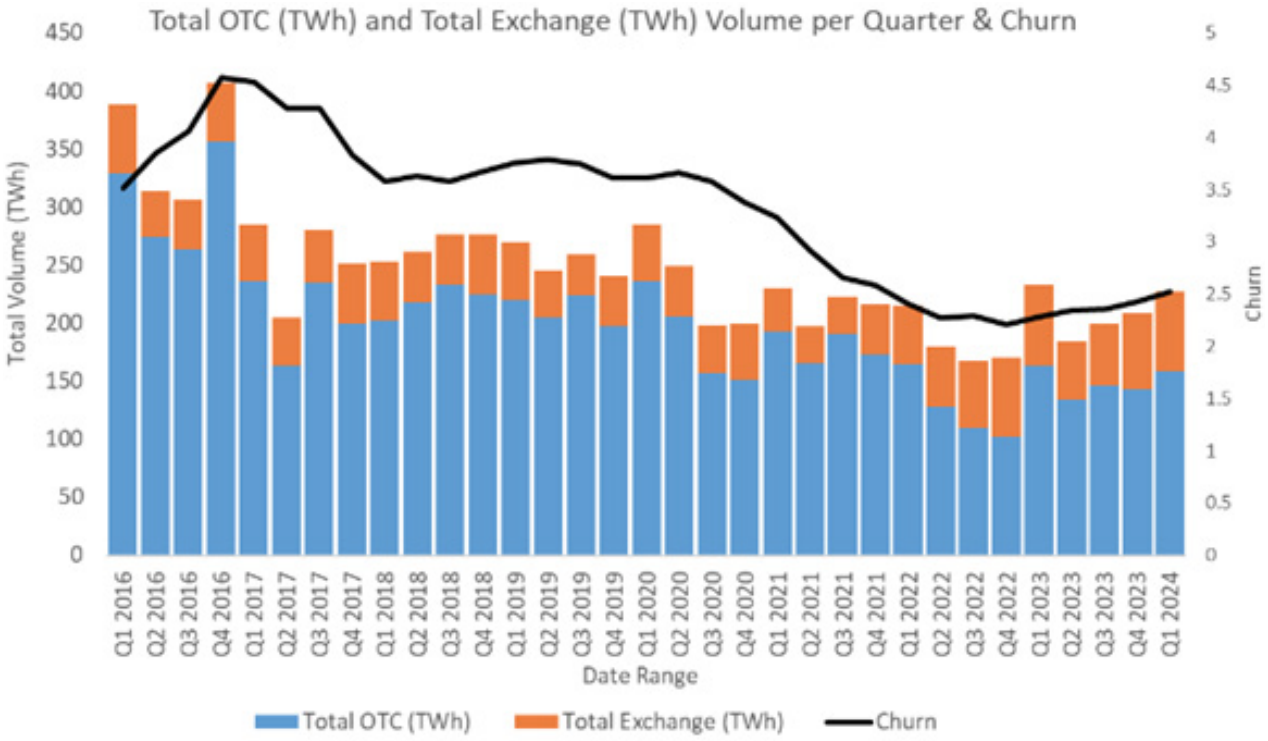
2. **Buying Shortfall:** To cover the additional 50 MWh, the generator turns to the wholesale market and buys electricity from other sources, such as gas or battery storage, to meet its obligation.

3. **Intermediary Trading:** During this process, multiple trades may occur as brokers, intermediaries, and other generators buy and sell electricity to cover their own positions or profit from short-term price changes.

In this example, trading is crucial because it enables the generator to meet its obligations even when its production falls short. It allows the generator to buy additional electricity from the market in real-time, ensuring continuous supply to consumers. Without this trading flexibility, the generator would face significant risks, including penalties for non-delivery, and consumers would experience more frequent supply interruptions.

Market Efficiency

A look at liquidity in the UK Power Market:



Energy Type	Churn Rate (Approximate)	Source
Electricity	2.5 to 4 times	Ofgem - Electricity Wholesale Market Liquidity
Gas	15 to 20 times	Ofgem - Wholesale Market Indicators

The graph illustrates the trend in total OTC (Over-the-Counter) and total exchange trading volumes in TWh per quarter, along with the churn rate over time. Since 2016, the data shows a significant decline in both total trading volumes and churn rate, especially noticeable following the removal of the Market Making Obligation (MMO). These churn rates are sourced from Ofgem and represent approximate averages for the UK market. The different churn rates reflect variations in liquidity levels and trading activity, with gas generally being traded more frequently than electricity before final consumption.

