Public

Electricity Markets Advisory Council

18 September 2025

NESO
National Energy System Operator

Agenda

Item	Lead	Time
Informal lunch and networking (optional)		12:15 – 13:00
Welcome	Rebecca Beresford & Lizzie Blaxland (NESO)	13:00 – 13:05
DESNZ update on REMA	Harry Mayhew & Simon Masterson (DESNZ)	13:05 – 13:20
Update on RNP Balancing Reforms	Rein De Loor (NESO)	13:20 – 14:05
Break		14:05 – 14:20
NESO 1 Business Plan	Rachel Smith (NESO)	14:20 – 15:05
Whole Energy Market Coordination Report	Lei Chedham (NESO)	15:05 – 15:50
Close and Next Steps	Rebecca Beresford & Lizzie Blaxland (NESO)	15:50 – 16:00

National Energy System Operator

DESNZ update on REMA

Harry Mayhew & Simon Masterson (DESNZ)

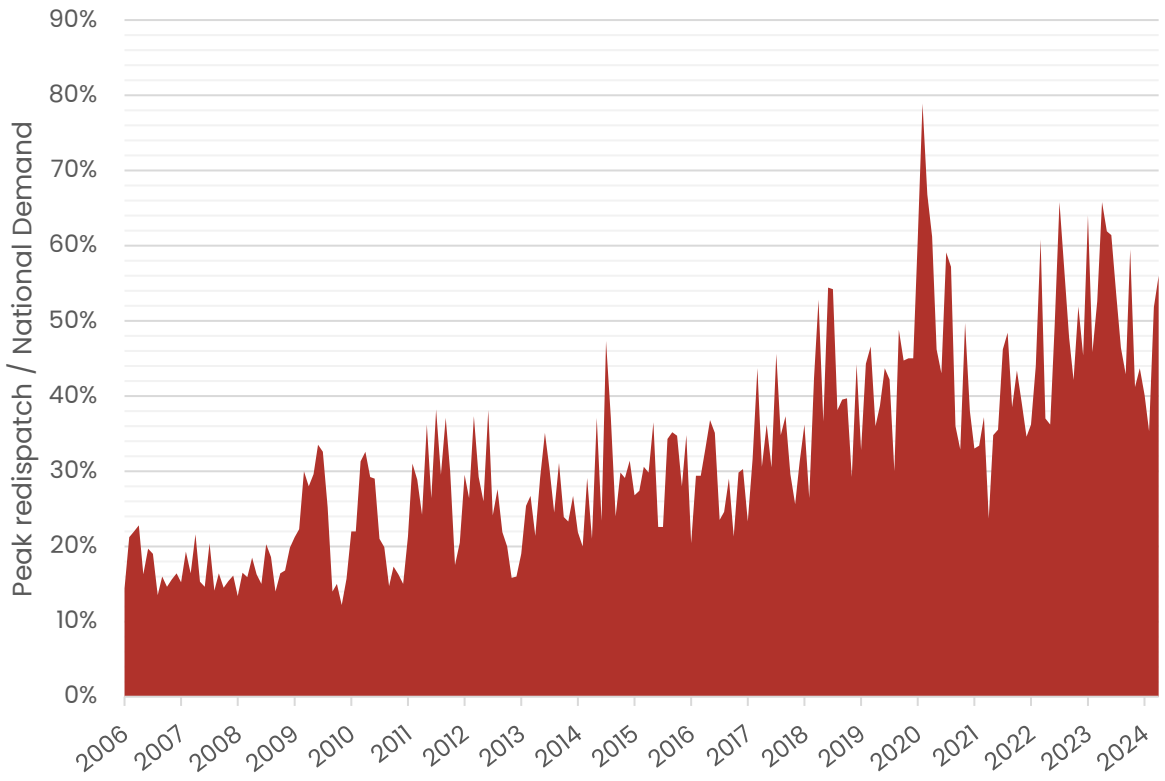
Update on RNP Balancing Reforms

Rein de Loor

NESO
National Energy System Operator

The volume of redispatch has grown significantly

Peak Monthly GB redispatch as a share of national demand 2006-2024

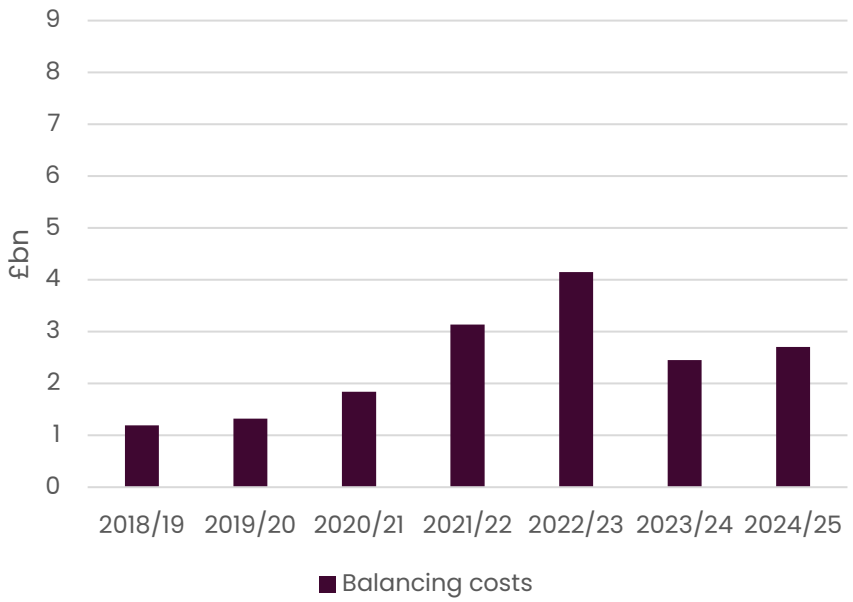


- As the electricity system has decarbonised, **NESO has increasingly needed to move away from its residual role** envisioned in NETA
- Balancing actions have been systematically increasing such that NESO now **frequently redispatches over 50% of the market**
- NESO is now often **operating as a de-facto central dispatcher**, without the appropriate tools or framework, which is **encroaching into the role of the market**
