Public

Markets Forum

June 2024

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National Energy System Operator

Balancing Services

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Objectives of session:

Aims of session

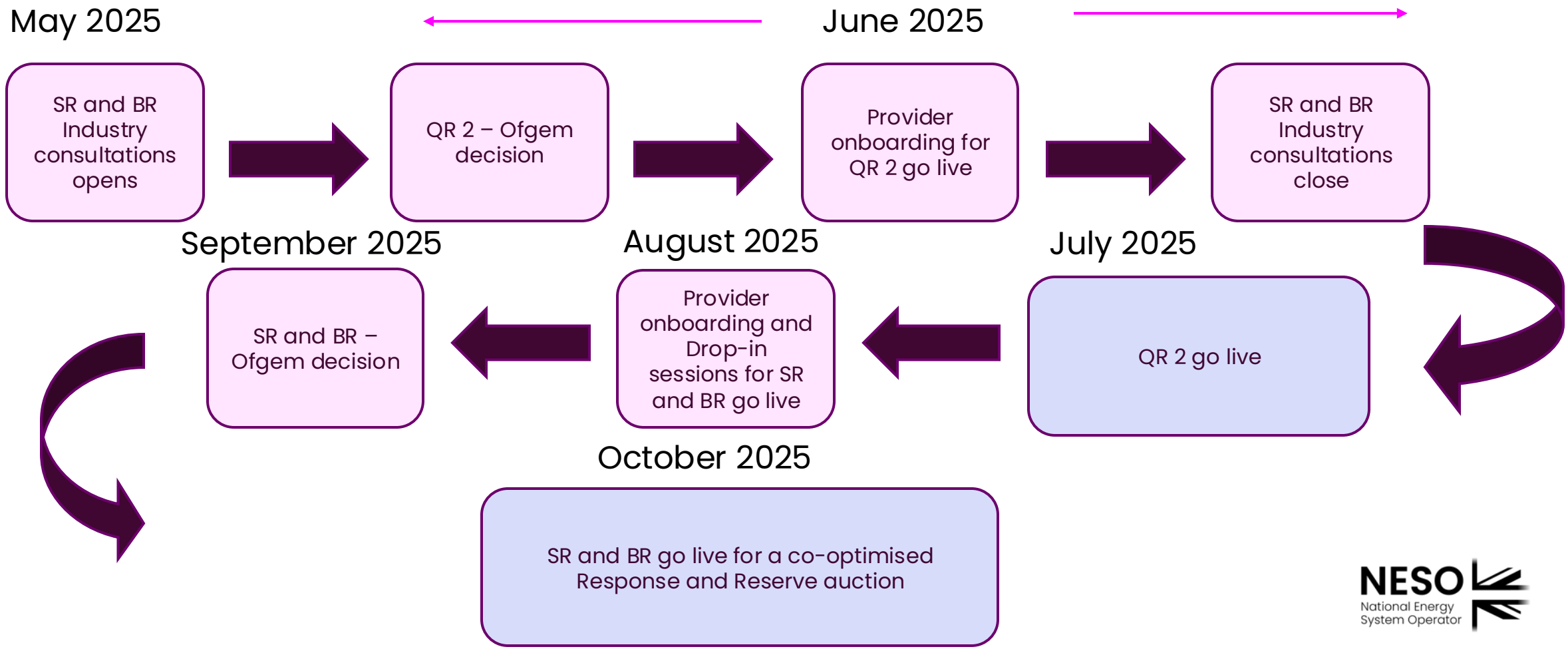
- Provide updates on the key Balancing Services Reforms
- Understand Industry's hopes & fears of each of these reforms
- Allow time for room discussion on key themes that arise

Agenda:

- Reserve Updates and Timelines
- Response Service Design Status Updates
- Instructible Dynamic Response
- Locational Procurement of Response & Reserve
- Static Reform

Reserve Reform timeline

Quick Reserve – Phase 2 (QR 2) / Slow Reserve (SR) / Balancing Reserve (BR)



Balancing Services – Dynamic Response Current Service Design Status

	Needs case	Options assessment	Service design	Formal Consultation	Go Live
 **Engagement**					
Instructible Dynamic Response			★		
Static Response Reform		★			
Locational procurement		★			
30 Minute Service Window	★				
Stacking Response/Reserve	★				

Balancing Services – Instructible Dynamic Response

The draft Service Design was issued to industry in March 2025

Key considerations in the service design for instructible Dynamic Response:

Limits and Prices	Capability curves	Instructions and stacking	Performance Monitoring
Declare offerings for each service	Determine maximum available response	Instructions are open-ended	Performance targets aggregated
Commitments become firm at deadline	Adapt to other instructions, variable baselines	Splitting with day-ahead response	Transparency data published

Following industry feedback in a number of areas, but particularly in terms of submission deadlines and the design of payments. We are looking to evolve the service design further, we hope to update industry again later in June.

Balancing Services – Locational procurement of Response and Reserve

Drivers for Locational Procurement

- Constraints in the transmission network
- Constraints in the distribution networks
- Impact on stability / inertia

Locational Procurement Webinar
Wed, 9 Jul 2025 15:00 - 16:00 (UTC+00:00)

Provider Considerations

- Minimise business process disruption
- Unit Aggregation

Bidding and Dispatch Considerations

- Partial unit acceptance
- Fractional bids

Order and Pricing Considerations

- Clearing price definition
- Gaming risks

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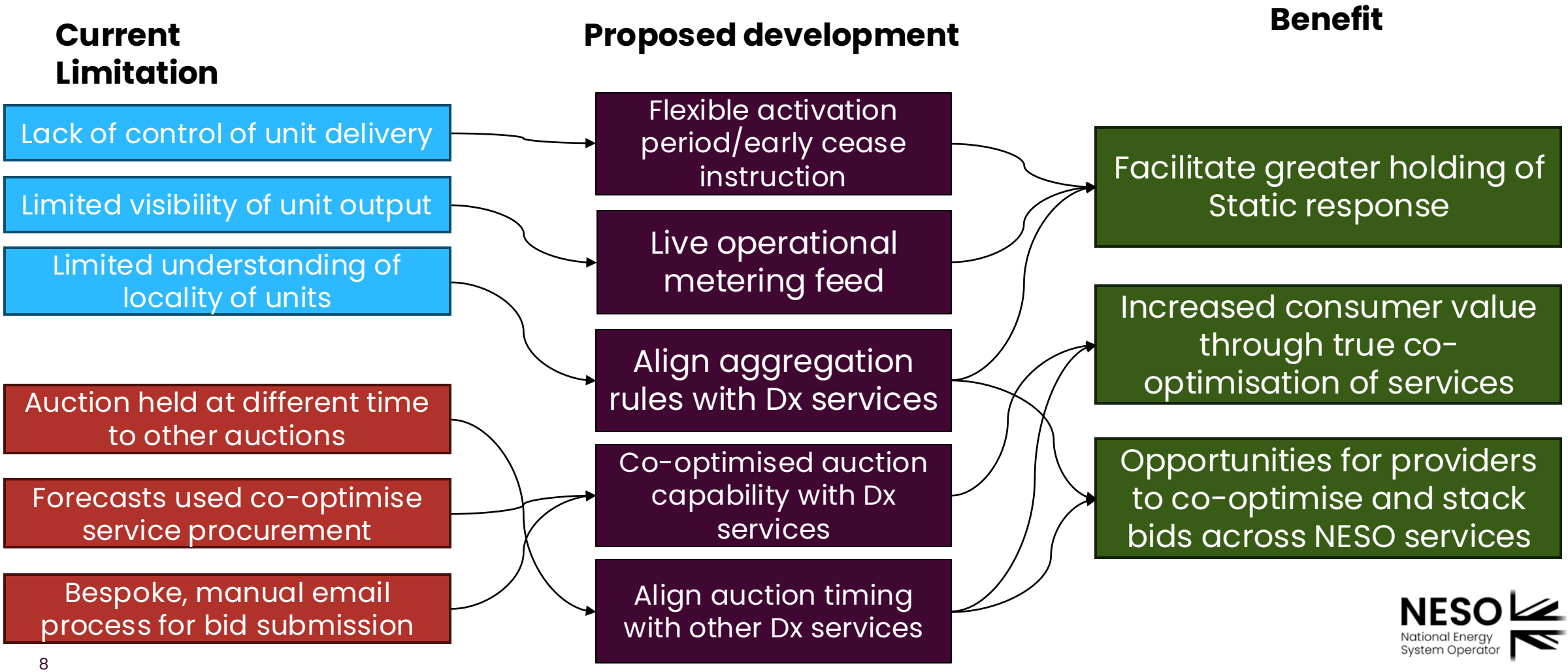
Balancing Services – Static Response Reform