How essential is liquidity to market efficiency?

Liquidity—having enough buyers and sellers active in the market—is essential for a stable and efficient energy market. It ensures that energy can be bought and sold easily at prices that reflect real-time supply and demand, enabling participants to manage risks and stabilise costs effectively. Ideally, robust market liquidity would allow participants to hedge against price volatility and meet consumer needs with greater predictability.

However, the UK's current energy market lacks sufficient liquidity, especially since the removal of the Market Making Obligation (MMO) in 2019. The MMO once required key market participants (big six vertically integrated energy suppliers) to provide regular buy and sell quotes, supporting a minimum level of trading activity. Its removal, combined with a limited push for alternative measures, has contributed to insufficient liquidity, particularly in the electricity market. Currently, much of the liquidity is provided through OTC (Over-the-Counter) trading rather than through transparent exchanges, which has introduced significant inefficiencies and drawbacks. As shown on the graph, power trading is dominated by OTC trading (represented in blue).

The Lack of Incentives for Liquidity Without a Market Maker

In the absence of a market-making obligation, there are few incentives for key participants to provide the necessary liquidity. Without regulatory requirements, large market players lack the motivation to continuously offer buy and sell quotes in the electricity market, especially during periods of low demand or high volatility. This lack of liquidity leads to less efficient price discovery and greater price instability, ultimately affecting consumers through higher, more unpredictable energy prices.

Who Are the Key Players, and What Are Their Roles?

In the UK electricity market, the responsibility for providing liquidity generally falls on suppliers, generators, and trading companies:

- **Generators:** Large generators, such as Drax, RWE, Uniper, and EDF Energy, produce electricity and sell it to suppliers or directly into the wholesale market.
- **Trading Companies and Financial Intermediaries:** Dedicated trading firms, including Vitol, Trafigura, Glencore, and Mercuria, engage in high-volume trading to capitalise on price fluctuations. These firms operate predominantly in the OTC market and focus on purely profit driven strategies. Additionally, financial intermediaries, like banks and hedge funds, may engage in energy trading for short-term gains, adding liquidity but often contributing to volatility due to speculative motives.
- **Suppliers:** Major suppliers like British Gas, EDF Energy, E.ON UK, ScottishPower, and SSE need to secure energy to meet their customers' demands. However, due to low market liquidity and the lack of a market-making obligation, suppliers are often forced to trade larger volumes or further in advance than they might prefer to avoid high volatility. Many suppliers would benefit from trading in smaller, more frequent "products" that better align with actual demand patterns, but the market conditions don't support this flexibility. As a result, they cannot trade as dynamically as they would like, limiting their ability to optimise purchasing strategies, manage risk effectively, and ultimately pass on savings to consumers.
- A more liquid market would allow suppliers to better match purchases to real-time demand, lower costs, and improve overall risk management. In this environment, suppliers are stuck with less-than-ideal purchasing options, which impacts consumer prices.

Without a regulatory framework to mandate market-making, these participants are less likely to provide steady liquidity, especially when market conditions are less favourable to their interests. This contributes to inefficiencies in price discovery, leading to price swings and instability that ultimately affect end consumers.

The Drawbacks of OTC Trading

While OTC trading is beneficial for custom contracts and risk management among large energy producers and consumers, it has several limitations that make it less suitable for a fair and efficient market:

1. *Profit Motives and Increased Costs*

Each trade in the OTC market typically involves intermediaries, such as brokers or financial entities, who aim to profit from market fluctuations or supply-and-demand shifts. This profit motive inherently raises transaction costs, as each trade often includes markups, fees, and commissions. In markets with high churn rates, such as gas, these cumulative costs are eventually passed on to consumers in the form of higher energy bills.

2. *Lack of Transparency*

OTC transactions are private, often negotiated directly between parties, and typically lack the transparency of exchange-based trades. This lack of visibility makes it difficult for regulators and consumers to monitor prices accurately. Consequently, the final consumer prices can fluctuate unpredictably due to opaque trading activities and speculative trades that drive prices away from their fundamental costs.