- At the same time, **NESO faces higher levels of uncertainty and variability**, compounding the potential for inefficient outcomes

NESO
National Energy System Operator

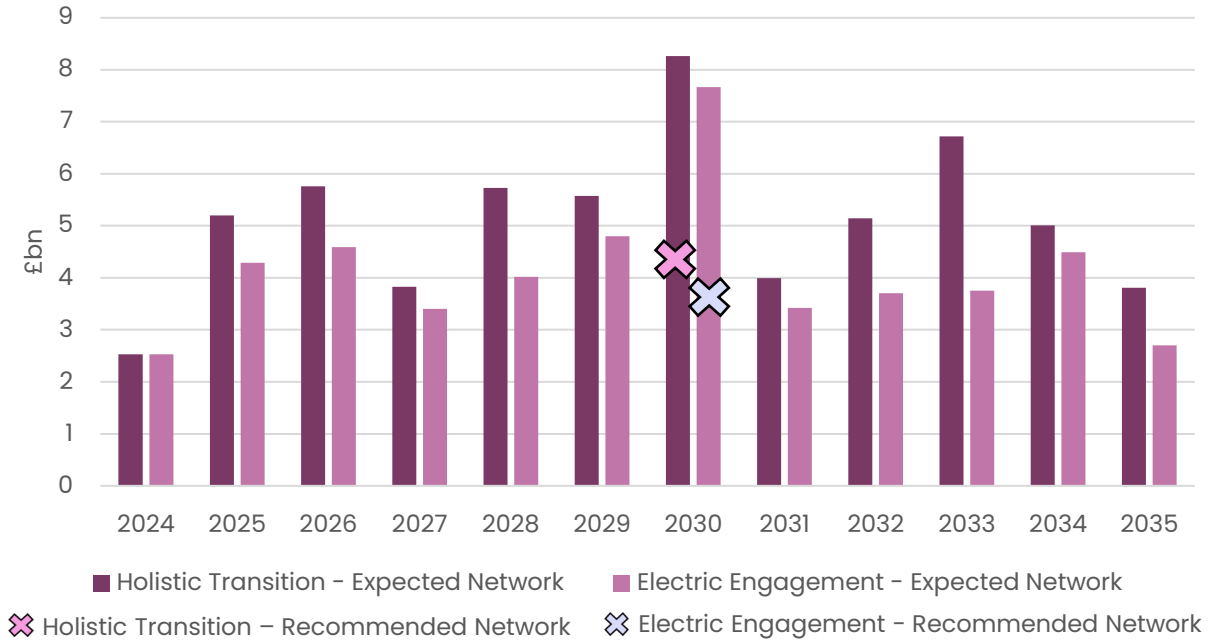
Increasing balancing costs highlight the need for reform

Outturn balancing costs 2018/19 – 2024/25



- Higher constraint costs have been driven by the **significant expansion in renewable generation** at the periphery of the network, at a much **faster pace than new transmission infrastructure** can be built
- **Thermal constraint costs are currently the main driver of balancing costs**, and we expect this trend to **continue in the future** as new generation connections in **constrained regions outpace network build**

Balancing cost projections 2025 - 2035



- **Balancing costs are expected to peak at ~£8bn in 2030** driven primarily by increased thermal constraint costs
- Any changes to **connection dates for new network build** would have a **significant impact on balancing costs**

NESO National Energy System Operator

Source: NESO Balancing Costs

Scheduling and dispatch case for change

NESO worked with AFRY on the scheduling and dispatch ‘Case for Change’, and identified three key limitations of the current design:

Incentives: The energy markets do not provide scheduling incentives in line with system needs and operational requirements.