Consumer-Led Flexibility for CP30

Becky Hart – Electricity Markets Development Manager

Richard Hanson – Flexibility Services Development Manager

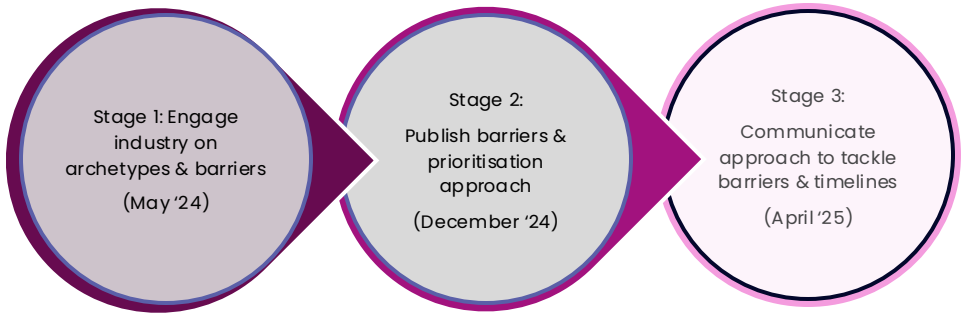
Commitment to enabling demand side flexibility

Enabling demand-side flexibility in NESO markets report

- Mid-term strategy
- Defines our vision, outcomes and objectives
- Support ***Low Carbon Flexibility Roadmap***

Routes to Market Review report

- A specific project to deliver "Competition" outcome for EDSF
- Identify and prioritise market access barriers



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Taking this journey together is crucial to success

Quarterly updates & webinar

We will be holding quarterly update webinars that will include:
- Overall progress update on projects & programme
- New barrier identification & prioritisation
- Specific barrier/project focus updates – stakeholder feedback & input, topical activity updates etc.

We will also provide updated plans and status information via the Markets Roadmap webpage

Working Groups

Specific working groups will be set up to support stakeholder involvement and engagement in specific projects where appropriate. The scope of working groups will be dependent on the needs of the projects. The Operational Metering working group is an example of such a group.

DESNZ, Ofgem & NESO Low Carbon Flexibility Roadmap

The Government set a commitment in the Clean Power Action Plan, that DESNZ will publish a joint Low Carbon Flexibility Roadmap in 2025 with Ofgem and NESO. The Low Carbon Flexibility Roadmap will set out clear short and long-duration flexibility milestones and measures required for clean power in 2030. We will include monitoring and evaluation of barrier removal progress for Demand Side Flexibility in NESO markets via the Low Carbon Flexibility Roadmap process.

Annual Report

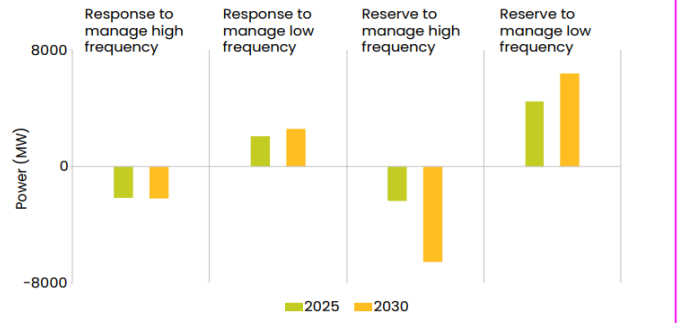
We will publish an annual report on barrier removal progress and status. This is likely to be as part of the annual Markets Roadmap or Power Responsive reports in 2026.

Demand-side flexibility

is a great resource to help us meet all three types of flexibility requirements

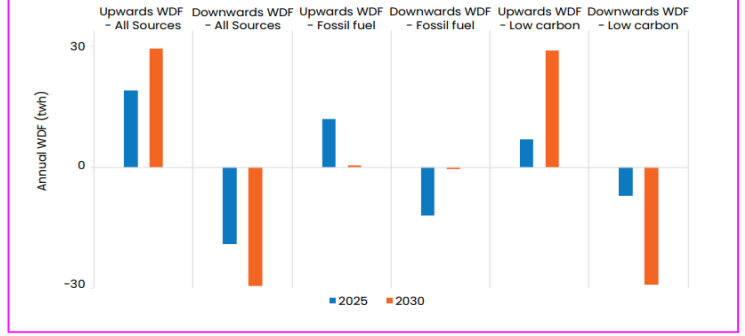
Flexibility for Frequency

Figure 18: Maximum Daily Frequency Service Volumes



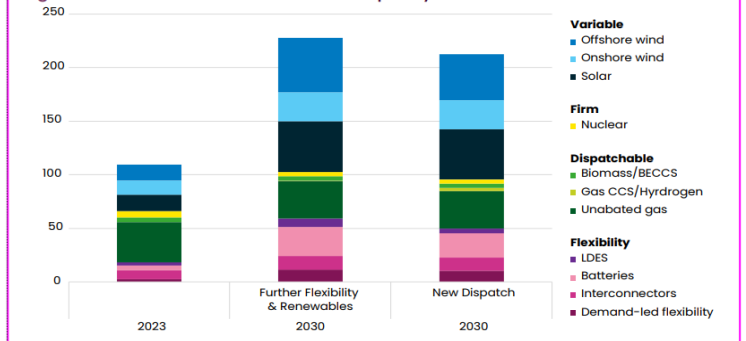
Within-day Flexibility

Figure 19: Annual within-day flexibility volumes: wholesale and residual



Flexibility for Adequacy

Figure 20: Clean Power 2030 Installed Capacity



Minutes — Hours — Days to Years

Explicit DSF

Mainly implicit DSF

Q: How will MWHHS change wholesale market behaviour? How much implicit flex will be brought forward?

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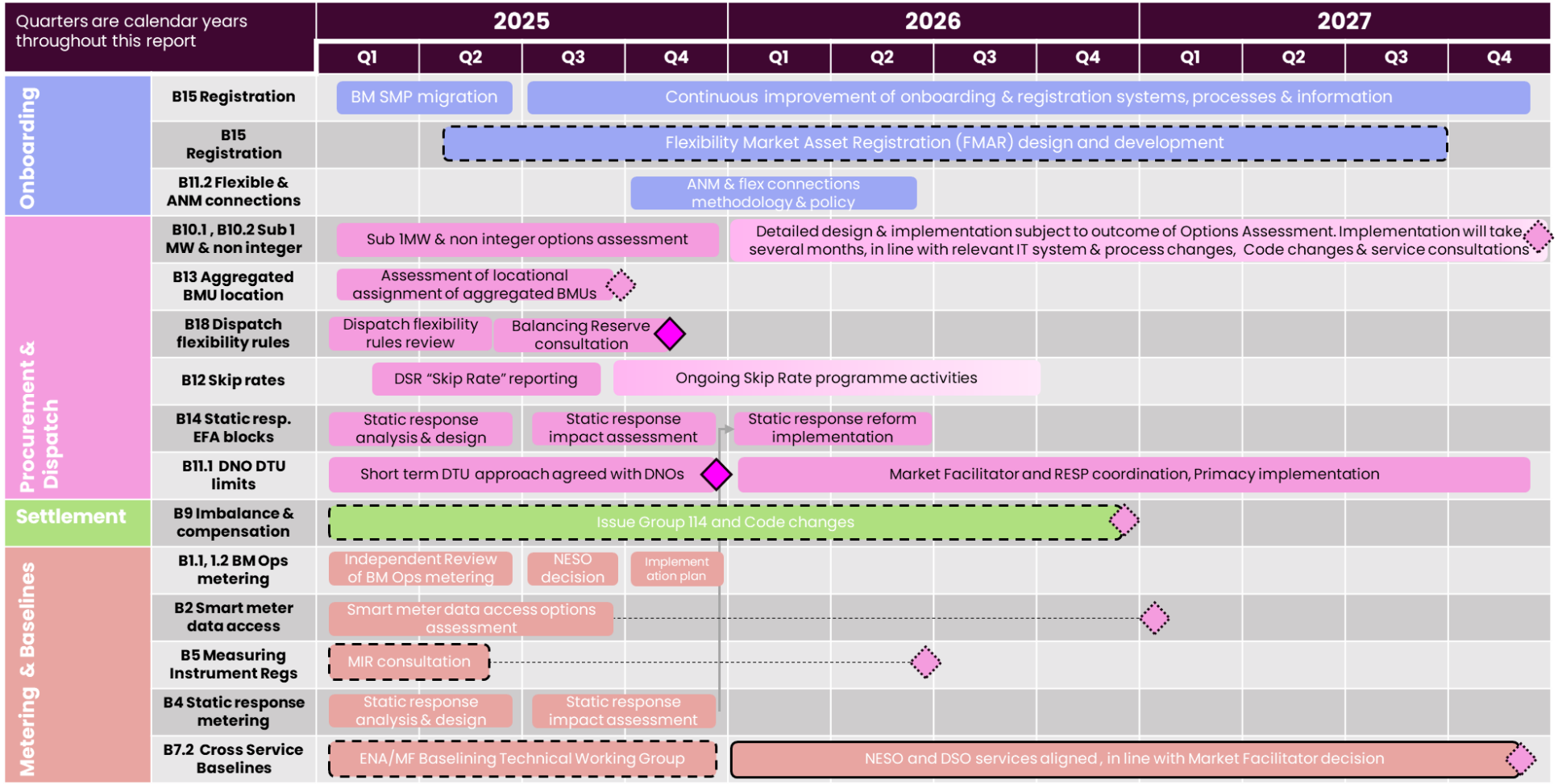
Route to Market Barrier removal programme plan