3. *Broker Fees and Intermediaries' Role*

Each intermediary earns fees or commissions on each transaction, adding multiple layers of costs across the trading chain. These costs trickle down to consumers, impacting affordability. Additionally, a dependence on OTC trading makes it harder for new entrants to compete, as they face high entry costs and lack the transparency advantages of exchanges.

With fewer participants and bespoke contract terms, OTC markets can be less liquid than centralised exchanges. Lower liquidity makes it harder to quickly buy or sell positions, potentially leading to higher transaction costs and increased price volatility.

Why a Marketplace Model is Preferable

A shift towards more transparent, exchange-based trading could address many of the current issues associated with OTC-dominated liquidity. An exchange-based model, where trades are standardised and openly priced, provides several benefits:

- ***Improved Price Discovery and Stability***

  Transparent exchanges, like the European Energy Exchange (EEX), provide consistent and open pricing, allowing all market participants to see real-time prices and make informed decisions. This visibility helps prevent sudden price spikes and reduces the likelihood of price manipulation, resulting in more stable energy prices for households.

- ***Lower Transaction Costs***

  Exchange-based trading reduces excessive layers of intermediation, which can lower transaction costs for consumers. Standardised contracts allow more straightforward trading, where consumers indirectly benefit from reduced trading fees and simplified cost structures.

- ***Regulatory Oversight and Risk Management***

  Exchanges are subject to strict regulatory oversight and use central clearinghouses to manage risks. These features add market stability and reduce counterparty risk, ensuring that trades are honoured and reducing the potential for financial disruptions. Additionally, marketplace models help mitigate the speculative volatility introduced by OTC trades, making the market more resilient to price swings.

Impact of trading on consumer bills:

The Ofgem price cap for energy bills includes various components that incorporate costs associated with trading activities, as detailed in the "Direct Fuel Cost Component" and related calculations:

1. **Direct Fuel Cost Component:** This component covers the base costs of electricity and gas based on trading and procurement activities. The costs are calculated by observing prices in the wholesale market over set periods (such as semi-annual or quarterly periods) and are weighted based on demand. The observed prices reflect the average trading costs suppliers incur to purchase electricity and gas, which are ultimately passed on to consumers through the price cap.

    i. **Electricity and Gas Indexes:** Categories such as "Elec 6-2-12" and "Non-PPM gas 6-2-12" are used to calculate index values that reflect the costs of procuring energy based on a structured trading timeline. The "6-2-12" format outlines a procurement strategy where:

        1. Energy is purchased gradually over a 6-month period to smooth out market price volatility.
        2. Procurement begins 2 months before the delivery period, allowing suppliers to make adjustments based on more recent market conditions.
        3. The costs are observed and assessed over a 12-month timeframe, capturing a full year's worth of price dynamics for planning and stability.
        4. This procurement strategy essentially is an attempt by Ofgem to simulate how energy suppliers procure energy.

    ii. **Transaction Costs and Imbalance Costs:** The "Allowances" category includes transaction costs associated with reshaping contracts, balancing demand and supply, and covering any forecast errors or unexpected imbalances in supply. These costs account for the administrative and transactional elements involved in trading and managing energy portfolios to meet consumer demand, and they are part of the total cost passed through to consumers.

    iii. **Price Data and Hedging Periods:** Ofgem references specific price data from ICIS (e.g., for electricity and gas seasonal and quarterly contracts). This data allows for price smoothing over hedging periods, such as three-month or six-month observation windows, which aims to reduce volatility. This approach captures the broader market trading dynamics and integrates them into the price cap, affecting the final energy prices consumers pay.

2. **Wholesale Allowance:** The Wholesale Allowance component includes factors like the cost of Contracts for Difference (CfD), the impact of backwardation (when future prices are lower than current prices), and any additional allowances that suppliers may incur when purchasing energy to meet consumer demand.

3. **Capacity Market Costs and Uplifts:** Capacity Market charges are factored into the price cap as a way to ensure adequate power supply during peak demand times. These charges include uplift multipliers for transmission losses and balancing, which incorporate trading-related expenses linked to ensuring reliable supply during periods of high demand.