Visibility and access: Incomplete NESO visibility of market outcomes and limited access to some resources impacts coherence between wholesale market and balancing.

Intertemporal issues: The current dispatch mechanism does not facilitate effective optimisation of costs and unit constraints over time.

These have been central to designing the package of balancing reforms throughout the REMA programme.

Balancing reform under RNP

NESO shared recommendations for developing a National Price Balancing design to the REMA programme. These reforms form a central part the balancing and settlement package under consideration for RNP, as set out in the DESNZ Summer Update:

- Shortening the imbalance settlement period (ISP) to 15 or 5 minutes
- Lower mandatory Balancing Mechanism (BM) participation threshold
- Physical Notifications (PNs) that must match traded positions
- Alignment of the market trading deadline with gate closure
- Unit-level bidding

Impact of RNP balancing reform

✓ Stronger temporal signals
✓ Better visibility and access for NESO
✓ Improved market monitoring

x Locational signals
x Efficient scheduling

- As part of RNP, NESO will engage with industry in constructive conversations to help develop these reforms and get a comprehensive understanding of the wider industry impact and effectiveness.
- By the end of 2025, NESO will also launch a Call for Input to allow industry to share views on these as well as wider reforms to be considered under RNP.

NESO National Energy System Operator

Wider considerations and next steps

We also welcome any views and suggestions for balancing reform outside of the ones discussed today.

Throughout the RNP programme, we look forward to engaging with industry on the reforms and we will launch a Call for Input at the end of this year to gather feedback and start impact assessing the reforms.

Break

NESO 1 Business Plan

Rachel Smith & Jon Wisdom

NESO
National Energy System Operator

Context Setting

- We are currently developing our draft NESO-1 Business Plan for April 2026 – March 2028
- A holistic view of all our Performance Objectives, with a zoom in our proposed "Enabling Smarter, Cleaner Markets" Performance Objective
- Plan and objectives are still a WIP
- Would like views on what else we need to draw out, things to be developed
- Chatham house rules for discussion

We are currently preparing our next 2-year business plan

We will submit the FY27 – FY28 (NESO 1) business plan to Ofgem

- The business plan submission is structured around our Performance Objectives.

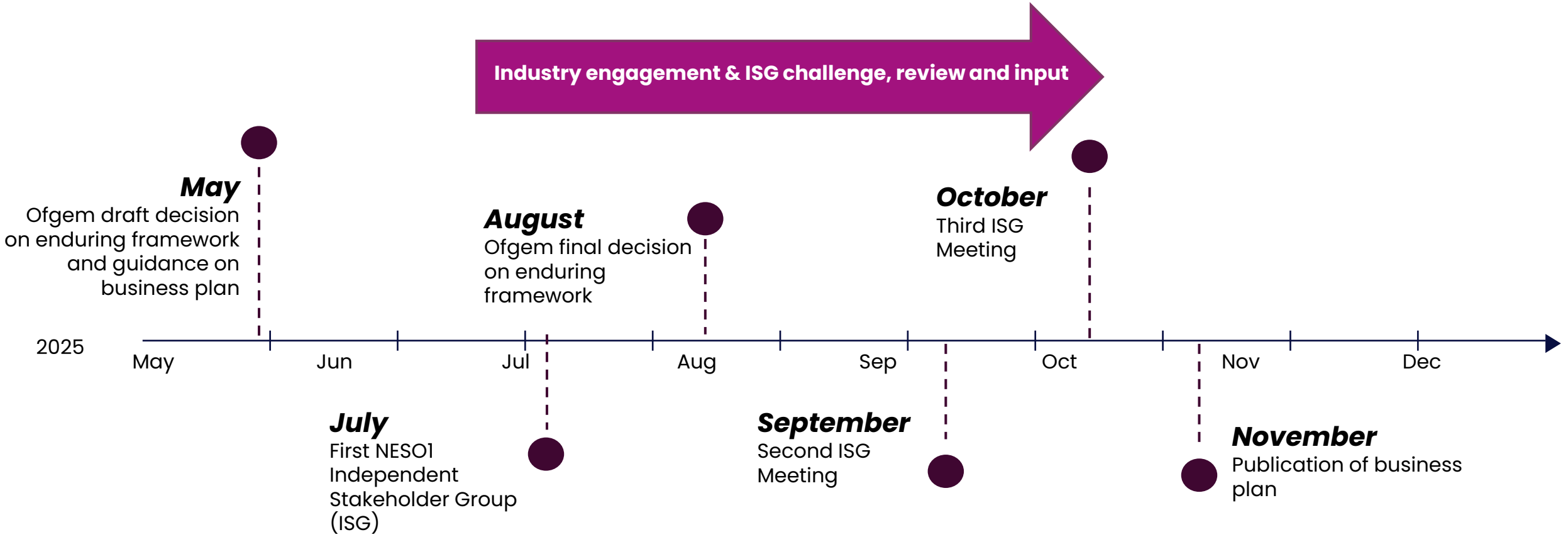
The Performance Objectives (PO)* are major outcomes that NESO intends to achieve by the end of the two-year Business Plan period.