External activities

barrier removed - expected

Barrier removed - indicative

Q: 1) How much explicit flex is ready to come forward, once we get RTM/EDSF in place?
2) What other barriers are there to DSF coming forward, over and above our RTM? What are the other enabling actions needed?

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DFS History

Year One

- DFS go live November 2022 as an enhanced action
- 1.6 million households and businesses registered shifting demand by over 3.3GWh.
- Total spend of £11.1m

Year Two

- DFS continued as an enhanced action service.
- Participation increased to over 2.6 million households and business – saving over 3.7GWh.
- Total spend of £11.9m

Year Three

- Updated Winter Outlook position
- Transitioned to merit-based margin tool
- Numerous changes to support competitive environment.

Core changes

Change from an enhanced action to an in-merit margin service

Allow stacking with Capacity Market Units & DNO Flexibility Services

Remove day-ahead procurement window & keep within-day only

No planned testing or Guaranteed Acceptance Prices – *retained contractually*

Introduce performance monitoring to encourage accurate delivery

Remove the requirement for asset meters to be associated to HHS boundary meter

Enhanced API capabilities

Secured regulatory approval for a multi-year service

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Key Statistics

99.58% MPANs Manually Instructed

83 Live Events & Procured 65 times

£1,290 Per MWh Highest Accepted Bid Price

59% I&C MPANs Non-HHS

~£500k Forecasted Savings

28 Registered Providers

2.13m Registered MPANs

746 MW 8 Jan Cumulative Event Volume

£1,356,247 Total Accepted Bids

Total MW Accepted **13,160 MW**

196MW Peak SP volume

Total Penalties Withheld **~£93,000**

Domestic MPAN's **90%** Non-HHS

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DFS Development

Bi-Directional Review

Locational Considerations

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Flexibility Break Out

Flexibility Future Strategy Discussion

1. **How will MWHHS change wholesale market behaviour?**
2. **How much explicit flex is ready to come forward, once we get RTM/EDSF in place?**
3. **What other barriers are there to DSF coming forward, over and above our RTM? What are the other enabling actions needed?**

DFS Evolution Topic Discussion

Bi-Directional Review

Locational Considerations

Whole Energy Markets Coordination

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Whole Energy Market Strategy (WEMS) team and contact information

Meet the WEMS team

Sakhi Choudry
Head of Gas Market Development

Lei Chedham
Whole Energy Market Strategy Manager

Shona Watt
Senior Whole Energy Market Analyst

Usman Farooq
Senior Whole Energy Market Analyst

Cian Enright
Whole Energy Market Analyst

Find us on the NESO website:
[Whole Energy Market Strategy (WEMS) | National Energy System Operator]

Objectives of session:

Whole Energy Markets Coordination Introduction	**10 mins**
Interactive Session: Group Discussion on Opportunities	**30 mins** (2 × 15 mins)
Next steps and Q&A	**10 mins**

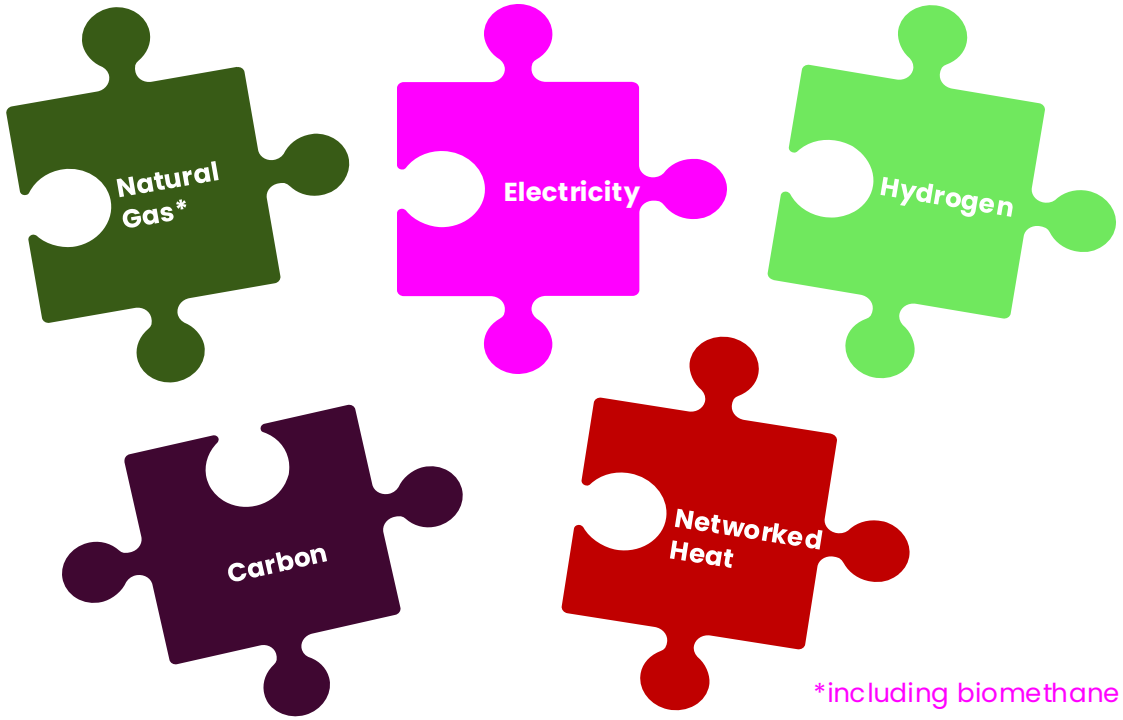
Context | NESO's remit in whole energy markets

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:

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

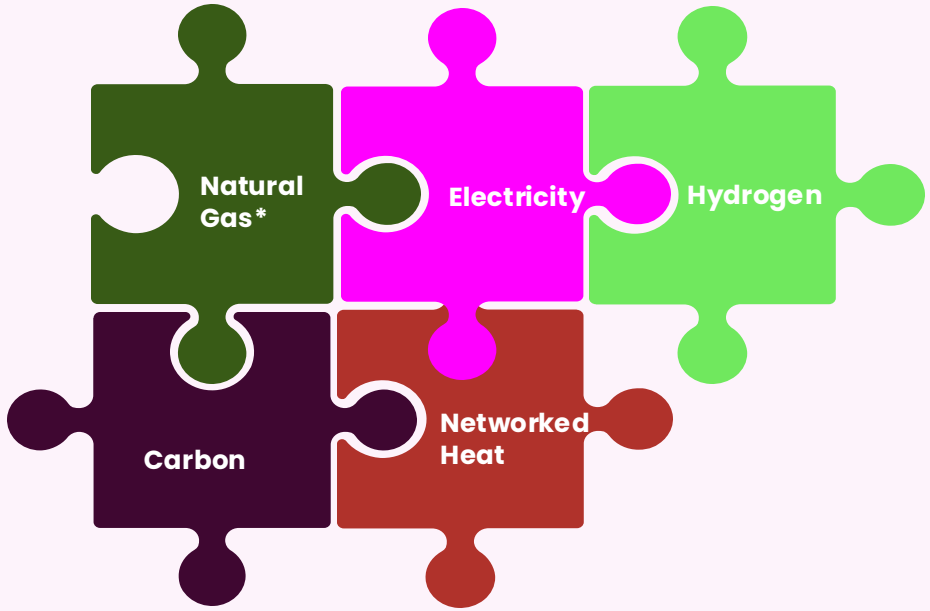
Currently, energy markets are designed independently of each other, in a fragmented approach