From the analysis of the Ofgem price cap, it becomes clear that the direct impact of trading activities on consumer bills is challenging to quantify. The components of the cap, such as the Direct Fuel Cost Component and Wholesale Allowance, embed various costs from the wholesale markets, but they do not itemise trading profits, transaction costs, or hedging gains separately. This lack of transparency makes it difficult for consumers and industry stakeholders to assess how much trading influences the final capped prices. A more explicit and transparent breakdown from regulators on the margin taken by traders could help illuminate the true cost of trading activities in the price cap, allowing for better understanding and potentially more efficient pricing.

Comparative Analysis: Wholesale Cost vs. PPA Price

For the next part of the analysis, we will compare the wholesale cost of electricity from the price cap period (April - June 2025) with the average PPA price available over the next two years. This will highlight the theoretical spread in a "perfect world" scenario where consumers receive energy directly from generators without intermediaries or risk adjustments.

Steps in the Analysis:

1. Obtain Wholesale Price from the Price Cap:

- Using the last available wholesale cost per kWh from Ofgem's price cap, we'll use this as a reference for the "current" wholesale cost, which includes middlemen costs, risk pricing, and trading influences.

2. Use Average PPA/CFD Price for Comparison:

- The average PPA price in the UK for the next two years is approximately 7.5 p/kWh, as taken from Zeigo. This figure represents a direct transaction price between generators and consumers (e.g., large businesses or community groups) in the absence of middlemen.
- The differences between a CfD and a PPA are described in the appendix.

3. Calculate the Spread:

- By comparing the wholesale price from the Ofgem price cap with the direct PPA price, we can calculate the spread, representing the potential savings if consumers were able to purchase energy directly from generators under ideal circumstances.

This methodology offers a straightforward approach by using observable prices—specifically, the wholesale price and the average PPA price—to illustrate the potential cost impact of eliminating intermediaries. It provides insight into the costs potentially added by intermediaries, risk adjustments, and trading activities within the wholesale market, highlighting possible consumer savings and the importance of market transparency and efficiency. However, this idealised scenario excludes key market realities, such as the need for balancing supply and demand, hedging against price volatility, and managing supply risks. While the average PPA price offers a broader representation than a single solar PPA, it still may not fully capture the cost variations across the diverse generation mix, as different sources like wind or nuclear have distinct PPA rates that could influence the overall comparison.

Metric	Value (p/kWh)
Last Wholesale Price Cap Apr 2025 - June 2025	13.92
Ofgem - Electricity Wholesale Market Liquidity	7.5
Ofgem - Wholesale Market Indicators	6.42

With an annual consumption of 2,700 kWh, eliminating the market inefficiency cost of 6.4 p/kWh could potentially save UK electricity bill payers around **£4.51 billion** annually, with each household saving about **£173.34** per year on their electricity bill.

£4.51 billion
UK electricity bill payers

£173.34 per year
on their electricity bill

Trading's influence on price volatility and consumer bills

Volatility in energy prices benefits speculative traders who use advanced algorithms to exploit rapid price changes. Equipped with high-frequency trading technology, these traders can profit from even minor price swings throughout the day, buying low and selling high within milliseconds. This speculative activity often drives prices away from the true cost of generation, creating added instability that ultimately impacts consumer prices.