- Each PO will be supported by Success Measures which demonstrate what successful delivery looks like.

** The POs are currently going through internal review & sign-off*

NESO
National Energy System Operator

Planning timelines



Whole Energy Market Coordination Report

Lei Chedham

NESO
National Energy System Operator

Context | NESO's remit in whole energy markets

1. NESO continues to function as the **system operator** for electricity
2. NESO acts as a **system planner** providing strategic direction for electricity, gas and future systems
3. NESO serves as an **independent advisor**, providing analysis and information to Government and Ofgem
4. **A whole energy market approach** is central to achieving the following objectives:
   - A clean, secure and affordable energy future for Great Britain
   - Development of competitive and efficient markets across energy vectors by improving coordination and addressing inefficiencies in existing design.

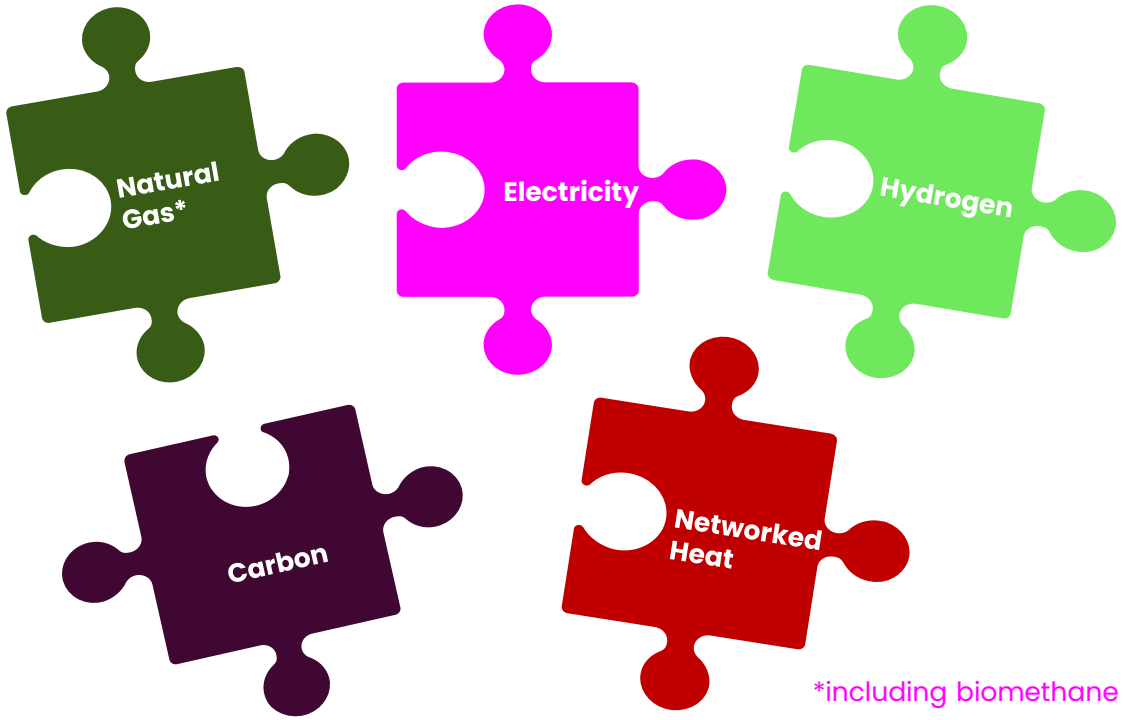
Our first phase focuses on enhancing the coordination of markets across the whole energy system. This effort is part of our broader role in market development, aiming to shape and drive the creation of competitive and efficient markets that interact seamlessly across multiple energy vectors. This programme will complement many of the key publications by NESO:

- Strategic Spatial Energy Planning
- Regional Energy System Planning
- Review of Electricity Market Arrange-ments
- Clean Power 2030
- Flexibility Market Strategy
- Future Energy Scenarios

NESO National Energy System Operator

Purpose | NESO's role includes exploring how energy markets can work better together

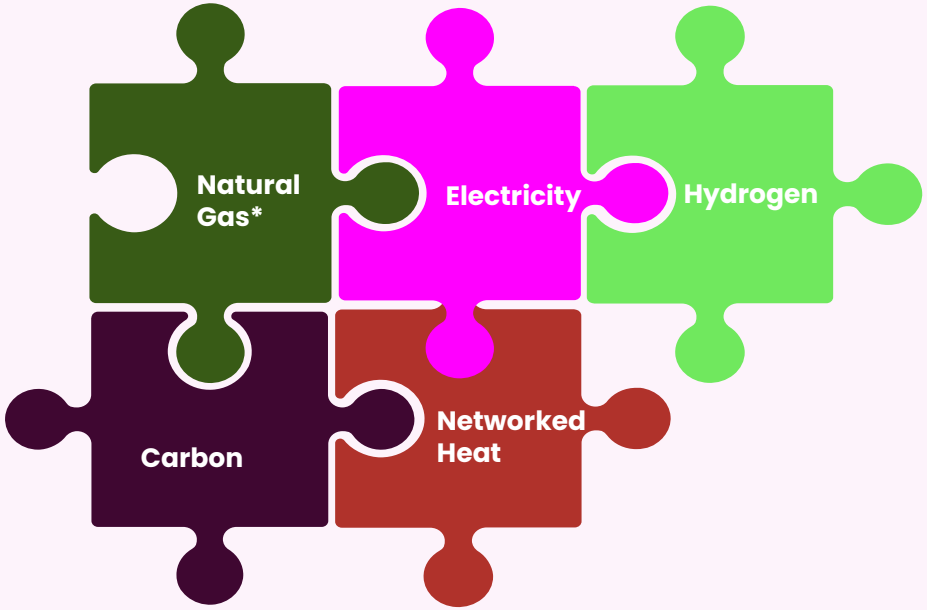
Currently, energy markets are designed independently of each other, in a fragmented approach



*including biomethane

Transitioning to a clean energy system requires an exploration of how these markets can work better together to support decarbonisation in an affordable and secure way

Whole Energy Market Coordination



For the purpose of this project, our scope includes 5 'vectors', which we define as distinct networked energy or waste carriers: Electricity, Natural Gas (methane / biomethane), Networked Heat, Hydrogen and Networked Carbon

NESO National Energy System Operator

Market Design Categories: We identified the key components of as-is market design across the 5 vectors in our scope using the below categories:

Economic regulation

Structure of the energy market across vectors, value chains and market participants

E.g. Licenced activities, Codes, Standards

Investment policy

Market interventions employed to achieve specific policy objectives

E.g. Decarbonisation support mechanisms

Operational market design

The structure of wholesale and short-term operational energy markets to match physical supply and demand