*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

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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

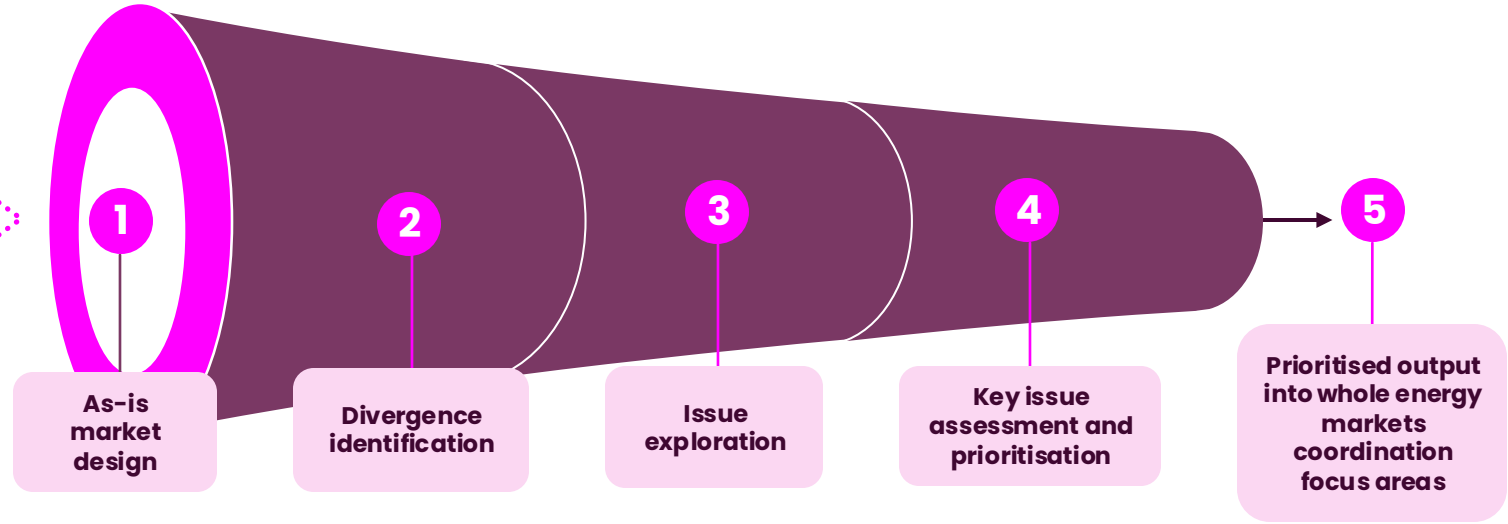
E.g. Energy balancing mechanism design, ancillary services

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.

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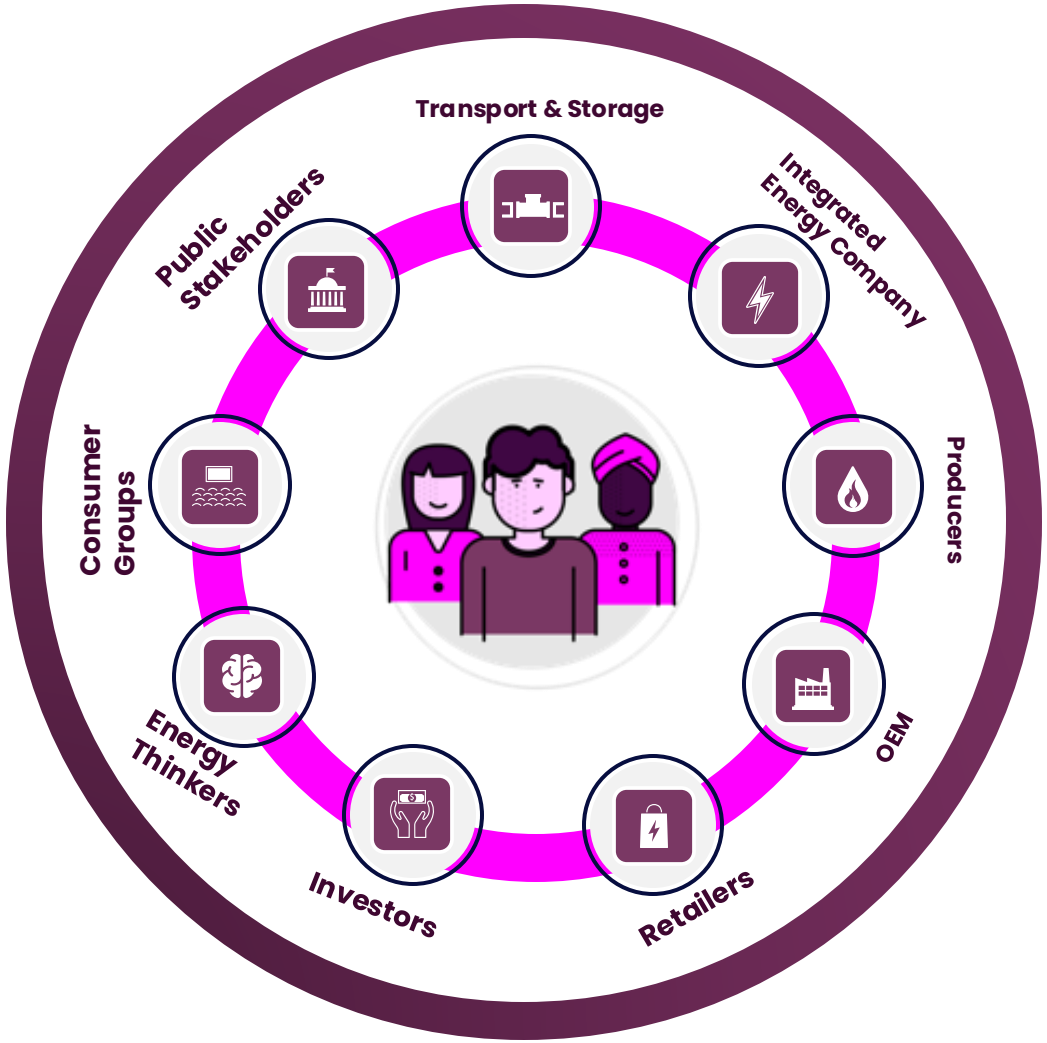
Stakeholder overview | We engaged with a wide range of domestic and international stakeholders across the energy sector



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 | Based on our analysis and stakeholder insight, we have grouped the initial opportunities for improved coordination across energy markets within four focus areas

Improving carbon signals to support decarbonisation

There is a need for greater coordination of carbon signals for the energy transition to help guide consumers and industry to transition to lower carbon energy alternatives.

Unlocking clean heat

How we heat our homes is one of the biggest challenges we face on the path to net zero. The pace and scale of new heating methods required to decarbonise heat requires co-ordinated market signals.

Integrating greater strategic planning into holistic market design

There is a need to coordinate greater strategic planning with market signals and investment policy to support the UK's net zero transition.

Ensuring energy security in a more complex energy system

GB's energy landscape is increasing in complexity, with emerging new low carbon energy markets and technologies, and a growing role for energy consumers to balance energy supply with demand. This calls for enhanced coordination across markets to secure the overall energy system.

