



# The UK Behind-the-Meter C&I Storage Revolution

Market Insights, Revenue Logic &  
Partnership Opportunities



Solar & Storage Live London | April 2026



ZOE Energy Storage

# ZOE White Paper Release : Insights into VPP and Energy Storage Development in Europe

Date: September, 2025



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ZOE Digital Energy released the European Virtual Power Plant (VPP) and Energy Storage Development White Paper.

By ZOE Energy News | Sep 03, 2025

**CONFERENCE**  
**Sunrise Arabia Clean Energy Conference 2026**

Saudi Arabia is accelerating its clean energy transition, and the third Sunrise Arabia Clean Energy Conference in 2026 to expand from solar PV and energy storage into emerging technologies, AI/ML, hydrogen, charging, and innovation will take place in Riyadh, Saudi Arabia.

9:00 am - 6:00 pm, 03 | September 25, 2026  
Riyadh, Saudi Arabia

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Zoe Energy News  
Sep 03, 2025, 15:52 ET

SHANGHAI, 3. September 2025 (PRNewswire) – ZOE Energy Storage, ein führender BloombergNEF Tier-1-Anbieter von integrierten ESS-Lösungen, hat das Whitepaper European Virtual Power Plant (VPP) and Energy Storage Development veröffentlicht. Dieses Whitepaper bietet Einblicke in strategische Fähigkeiten, indem es strukturelle Veränderungen auf dem europäischen Strommarkt analysiert und die weltweit ESS-Projektfinanzierung von ZOE nutzt, um Synergien zwischen VPPs und Energiespeichern für Gewerbe und Industrie (Commercial & Industrial, C&I) aufzuzeigen.

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**ZOE publica un libro blanco sobre el desarrollo de VPP y almacenamiento de energía en Europa**

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**ZOE publica un libro blanco sobre el desarrollo de VPP y almacenamiento de energía en Europa**

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Zoe Energy News  
Sep 04, 2025, 15:39 ET

SHANGHAI, 4 de septiembre de 2025 (PRNewswire) – ZOE Energy Storage, proveedor líder de primer nivel de BloombergNEF en soluciones integradas de almacenamiento de energía (ESS), publicó el Libro Blanco sobre el Desarrollo de Centrales Eléctricas Virtuales (VPP) y Almacenamiento de Energía en Europa. Este libro blanco proporciona una hoja de ruta estratégica para las empresas mediante el análisis de los cambios estructurales en el mercado energético europeo y el aprovechamiento de la potencia global de ZOE en proyectos ESS para revelar sinergias entre las VPP y el almacenamiento de energía comercial e industrial (C&I).

El libro blanco de ZOE ofrece perspectivas clave para la colaboración en la industria y como superar las barreras técnicas, de cumplimiento normativo y del ecosistema para alcanzar el éxito global.

**waittree ONLINE**  
Bloomberg, Springer Nature, VPP and ESS  
Bloomberg | Open Energy Just Transition aus - without OI for BEB consolidated and Iberian Mega-Oboron water solution

**ZOE veröffentlicht Whitepaper zur Entwicklung von VPPs und Energiespeichern in Europa**

Verfasst von (ES) (Sep 03, 2025, 21:41)

**europapress**

Publicado 04/09/2025 19:41

**Comunicado**  
**ZOE publica un libro blanco sobre el desarrollo de VPP y almacenamiento de energía en Europa**

# The UK Energy Cost Crisis: Why Businesses Are Under Pressure

"UK businesses face some of the highest electricity costs in the developed world, undermining competitiveness."

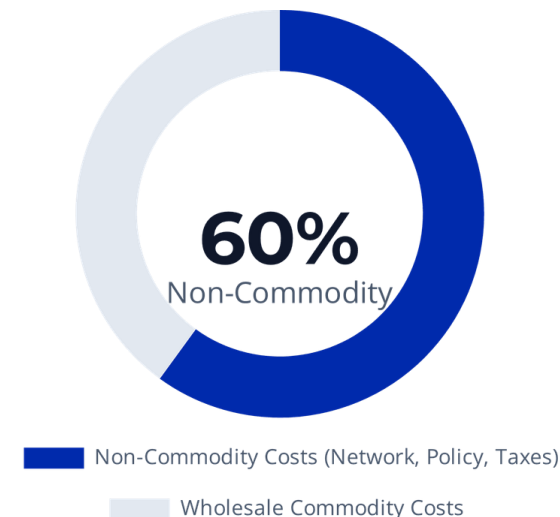
— CBI & Energy UK Report, Feb 2026

📉 Non-commodity costs now account for nearly **60% of a typical business electricity bill**, shifting the focus from wholesale prices to network charges.