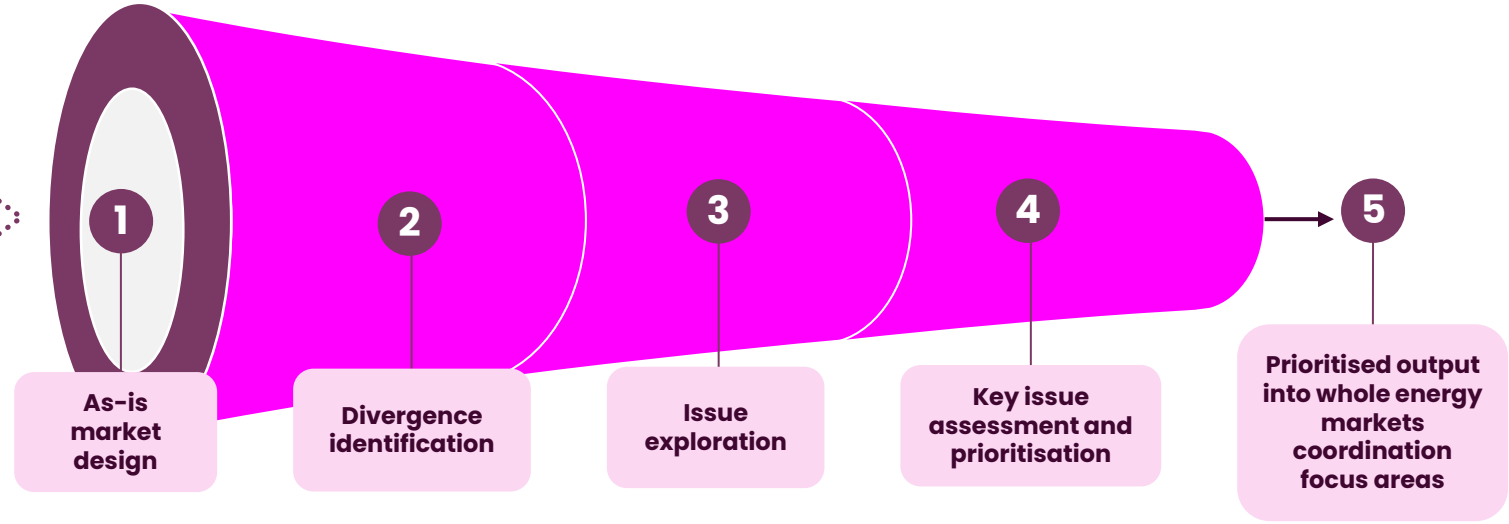
E.g. Energy balancing mechanism design, ancillary services

Cost allocation

Cost recovery for networks and investment policy

E.g. Investment policy cost allocation, network cost allocation

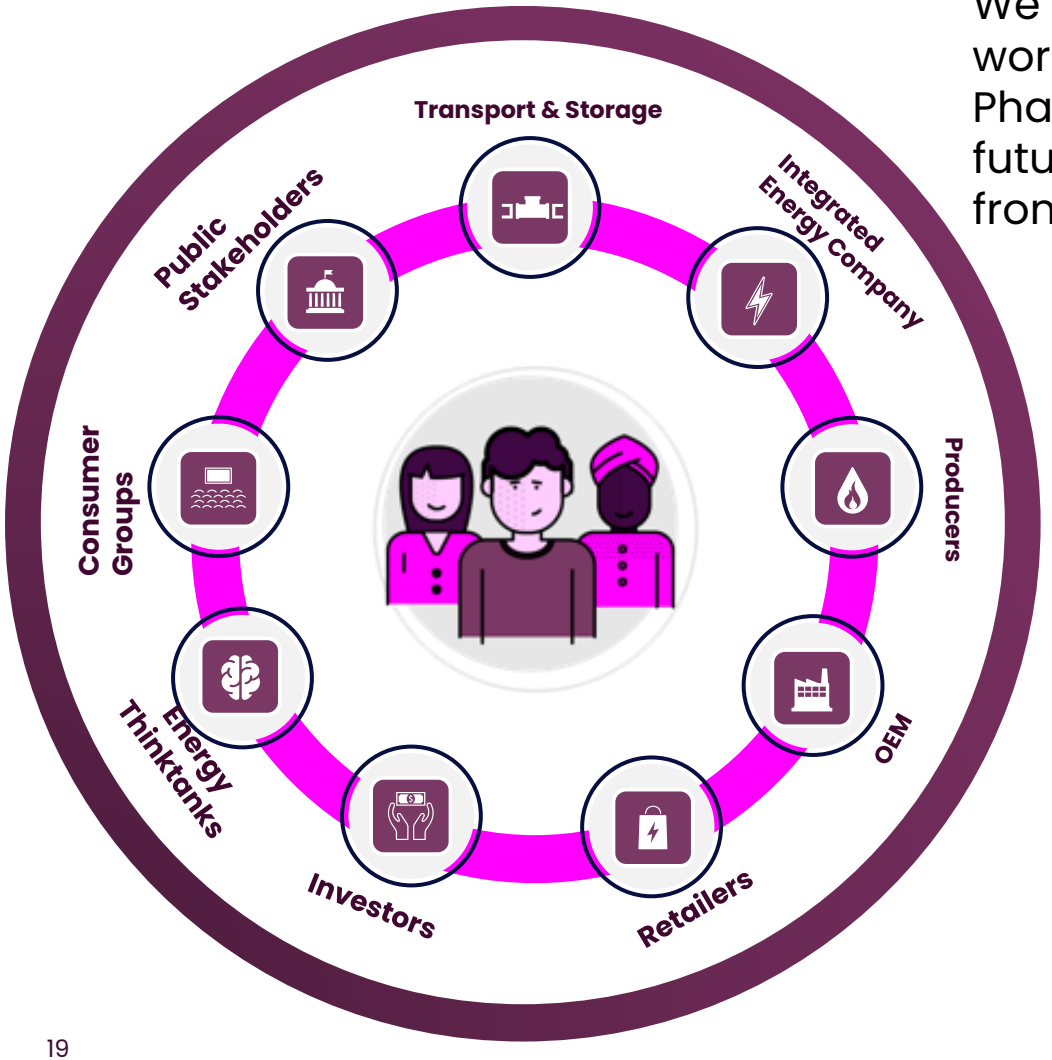
Market design comparison | Our analytical framework was applied to identify focus areas that could benefit from greater whole energy market coordination