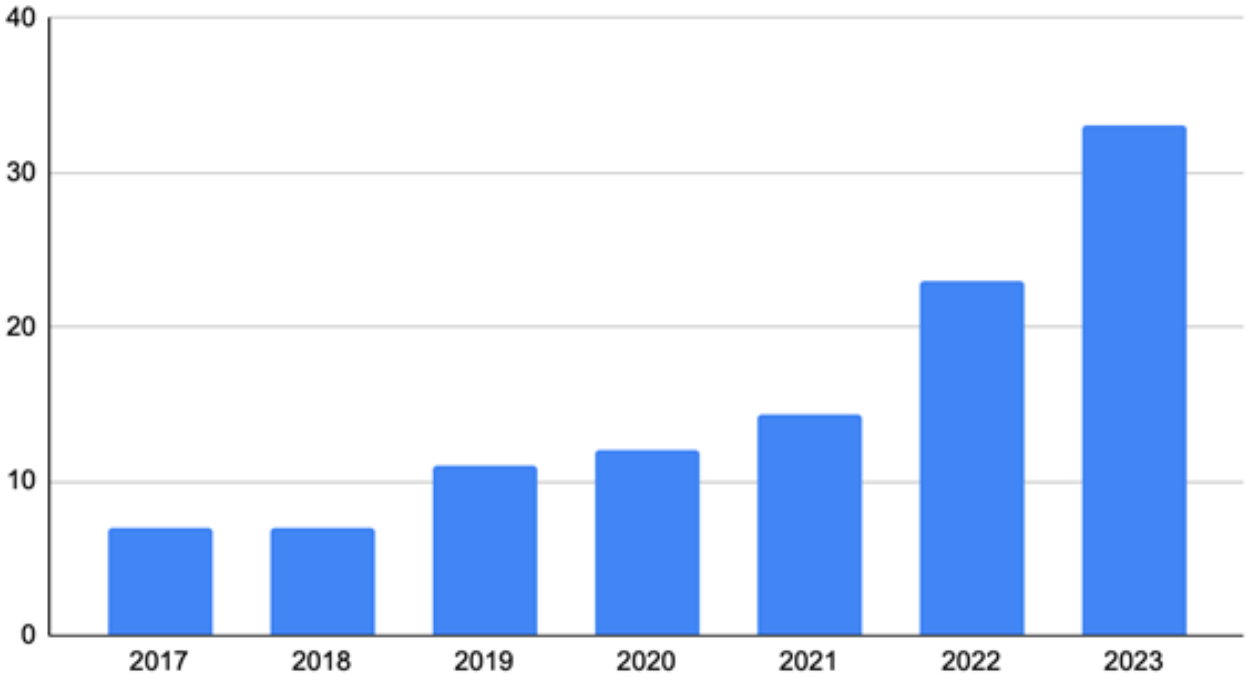
Suppliers, however, lack the technical infrastructure and risk appetite for such high-speed trading. Focused on stability and predictable costs, they must price energy conservatively in a volatile market, often basing rates on worst-case scenarios to guard against sudden spikes. This cautious approach, meant to protect their margins, results in higher costs for consumers, as suppliers build in buffers to manage market volatility. Thus, the combination of speculative trading and suppliers' limitations in handling volatility leads to more expensive and unpredictable bills for households.

Profits in the Energy Trading Sector

Power and Gas

Both physical and speculative traders have experienced substantial growth in profits over the last few years. According to a McKinsey report trading companies continue to make significant profits, even as prices have decreased following the initial surge caused by the Ukraine-Russia conflict.

Graph: Global Power and Gas Trading Profit, $ billion (Source: McKinsey)



Energy majors like EDF, Centrica, and Scottish Power have both generation and retailer functions. These large players often trade physical assets and participate in speculative trading. This dual role provides a natural hedge against market volatility, as profits in one area can offset losses in another, thereby reducing overall risk.

After consulting with traders from three different trading houses, we estimate that the profit from trading power and gas in the UK ranges between £1.5 billion and £3.91 billion annually (equivalent to 5.8%-15.3% of the global $33 billion trading profit for power and gas). This amount alone could fund the required £1.3-£1.5 billion for Winter Fuel Payments, which was recently cut by the UK government.

£1.5 billion & £3.91 billio
gas in the UK ranges betwee

5.8%-15.3%
equivalent

Case study Centrica:

Centrica Energy Trading A/S, based in Aalborg, Denmark, reported strong financial results for 2023, achieving a profit before tax of **DKK 3,447 million** (approximately **£398 million**) and an operating profit of **DKK 3,210 million** (around **£370 million**). This performance marks the company's second-highest annual profit, following an exceptional year in 2022. Centrica Energy Trading A/S operates as a Danish subsidiary, handling energy trading for Centrica plc, headquartered in London.

How power and gas traders benefit from tax exemptions in the UK

Commodity traders in the UK can benefit from specific tax exemptions, particularly the zero-rate VAT on certain commodity contracts traded on terminal markets. Originally introduced to promote London's competitiveness in the 1970s, this VAT exemption allows commodity traders to avoid charging VAT on eligible contracts, making trading in the UK more attractive and reducing costs. Over the years, the UK expanded the scope of this exemption to cover additional products like commodity options and futures. This zero-rate VAT status can mean substantial tax savings on high-value trades, enhancing London's position as a leading commodities trading hub.