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

Market Design	Improving carbon signals to support decarbonisation	Unlocking clean heat	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation				
Investment policy	1 There is more funding available to decarbonise energy production than support end users to decarbonise, addressing this imbalance could support securing a route to market for emerging vectors 2 Rebalancing environmental costs across consumer bills could incentivise fuel switching to lower carbon alternatives			
Operational market design	3 Aligning carbon allowance trading periods with energy trading periods could drive more efficient dispatch, and incentivise fuel switching to lower carbon alternatives			
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	Improving carbon signals to support decarbonisation	Unlocking clean heat	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation		4 Time of Use Tariffs (ToUT) have a critical role in enabling price responsive demand across vectors 5 A regulated investment model for district heating could further support its deployment		
Investment policy		6 Aligning heat decarbonisation funding across technologies and regions could accelerate the rollout of clean heat		
Operational market design				
Cost allocation		7 There is a need to strategically consider the timeframe over which we pay for energy infrastructure		

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	Improving carbon signals to support decarbonisation	Unlocking clean heat	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation				
Investment policy			8 Long-term incentives specifically to reward the contribution of energy supply assets to overall energy security could be considered for all vectors 9 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			10 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.

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

Market Design	Improving carbon signals to support decarbonisation	Unlocking clean heat	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation				11 Holistic market design should ensure coherence of strategic planning and investment policy at national and regional levels
Investment policy				
Operational market design				12 Locational electricity pricing 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				13 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.

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Focus Areas | We identified 13 elements of holistic market design that could benefit from greater whole energy market design coordination

Market Design	Improving carbon signals to support decarbonisation	Unlocking clean heating	Ensuring energy security in a more complex energy system	Integrating greater strategic planning into holistic market design
Economic regulation		4 Time of Use Tariffs (ToUT) have a critical role in enabling price responsive demand across vectors 5 A regulated investment model for district heating could further support its deployment		11 Holistic market design should ensure coherence of strategic planning and investment policy at national and regional levels
Investment policy	1 There is more funding available to decarbonise energy production than support end users to decarbonise, addressing this imbalance could support securing a route to market for emerging vectors 2 Rebalancing environmental costs across consumer bills could incentivise fuel switching to lower carbon alternatives	6 Aligning heat decarbonisation funding across technologies and regions could accelerate the rollout of clean heat	8 Long-term incentives to support investment in energy supply assets to contribute to overall energy security could be considered for all vectors 9 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	3 Aligning energy vector trading periods with carbon allowances could drive more efficient dispatch, and incentivise fuel switching to lower carbon alternatives		10 Greater coordination of system operation across vectors could generate greater operational and cost efficiencies	12 Locational electricity pricing 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		7 There is a need to strategically consider the time period over which we pay for energy infrastructure, considering emerging and sunsetting vectors		13 The delivery of national and regional strategic targets could be influenced by the extent to which investment policy takes into account locational network charges

Group Discussion:

Selected Opportunities for Enhanced Whole Energy Markets Coordination

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2 Improving Carbon signals to support decarbonisation

Rebalancing environmental costs across consumer bills

Why it matters

There are a lot more environmental levies on Electricity than there are on Gas.

Environmental levies on Electricity:

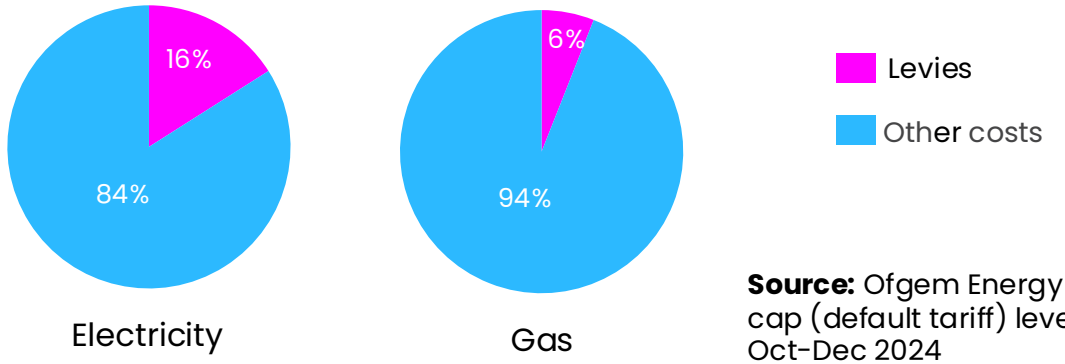
- CfD/ CM
- Renewables Obligation
- Feed in Tariff
- Energy Company Obligation/ Great British Insulation Scheme

Environmental levies on Gas:

- Green Gas levy
- Energy Company Obligation/ Great British Insulation Scheme

Illustration of focus area in current energy landscape

Breakdown of environmental levies on consumer bills



Source: Ofgem Energy price cap (default tariff) levels Oct-Dec 2024

The pie charts shows the (2024) breakdown of consumer energy bills. As illustrated, for Electricity ~16% of consumer bills were composed of environmental levy costs [not including ETS charges], with only 6% for Gas.

6 Unlocking Clean Heating

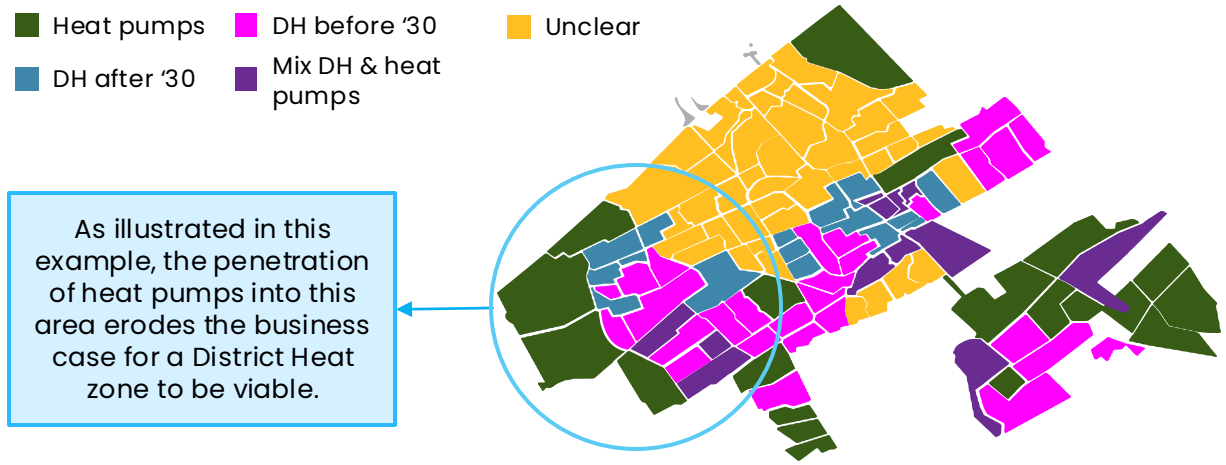
Aligning heat decarbonisation funding across technologies and regions

Why it matters

While the national Boiler Upgrade Scheme has accelerated progress towards the UK's heat decarbonisation targets, without coordinated efforts across various decarbonised heating technologies and their locations, funding for decarbonised heating, including investments in energy networks, heat pumps, and district heating, could be deployed inefficiently.

Illustration of focus area in current energy landscape

The Hague's (Netherlands) heat transition vision shows opportunities for further district heating development



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

April 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

Spring/Summer 2025

Sharing output and seeking feedback

- **Harness industry feedback** from open invitation Whole Energy Market Forum
- **Publish Market Guidebooks** Summer 2025
- **Publish summary report** Summer 2025
- **Launch webinar** to share outputs and share opportunity for broad stakeholder feedback
- **Targeted feedback** sought through industry roundtables and bilateral discussions

Autumn/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**

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Public

Q&A

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Locational Constraints

Review of Electricity Market Arrangements

Launched in 2022, REMA aims to **establish the enduring market arrangements needed** to enable the transition to, and operation of, our **future renewables-dominated electricity system.**

Led by DESNZ, it has required **close collaboration between industry stakeholders**, including Ofgem and NESO.

REMA seeks to **question and improve** different aspects of the **wholesale electricity market.**

Wholesale Market	**Operational signals** for market participants
Low-carbon Technologies Incentives	Investment for **low carbon** electricity **production**
Flexibility	Investment signals for **flexibility needed by the system**
Capacity Adequacy	Deliver the **capacity required** to ensure **security of supply**
Operability	Ensure a **reliable system operation** with low-carbon technology

Assessment criteria

- **Least cost**
- **Deliverability**
- **Investor confidence**
- **Whole-system flexibility**
- **Adaptability**

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How well do you feel that you understand the link between constraints and market reform?