1. Market design categories were used to develop comprehensive representation of as-is market design (across over 100 sub-category market design elements for each of the five vectors).
2. Comparing the current market design of the five vectors, we identified where there are differences (divergences).
3. We then explored potential issues as a result of these market design divergences.
4. We then considered the key issues according to our assessment framework, using this to prioritise them.

NESO National Energy System Operator

Stakeholder overview | We engaged with a wide range of domestic and international stakeholders across the energy sector



We have leveraged insight from stakeholders working across the energy landscape as part of Phase 1. Engagement will continue to be central to future phases. We will continue to draw insights from forums including:

Markets Advisory Council

Markets Forum

Industry Conferences

Industry Round Tables

Focus Areas | We identified areas of cross vector market design that could benefit from greater whole energy market design coordination

Market Design	Unlocking clean heat	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation	1 Time of Use Tariffs (ToUT) have a critical role in enabling price responsive demand across vectors 2 A regulated investment model for district heating could further support its deployment		
Investment policy	3 Aligning heat decarbonisation funding across technologies and regions could accelerate the rollout of clean heat		
Operational market design			
Cost allocation	4 Rebalancing environmental costs across consumer bills could incentivise fuel switching to lower carbon alternatives 5 There is a need to strategically consider the timeframe over which we pay for energy infrastructure		

National Energy System Operator

Focus Areas | We identified areas of cross vector market design that could benefit from greater whole energy market design coordination

Market Design		Ensuring energy security in a more complex energy system	
Economic regulation	Unlocking clean heat		Integrating greater strategic planning into holistic market design
Investment policy		6 Long-term incentives specifically to reward the contribution of energy supply assets to overall energy security could be considered for all vectors 7 Long-term incentives to support investment in assets with the ability to reduce demand to contribute to overall energy security could be considered for all vectors	
Operational market design		8 Greater coordination of system operation across vectors could generate greater operational and cost efficiencies	
Cost allocation			

Please note, these focus areas are not ranked in order of prioritisation.

Focus Areas | We identified areas of cross vector market design that could benefit from greater whole energy market design coordination

Market Design	Unlocking clean heat	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation			9 Holistic market design should ensure coherence of strategic planning and investment policy at national and regional levels
Investment policy			
Operational market design			10 Stronger operational locational signals in electricity markets could unlock the ability for other vectors to harness low-cost low carbon electricity, and highlight the need to consider cross-vector locational incentives
Cost allocation			11 The delivery of national and regional strategic targets could be influenced by the extent to which investment policy takes into account locational network charges

* This opportunity considers cross-vector interactions after a specific potential change to market design, rather than under existing market design.

Please note, these focus areas are not ranked in order of prioritisation.

NESO National Energy System Operator

Next steps | This report is the first step in a multi-phased project towards coordinated, whole energy market design

July 2025

1

Phase 1 publication

Whole Energy Markets Coordination

- **Map context** of evolving GB energy system and relevant market trends
- **Identify major divergences** across vectors within as-is market design
- **Identify opportunities** to improve cross-vector coordination
- **Gather learnings** from other markets with similar risks & opportunities

Autumn/Winter 2025

Sharing output and seeking feedback

- **Publish full report** in Winter
- **Launch webinar** to share outputs and share opportunity for broad stakeholder feedback
- **Harness industry feedback** from open invitation Whole Energy Market Forum
- **Targeted feedback** sought through industry roundtables and bilateral discussions

Winter 2025

2

Phase 2: Scoping future whole energy market activities:

- Pending feedback**, our planned approach for phase 2** could include:
- **Development of selection criteria** for future Whole Energy Market Coordination projects
- **Prioritise Whole Energy Market projects** to be taken for further assessment in collaboration with industry
- **Detailed analysis** on prioritised areas to **inform policy recommendations**

2026

Future Phases

- To build on our findings in **collaboration with our customers and wider industry**