In practice, this VAT exemption means that transactions in eligible commodities or derivatives do not include VAT, reducing the financial burden on traders and allowing faster, more cost-efficient trading. Without VAT, traders benefit from improved cash flow as they avoid VAT remittances, which can be substantial on high-value commodities contracts. The expansion of this VAT exemption over time, however, has led to disagreements with the EU, which maintains that the UK overstepped its bounds by broadening the exemption without formal EU approval. This legal challenge highlights the EU's effort to prevent perceived tax advantages in London that may undermine other EU financial centres.

The estimated market sizes for 2023 are approximate and based on industry reports and market analyses. These figures represent the total value of transactions within each category for the year.

Understanding the VAT treatment of various power trading activities is crucial for compliance and financial planning within the energy sector.

Type of Power Trading Activity	VAT Treatment	Estimated Market Size (2023)
Physical Supply of Electricity	Standard-rated (20%)	£50 billion
Financial Derivatives (e.g., Futures, Options)	Exempt	£10 billion
Contracts for Differences (CfDs)	Exempt	£5 billion
Renewable Energy Certificates	Exempt	£2 billion
Capacity Market Transactions	Exempt	£1 billion

Commodity trading

Commodity trading firms focus on capitalising on price movements within energy markets. They frequently use sophisticated trading strategies, such as algorithmic trading and arbitrage, to exploit short-term price shifts, earning substantial margins in high-volatility periods. The commodity trading industry, after five consecutive years of record profits, now holds up to $120 billion in cash reserves. Key players, including independent traders like Vitol, Trafigura, Gunvor, and Mercuria, have significantly benefited from increased profits, with gross earnings for the sector reaching $148 billion in 2022. This growth was spurred by volatile markets, especially in gas and power, which have now surpassed oil as the primary profit drivers.

Rank	Company Name	Headquarters Location	Annual Profit (USD)	Trading Arm Profit (USD)	Estimate	Source
1	Shell plc	London, UK	$40 billion	$16.6 billion	Yes	Tank Terminals
2	Vitol Group	Geneva, Switzerland	$15.1 billion	$15.1 billion	No	Energy Contracts
3	Total Energies SE	Paris, France	$36.2 billion	$11.5 billion	Yes	Tank Terminals
4	BP plc	London, UK	$27.7 billion	$8.4 billion	Yes	Tank Terminals
5	Trafigura Group	Singapore	$7.4 billion	$7.4 billion	No	Trafigura Company Report
6	Glencore plc	Baar, Switzerland	$17.3 billion	$5 billion	Yes	Glencore
7	Mercuria Energy Group	Geneva, Switzerland	$2.7 billion	$2.7 billion	No	Mercuria
8	Gunvor Group	Geneva, Switzerland	$1.3 billion	$1.3 billion	Yes	Financial Times
9	ExxonMobil Corporation	Irving, USA	$55.7 billion	Not Disclosed	Yes	ExxonMobil
10	Chevron Corporation	San Ramon, USA	$35.5 billion	Not Disclosed	Yes	Chevron

Note: The profit figures are approximate and based on the latest available data as of November 2024. "Estimate" indicates whether the trading arm profit is an estimated figure.

Offshore Operations

A significant number of these trading firms are based offshore or structured to avoid direct UK tax obligations, allowing them to operate with fewer tax liabilities compared to domestic companies. This setup enables such firms to retain a larger share of profits.

Rank	Company Name	Headquarters Location	Jurisdiction Status	UK Trading Activities	UK Taxation Status
1	Glencore plc	Baar, Switzerland	Tax-advantaged	Extensive	Limited
2	Trafigura Group	Singapore	Tax-advantaged	Significant	Limited
3	Vitol Group	Geneva, Switzerland	Tax-advantaged	Extensive	Limited
4	Gunvor Group	Geneva, Switzerland	Tax-advantaged	Notable	Limited
5	Mercuria Energy Group	Geneva, Switzerland	Tax-advantaged	Notable	Limited

Case study Centrica:

Cobblestone is a trading company that operates in European short-term power markets, with a substantial presence in the UK. Headquartered in Dubai, UAE, Cobblestone benefits from favourable tax regulations, meaning it does not pay taxes on profits earned from trading activities in the UK power market.