We'll be using Menti to ask you some questions during this session to get a better understanding of how much you know about the link between constraints and market reform and what might be helpful to you.

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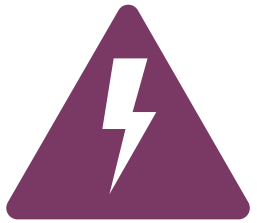
Transmission constraints

Thermal



Voltage

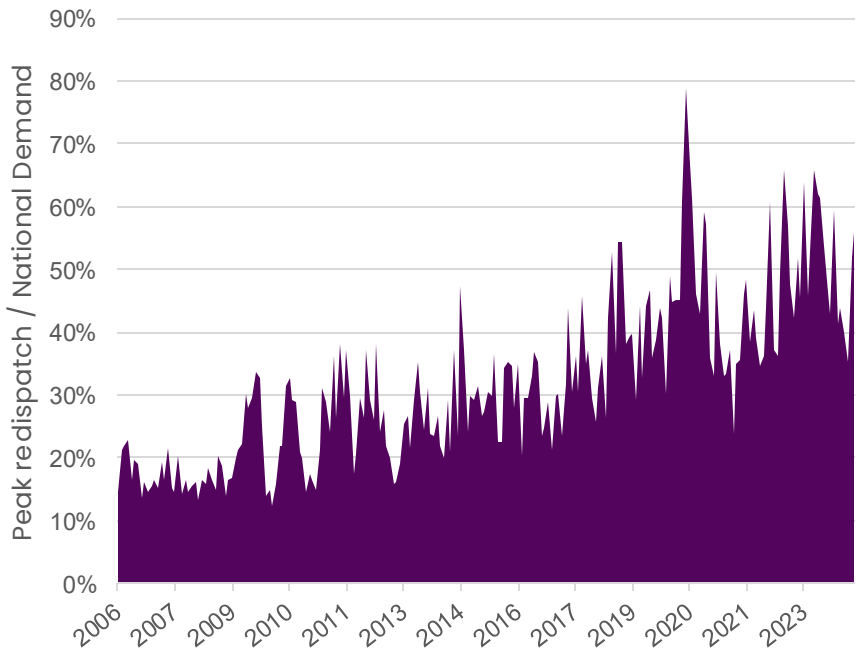
Stability

Increasing constraint costs

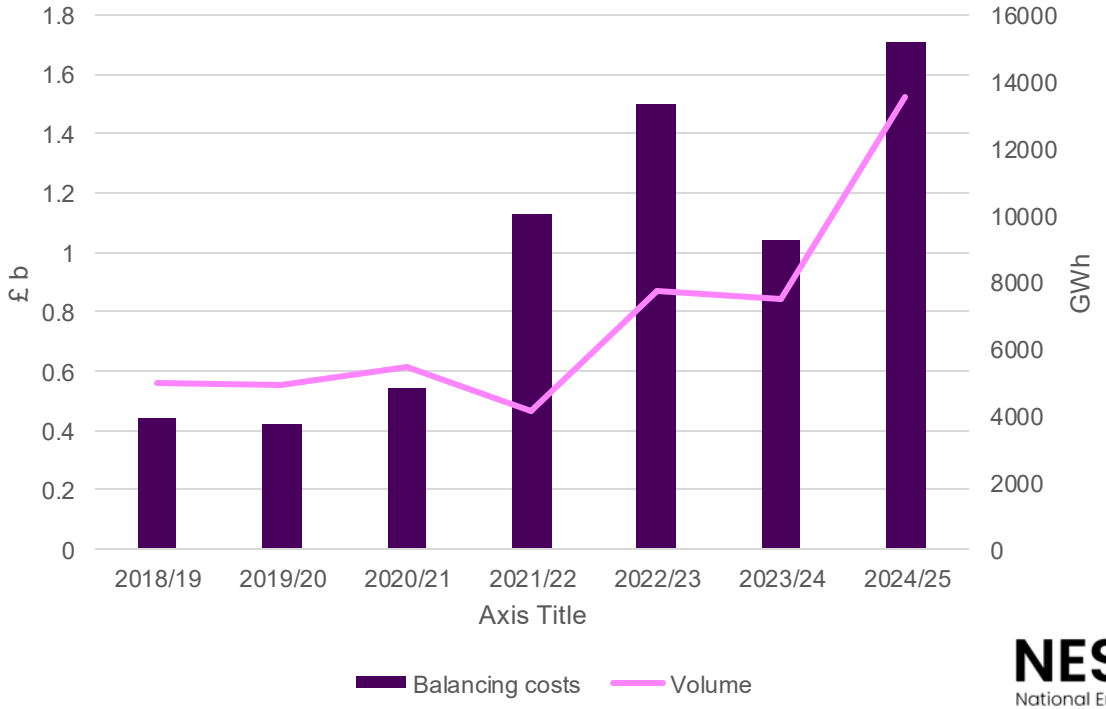
Balancing actions have increased such that NESO now **frequently redispatches over 50% of the market.**

These costs are recovered from consumers through Balancing Services Use of System (BSUoS) charges

Peak redispatch volume by month



Annual cost of managing thermal constraints



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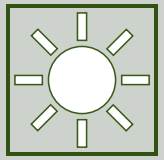
NESO constraint data

Constraints data (operational timescales)

24 month ahead forecast



Day ahead forecast

Out- turn

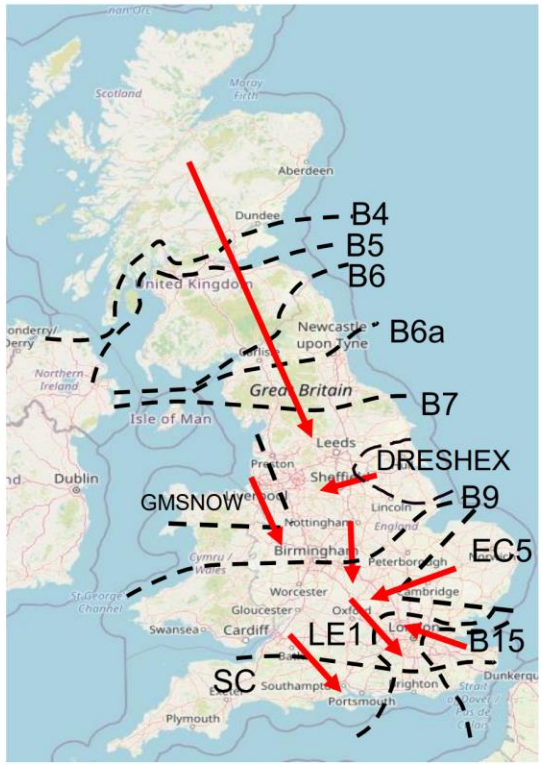
NESO produce forecasts of limits at transmission boundaries and potential constraints to help NESO plan to operate the system in real time.

These are updated as more information becomes available. And outturn data is reviewed and analysed to improve NESO processes.

Operational Transparency Forum

Transparency | Network Congestion

Boundary	Max. Capacity (MW)	Current Capacity (%)
B4/B5	3400	58%
B6 (SCOTEX)	6800	61%
B6a	8000	63%
B7 (SSHARN)	9850	69%
GMSNOW	5800	44%
FLOWSTH (B9)	12700	79%
DRESHEX	9675	80%
EC5	5000	55%
LE1 (SEIMP)	8750	51%
B15 (ESTEX)	7500	91%
SC1	7300	51%



Operational Transparency Forum | National Energy System Operator
https://www.neso.energy/what-we-do/systems-operations/operational-transparency-forum