↑ Following the Targeted Charging Review (TCR), TNUoS has largely transitioned into a fixed, capacity-based levy. Consequently, **equivalent network costs have risen materially (in some cases >60% YoY, increasing from ~£16 to ~£31/MWh on an equivalent basis)**. This now represents a largely unavoidable OPEX component that can no longer be effectively mitigated through traditional load-shifting strategies.

£ NESO forecasts a **94% increase** in total fixed residual charges, jumping from £3.84B in 2025/26 to £7.52B in 2026/27.

Typical UK C&I Electricity Bill Breakdown (2026)



# The Grid-Scale Squeeze: Why Smart Money Is Looking BTM

 More capacity leads to more competition. The grid-scale gold rush is over, and the Behind-the-Meter (BTM) C&I market offers more predictable, diversified revenue streams.

## £41k / MW / year

Grid-scale BESS revenues fell to this level in Feb 2026 — the lowest in 2 years. Winter 2025/26 averaged just £51k/MW/year, 35% below the previous winter. According to Modo Energy ME BESS GB

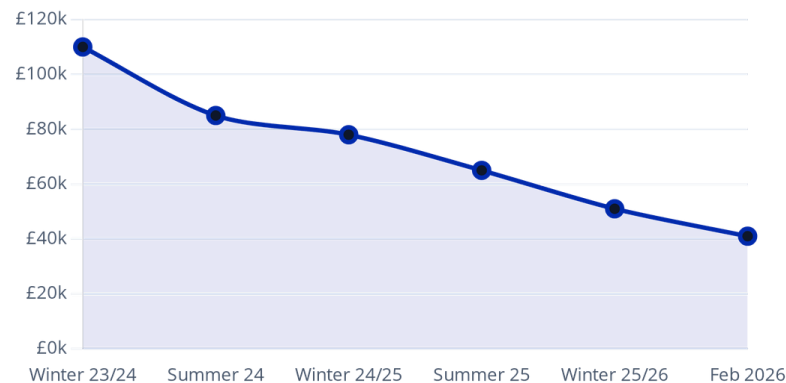
## -47% YoY Decline

Year-on-year revenue decline for grid-scale assets. Wholesale revenues even turned negative for the first time at -£6k/MW/year due to market saturation.

## 12.9 GWh

UK grid-scale capacity grew 45% in 2025. This rapid expansion is cannibalising returns, driving investors toward the untapped BTM C&I sector.

UK Grid-Scale BESS Revenue Trend (Illustrative)



— Modo Energy UK Report, Feb 2026

# The Grid Connection Advantage: Bypassing the Queue



## Large-Scale FTM Storage

THE GRID BOTTLENECK



### Massive Delays

Grid connection queues in the UK now stretch into the 2030s. Projects face 5 to 10-year wait times just to get energized.



### Exorbitant Upgrade Costs

Developers are often hit with millions in unexpected grid reinforcement and infrastructure upgrade charges.



### High Uncertainty

Capital is locked up for years with significant regulatory and connection risk before a single penny is earned.

**Years to Deployment**  
**5-10 years**

VS



## BTM C&I Storage

THE FAST-TRACK SOLUTION



### G99 Type A Fast Track

Systems under 1MW (Type A) benefit from a significantly streamlined and accelerated DNO application process.



### Utilising Existing Capacity

Installed behind the meter, leveraging the site's existing import capacity. No massive new grid infrastructure required.



### Rapid Revenue Generation




From contract signature to commissioning in months, not years. Capital starts generating returns almost immediately.

**Months to Deployment**  
**1-3 months**

# The Policy Catalyst: P415 & the VTP Revolution




The P415 code modification went live on 17 November 2024, marking the most significant regulatory change for BTM storage in a decade. It creates a new licensed role: the Virtual Trading Party (VTP) — an aggregator that can be entirely different from the site's energy supplier, unlocking direct access to wholesale markets.