What should be done to improve liquidity and ensure an equitable solution

To improve liquidity and create a more equitable solution in the UK energy market, several structural changes could be implemented. These would aim to reduce speculative trading, enhance market transparency, and support low-income households. Here's an outline of potential solutions and their expected impacts:

A better trading system:

1. *GB Energy as a Central Trading Body*

Establishing a central trading body, led by "GB Energy," could offer a unified and transparent platform for energy transactions. As a single entity managing trades, GB Energy would remove the reliance on speculative trading and create a more stable market, benefiting consumers through potentially lower prices. By controlling trading activities centrally, GB Energy could limit price swings driven by speculators and focus on aligning wholesale prices with the true cost of generation. Nationalisation of certain aspects of the trading infrastructure could further streamline operations, though it would require significant government investment and oversight.

2. *Product Standardisation and Enforced Seller Participation*

To improve market stability, GB Energy could require sellers, such as generators, to create standardised products with clear offtake options. This would ensure that energy products are more uniform, reducing complexity and enhancing transparency. Enforcing participation in creating standardised products could make it easier for suppliers to secure energy at predictable prices, fostering a healthier and more liquid market. For example, EDF and other major generators would have equal access to trading positions, removing advantages for individual companies and creating a level playing field.

3. *Reducing OTC Trading*

A key step toward achieving a fairer market would be to transition more trading from Over-the-Counter (OTC) agreements to a regulated marketplace managed by GB Energy. By requiring trades to occur through a centralised platform, GB Energy could enhance transparency, enable better price discovery, and reduce the need for intermediaries.

4. *Supporting Suppliers Through Sudden Tariff Switching*

Large scale switching causes problems for energy suppliers. For example when large scale migrations occur - say when customers move en masse from variable-rate to fixed-rate tariffs, such as ahead of winter when there's anticipation of price spikes. This sudden migration puts pressure on less liquid products, leading to limited availability and sudden price volatility. For example, as many customers move from variable to fixed terms, suppliers, particularly smaller suppliers, struggle to secure the necessary volumes quickly and efficiently. WIth GB energy as a central body, it could efficiently coordinate the buying and selling of these less liquid assets, easing market pressures and maintaining price stability even in high-demand periods.

Bibliography

1. Ofgem. (2024). "Energy Wholesale Market Liquidity and Churn Rates."
2. McKinsey & Company. (2023). "Commodity Trading Industry Profit Analysis."
3. Ofgem. (2024). "Electricity Price Cap: Direct Fuel Cost Component."
4. Zeigo. (2023). "Power Purchase Agreements and Solar PPA Prices."
5. European Energy Exchange (EEX). (2024). "Market Transparency and Price Discovery Benefits of Exchange-Based Trading."
6. Centrica Energy Trading A/S. (2023). Financial results overview, detailing profits from power trading and the implications for UK market stability.
7. TankTerminals. (2024). "Annual Profits of Leading Energy Majors and Their Trading Arms."
8. Vitol. (2023). "Vitol Posts $13 Billion Revenue in 2023." Energy News. Retrieved from https://energynews.oedigital.com/mining/2024/06/14/vitol-posts-13-bln-revenue-in-2023-ft-reports.
9. Trafigura. (2023). "Annual Report 2023." Retrieved from https://www.trafigura.com/media/fwod1l2o/2023-trafigura-2023-annual-report-v2.pdf.
10. Glencore. (2023). "Publications." Retrieved from https://www.glencore.com/publications.
11. Mercuria. (2023). "Financial Information." Retrieved from https://mercuria.com/media-room/financial-information/.
12. Financial Times. (2023). "Global Energy Trading Insights." Retrieved from https://www.ft.com/content/8899adab-55be-4d00-b4f3-c2d828883584.
13. ExxonMobil. (2023). "Investor Relations and Financial Reports." Retrieved from https://investor.exxonmobil.com/.
14. Chevron Corporation. (2023). "2023 Annual Report." Retrieved from https://www.chevron.com/-/media/chevron/annual-report/2023/documents/2023-Annual-Report.pdf.

Appendix:

Key Differences Between PPAs and CfDs

Feature	Power Purchase Agreement (PPA)	Contract for Difference (CfD)
Who it's with	Private companies (utilities, corporates)	Government-backed scheme
Price mechanism	Fixed or indexed price	Strike price adjusted against market price
Revenue certainty	Some market risk remains	Guaranteed revenue floor
Who bears the risk?	Generator and off-taker	Government absorbs downside risk
Contract duration	10–20 years	15 years (UK)
Use case	Corporations, utilities, suppliers buying clean energy	Large-scale renewable projects requiring government support