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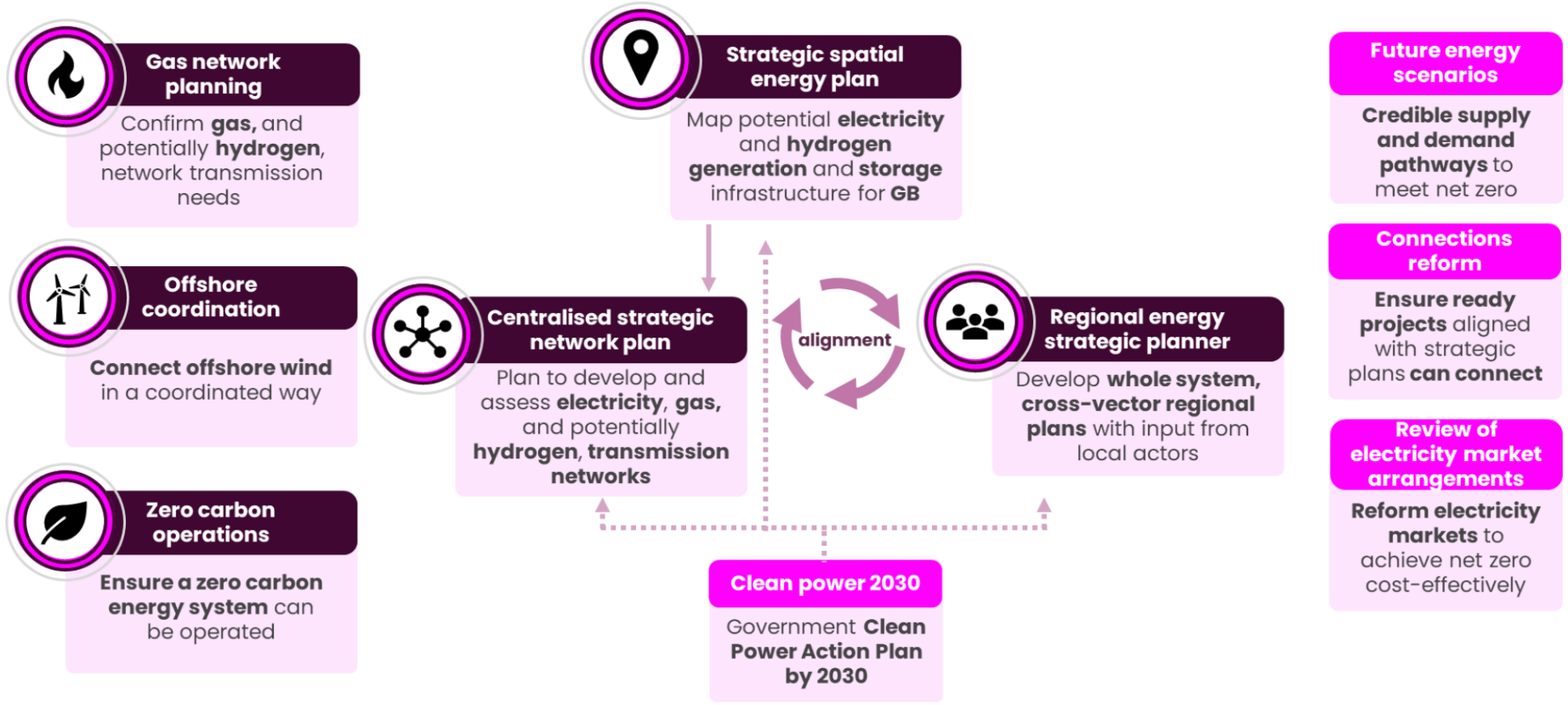
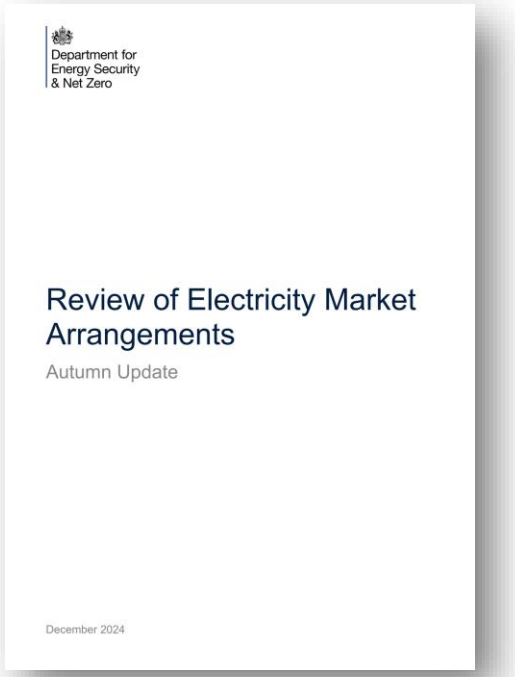
Constraints data in the planning timescale



Future Electricity Markets

REMA design considerations



Wholesale market pricing	National pricing	Zonal pricing	
Balancing and Dispatch	Self-dispatch with balancing reforms	Self-dispatch	Centralised Dispatch
Alternative locational investment signals	TNUoS reform*	Access rights reform for storage assets	Access rights reform for generators
Alternative locational operational signals	Optimising the use of cross-border interconnectors	Expanding measures for constraint management	Wider operability measures
Settlement Period	Current Period (30 mins)	Shorter Period	

Zonal pricing reform

National pricing reform

Option either no longer under consideration or we're not minded to take it forward

Option being considered as part of 2030 Action Plan

Wholesale market pricing

DESNZ are deciding on whether to have a National price or Zonal prices in GB for the wholesale market as a method to send operational locational signals into the system.

National

One price for the entire system for each settlement period. Locational signals would be sent via other mechanisms.

Zonal

System divided into zones with boundaries reflecting congested regions. Each zone would have a different price and would reflect system congestion.

*zones for illustrative purposes only

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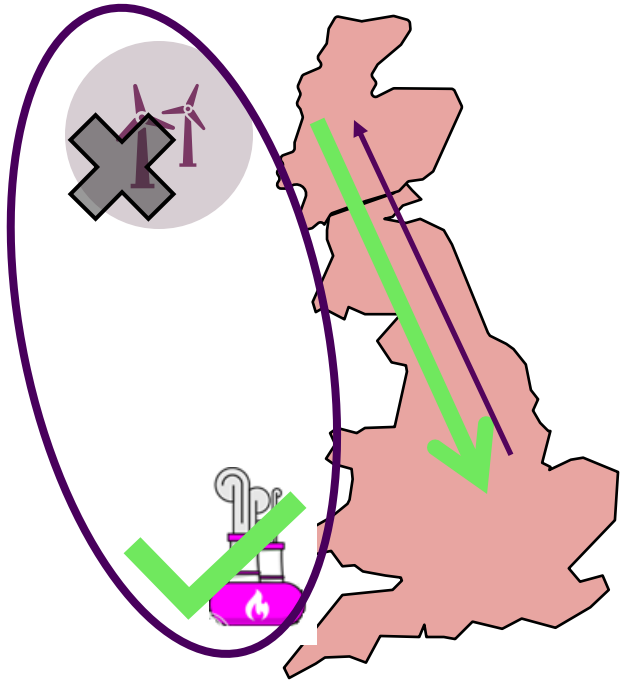
Constraints and the wholesale market

Zonal market

- In a zonal market constraints are likely to shape **where the boundaries on the system are drawn** and **how much electricity can be traded across a boundary** in the wholesale market
- In a zonal market **"market splitting"** can occur where **trading between two zones in the wholesale market is restricted by the available transmission capacity**
- **Congestion within a zone** would still lead to **NESO taking actions in the balancing mechanism to relieve the constraint** and would be recovered via BSUOS