## BEFORE P415

-  **Locked to Supplier:** BTM assets were tied to the site's retail energy supplier, limiting optimization options.
-  **Defensive Only:** Batteries could only save money by reducing retail bills (peak shaving, ToU arbitrage).
-  **No Market Access:** Legally restricted from direct wholesale exchange trading (Day Ahead/Intraday), missing out on real-time price volatility.



## AFTER P415

-  **Supplier Independence:** VTPs can trade "deviation volumes" independently of the site's main supply contract.
-  **Defensive + Offensive:** Batteries can **both save AND earn**, stacking bill reductions with active market trading.
-  **Full Market Access:** Unlocks Day Ahead and Intraday wholesale markets, completing the final piece of the revenue stack alongside existing BM, CM, and DSO Flex opportunities.

# The Golden Window: Three Forces Converging Now

Policy, economics, and market timing have created an unprecedented window of opportunity for Behind-the-Meter C&I storage in the UK.



## 1. Regulatory Tailwind

The implementation of **P415 and the VTP mechanism** (Nov 2024) has officially opened wholesale market access for BTM assets, transforming them into active revenue generators.



## 2. Cost Pressure

Non-commodity costs are surging, with **TNUoS charges rising 60%+** in April 2026. Businesses are facing critical cost pressures and desperately need energy management solutions.



## 3. Market White Space

While the grid-scale market is saturating and returns are cannibalised, the **UK BTM C&I market is still in its early innings**. First movers will capture the best sites and highest returns.

# Who Benefits Most? Target Scenarios

## IDEAL SITE QUALIFYING CRITERIA

 Daily Consumption: > 1 MWh

 Supply Capacity: >100 kVA

 Predictable Load Profile



### Large Logistics & Warehousing

Ideal due to cold storage requirements, automated conveyor systems, 24/7 operations, and high kVA demand peaks.



### Manufacturing & Heavy Industry

Consistent high baseloads, large peak demand charges, and predictable shift patterns make these prime targets for BTM.



### Large-Scale Agriculture

High consumption from irrigation pumps, grain drying, and cold storage, often coupled with rural grid constraints.



### Data Centres & Server Farms

Ultra-high consumption and critical power needs. BTM storage offers excellent synergy with existing UPS infrastructure.



### Supermarket & Retail Chains

Significant refrigeration loads. Multiple sites offer the opportunity for portfolio aggregation and scaled VTP participation.



### EV Charging Hubs

Extreme peak demand and frequent grid connection constraints. Storage provides essential demand flexibility and peak shaving.

# Revenue Logic: The Dual-Engine Model

$$\text{Total BTM Revenue} = \text{Engine 1 (Bill Optimisation)} + \text{Engine 2 (Market \& Flexibility Revenue)}$$



## Engine 1: Bill Optimisation

DEFENSIVE / CERTAIN

Reducing what you pay to your existing supplier. These savings exist regardless of P415 and form the baseline of the business case.

- ✓ Predictable and contractual
- ✓ Visible directly on every electricity bill
- ✓ Avoids peak network and capacity charges



## Engine 2: Market & Flexibility Revenue

OFFENSIVE / GROWTH

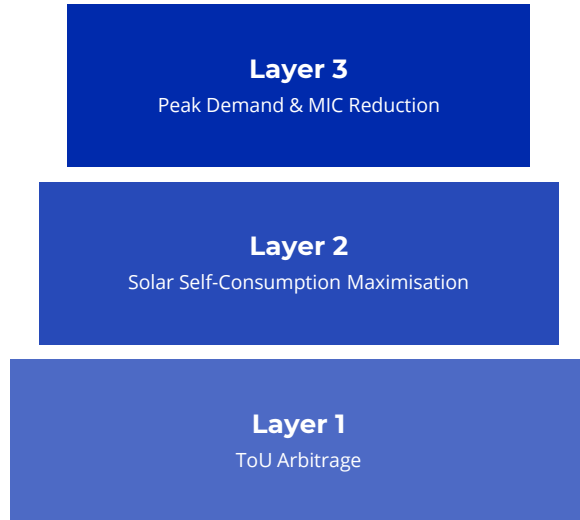
Earning new income by trading flexibility in wholesale markets via a Virtual Trading Party (VTP) aggregator.