NESO
National Energy System Operator

Our approach to Phase 2

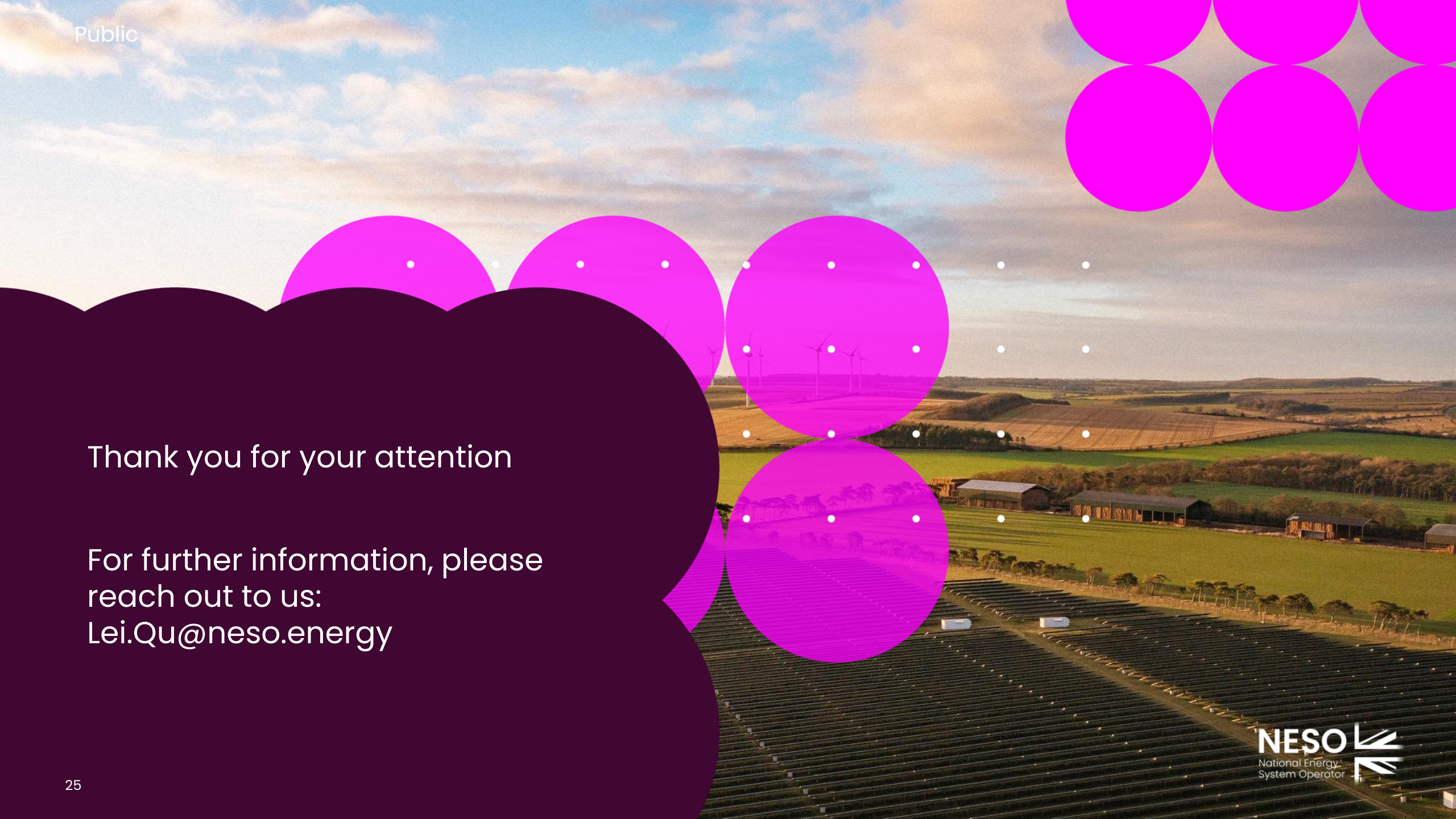
Framework to prioritise

We will develop a framework to prioritise the 11 opportunities from Phase 1. The criteria will include, but not limited to; What role NESO plays for each opportunity, Whether other teams in NESO are better placed to work on it/are working on it, Time to impact, how many vectors it involves.

Stakeholder inputs

Numerous energy industry stakeholders from GB across vectors will be interviewed to develop an understanding of Industry's priorities.

Prioritised list of opportunities to take forward into Phase 2 for further analysis



Thank you for your attention

For further information, please reach out to us:
Lei.Qu@neso.energy

Thank you

NESO
National Energy System Operator