- ✓ Additional, market-driven income
- ✓ VTP Revenue Only possible since P415 (Nov 2024)
- ✓ Captures full wholesale spread and BM prices



Key Insight: Engine 1 alone often cannot justify the CAPEX (e.g., £6,350/year savings vs £35,000 CAPEX). Engine 2 transforms the business case, turning a defensive asset into a profit center.

# Engine 1 Deep Dive: Bill Optimisation (Defensive)



3

## Peak Shaving & MIC Reduction

Flatten the site's power profile by actively shaving peak loads. This protects against remaining variable network congestion charges and allows the business to securely negotiate a lower Maximum Import Capacity (MIC) with the DNO, reducing fixed monthly kVA costs.

**Transforms peak loads into structural capacity cost savings.**

2

## Solar Self-Consumption Maximisation

Store excess daytime solar generation instead of exporting it to the grid at low spill rates. Discharge this clean energy during evening peaks to directly offset expensive grid imports.

**Increases solar ROI and accelerates the site's Net Zero transition.**

1

## Time-of-Use (ToU) Arbitrage

Charge the battery during off-peak periods (Green band, overnight) at low rates, and discharge during peak periods at high rates. This captures the spread between peak and off-peak commodity prices.

**Typical saving: £8-15/kWh/year depending on tariff structure.**

**A fundamental baseline saving for sites with variable energy tariffs.**

# Engine 2 Deep Dive: Market & Flexibility Revenue (Offensive)



P415 unlocks new VTP revenue that didn't exist for BTM assets before November 2024. These are additive to Engine 1 — the same asset, dual purpose.



## VTP-Enabled Wholesale Arbitrage (P415)

Enabled by P415 (Nov 2024), the VTP route converts avoided grid consumption into a tradable asset. By discharging to offset local load, BTM batteries can now sell these "deviation volumes" directly into the Intraday market, generating active revenue from high-value price signals.

**Unlocks direct market access to monetise high-frequency Intraday price spikes.**



## 2. Balancing Mechanism (BM)

NESO dispatches batteries to help balance the grid in real-time. Enabled by the P344 regulatory framework (2019), BTM batteries can now receive BM dispatch instructions via a VLP aggregator, pooling smaller sites into 1MW+ portfolios to unlock market access.

**Paid at BM prices, which can spike significantly during system stress.**



## 3. Demand Flexibility Service & DSO Flex

- **National (DFS):** Optimized response to NESO's Demand Flexibility Service. We aggregate BTM capacity to deliver reliable load reduction and peak shifting, converting dispatchable flexibility into predictable revenue streams.
- **Local (DSO):** Managing localized network constraints for DNOs. This provides an additional geographical-specific revenue layer by providing flexibility during local peak stress events.



## 4. Capacity Market

Participating as DSR CMUs (Demand Side Response) under the Energy Act 2013 framework. By committing de-rated capacity to the grid, BTM assets secure multi-year, government-backed availability contracts through T-1 and T-4 auctions. Provides a long-term, RPI-indexed revenue floor to de-risk the investment model.

# The Numbers: Real-World Illustration

REVENUE COMPONENT	ANNUAL VALUE (EST.)	CERTAINTY
<b>Engine 1: Bill Optimisation</b>		
ToU Arbitrage	£5,000	High
Solar Self-Consumption	£0 (Conservative)	Medium
kVA Peak Shaving	£1,350	High
<b>Engine 1 Subtotal</b>	<b>£6,350</b>	
<b>Engine 2: VTP Market Revenue</b>		
Wholesale Arbitrage (VTP)	£11,500	High
Balancing Mechanism	£0 (Conservative)	Medium
Demand Flexibility Service & DSO Flex	£0 (Conservative)	Medium
Capacity Market	£1,000	High
<b>Engine 2 Subtotal</b>	<b>£12,500</b>	
<b>TOTAL ANNUAL REVENUE</b>	<b>£18,850</b>	

## Reference Case

System Size: **125 kW / 261 kWh**  
 Target Site: **Large C&I Facility**  
 Consumption: **~1.5 MWH/day**  
 CAPEX: **~£35,000 (Turnkey)**

## SIMPLE PAYBACK COMPARISON

Engine 1 Only (Defensive)	<b>4 - 8 Years</b>
Engine 1 + Engine 2	<b>2 - 3 Years</b>

## Zero-CAPEX Model Available

No upfront cost for the end user. Revenue and savings are shared from Day 1, transforming energy from a cost center to a risk-free asset.




# Two Business Models, Two Opportunities



## Model A: Equipment Sales

EPC / INSTALLER ROUTE

Sell battery systems directly to end users. The end user purchases the equipment outright and captures 100% of the generated revenue.

-  **Asset Ownership:** End user owns the asset.
-  **Revenue Flow:** End user captures all bill savings and VTP market revenues.
-  **Partner Role:** Installer/EPC earns margin on hardware sales and installation services.




**Opportunity:** Capitalise on growing demand as businesses actively seek bill savings and VTP revenue to combat rising costs.



## Model B: Project Investment

ZERO-CAPEX / ENERGY-AS-A-SERVICE

Investor funds the battery and installs it at the customer site for free. Revenue is shared between the investor and the site host.

-  **Asset Ownership:** Investor owns the asset.
-  **Revenue Flow:** Customer gets guaranteed savings (zero upfront cost); Investor gets long-term returns.
-  **Partner Role:** Investor manages the asset and VTP trading to maximise the revenue stack.

**Opportunity:** Build a scalable portfolio of assets generating long-term, recurring, and asset-backed returns.

# ZOE's Three Roles: Equipment, Investment & Advisory

 ZOE brings hardware, capital, and expertise to unlock the value of every BTM C&I storage project.



## 1. Equipment Supplier

### TIER 1 BESS HARDWARE

ZOE supplies Tier-1 behind-the-meter battery systems and supports system design, delivery, and commissioning to meet strict technical and safety standards.

Premium Hardware · EPC & Installer  
Partner · End-to-End Delivery Support



## 2. BESS Project Investor

### ZERO-CAPEX / FULL PROJECT FUNDING

For qualifying sites, ZOE provides 100% direct investment for all upfront capital costs (hardware, installation, commissioning), allowing site owners to participate in a shared revenue model.

#### Site Qualifying Criteria:

- ⚡ Daily Consumption: > 1 MWh
- £ Tariff Spread:  $\geq 6p/kWh$
- ↩ Subject to Revenue Assessment



## 3. Free Assessment & Resource Coordinator

### ADVISORY / ECOSYSTEM COORDINATION

ZOE provides a free revenue assessment: supply HH consumption, tariff details, and MIC for a modeled revenue projection and coordinated partner delivery.

**Required Inputs:** HH Data · Tariff Info · Import Capacity  
**Strategic Partners:** VTP · VLP · Licensed Institutions



[Online Revenue Calculation Platform](#)



Revenue Analysis Report.pdf

# ZOE Energy Storage: Enabling the Ecosystem



A dedicated technology and investment partner driving collaborative growth and value creation across the UK energy ecosystem.



## Integrated VTP Partnerships

Seamless integration with official Virtual Trading Parties, enabling direct participation in Wholesale Markets. Provides full independence from retail suppliers to monetize energy deviations and market volatility.



## Integrated VLP Partnerships

Collaborations with registered Virtual Lead Parties, establishing the regulatory foundation for the Balancing Mechanism (BM) and Ancillary Services. Allows BTM assets to generate revenue from grid-balancing actions.



## Proprietary Algorithms

In-house AI engine performing real-time optimization across VTP, BM. Dynamically shifts asset capacity to the highest-value signal every second to ensure peak performance across the entire revenue stack.



## Dual Operating Modes

Flexible engagement: acting as a premium equipment supplier AND a project investor.



## BTM-First Approach

Designed for Behind-the-Meter. No complex Export Limit applications needed, ensuring faster deployment and commissioning.



## Comprehensive Ecosystem

Building a collaborative network of installers, EPCs, asset managers, and end users to unlock maximum value.

# The BTM C&I Market Is Ready. **Are You?**



## For Installers & EPCs

Add BTM storage to your pipeline and unlock VTP revenue for your clients, transforming your value proposition.



## For Asset Managers & Investors

Co-invest in C&I BTM projects with ZOE to capture the full revenue stack with a proven Zero-CAPEX model.



## For C&I End Users

Contact us for a Free Savings & Revenue Assessment for your site to see exactly how much you could save and earn.

## Let's Build This Together

Partner with ZOE Energy Storage today.



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# Thank You