*Zonal boundary is drawn for illustrative purposes

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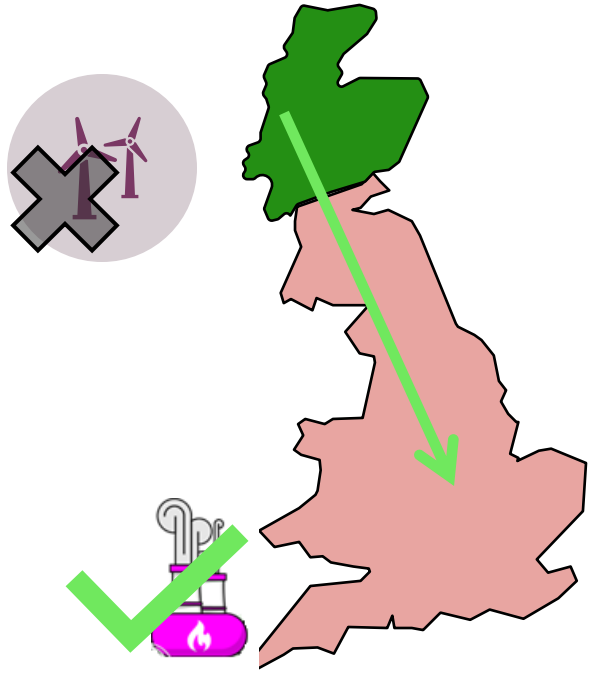
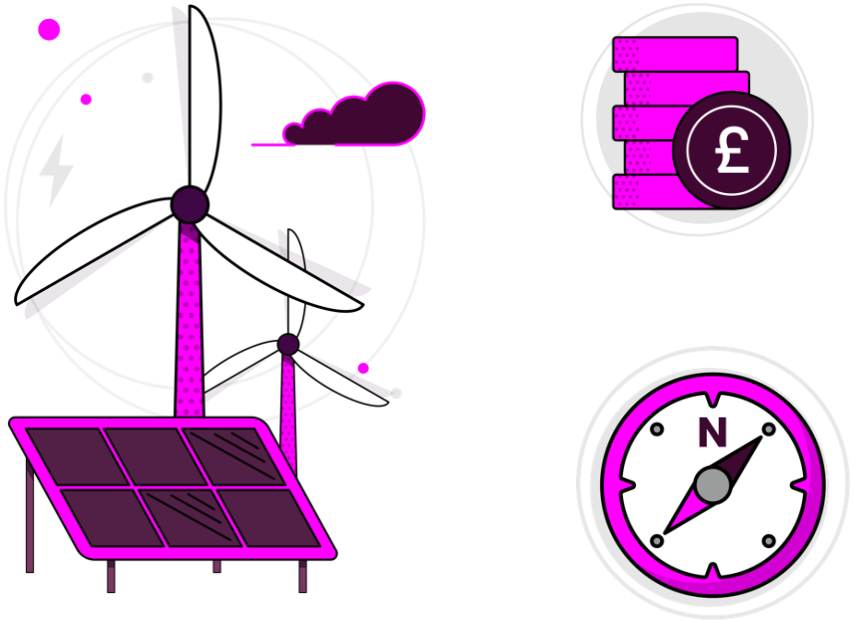


*Zonal boundary is drawn for illustrative purposes

Constraints and the wholesale market

Reformed national market

- In the **operational timescale** constraints would still be managed by NESO and the cost would be **recovered from consumers via BSUoS**
- In the **planning timescale** DESNZ is considering **strengthening locational signals** via reforms to network charging and using Strategic Spatial Energy Planning and Connections Reform to **incentivise future generation** to locate in parts of the network that would **alleviate constraints.**



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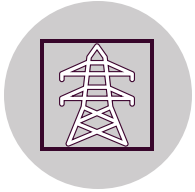
Future Constraints

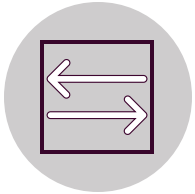
Generation – CfD auctions, connections reform, SSEP and network charging will influence where generation is built. The location of generation relative to demand will influence future constraints



Transmission infrastructure – NESO's SSEP and CSNP, as well as government's clean power action plan will guide the building transmission infrastructure in the right places which can alleviate or prevent future constraints

Policy changes – Policy decisions including Connections Reform, REMA, SSEP, Charging Reform, CfD design could all impact future investment and locational signals in both the planning and operational timescales

Demand – Strategic demand centres will be more centrally planned through SSEP. Programmes like the Demand Flexibility Service (DFS) can capitalise on flexible demand, alleviating constraints, but need the right incentives to respond to system needs. Electrification of heat and transport will also impact future constraints.



Interconnectors – as bi-directional wholesale price driven assets their impact will depend on the location and connected market characteristics, as well as future trading arrangements across interconnectors

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Questions for you

1. What kind of information do you feel you would need to better understand constraints in a market reform context?
2. How might information on constraints influence your business/organisation?
3. Which information NESO currently publishes on constraints is most useful to you?

Q&A

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Future of Gas Markets

Gas Market Strategy Breakout Room

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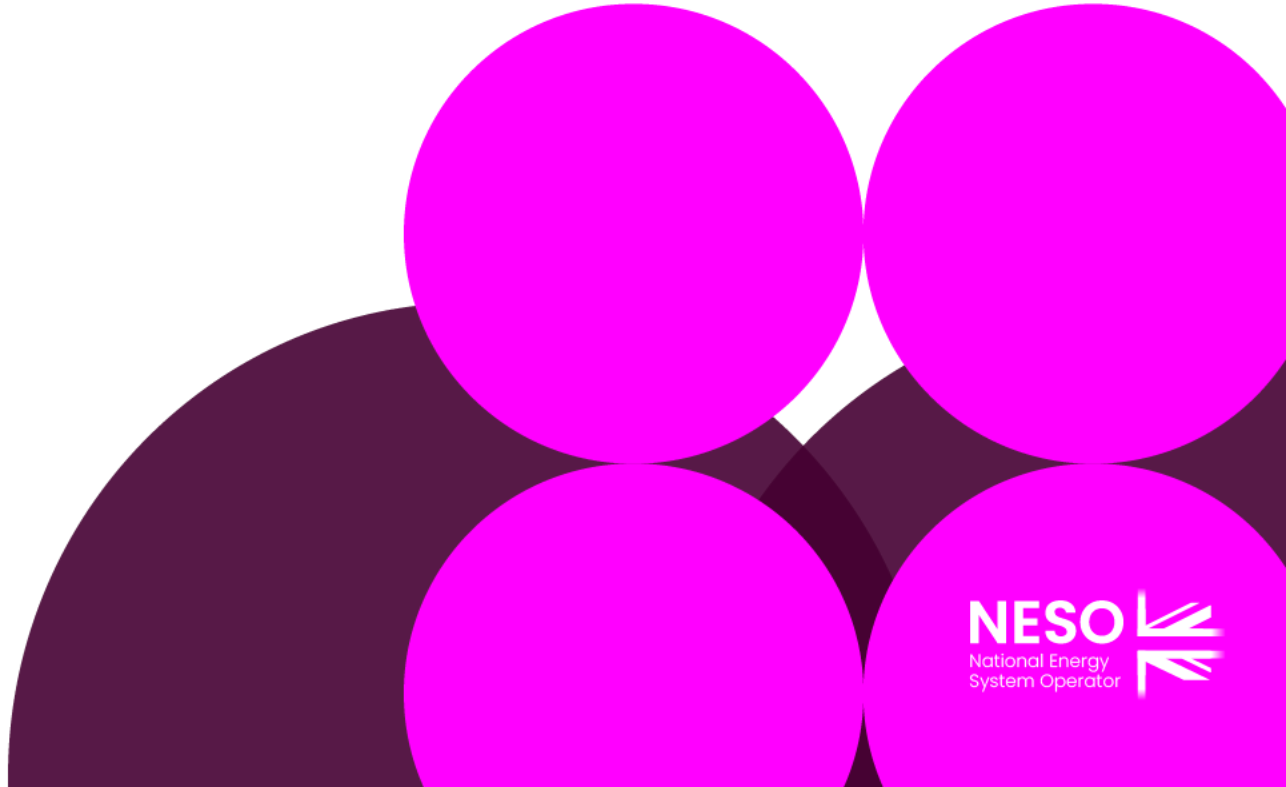
Overview

- Introduction to the Gas Market Team and the GAC
- GAC Project Identification
- Discussion



Gas Market Team and the GAC

NESO Gas Market Team

We analyse gas market changes to help accelerate Great Britain's energy transition and support a whole energy system approach.

Understand the transformation of the gas system

Engage with all stakeholders

Support policymakers in adapting gas market rules

CH_4 H_2

Bio-CH_4 CCUS

LNG

Curiosity **Credibility** **Openness**

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Licence Conditions

C7.2 - The licensee must use reasonable endeavours to produce, in cooperation with Relevant Gas Market Participants, a **Future Market Plan** at least once in every 2 Regulatory Years.

C7.4 - The licensee must use reasonable endeavours to **engage and consult with Relevant Gas Market Participants** in development of the Future Market Plan. Coordinate and periodically hold meetings of a forum with the group established under paragraph C7.4(a) to exchange information and to propose, develop projects and plans for further progress in the Future Market Plan.

Gas Advisory Council Purpose

An **action based** advisory council that can provide strategic outputs on the future of gas markets to ensure they are affordable for consumers, fair and considered across different molecular gases as well as sustainable. The group will act as a **focal point** across industry, decision makers, stakeholders and academics within the gas market.

The GAC will **look across molecules** (methane, hydrogen, carbon, biomethane and LNG markets) and deliver **targeted recommendations** in the form of potential further research papers, potential changes to codes or recommendations for policy/legislation changes.

To support NESO in fulfilling its Gas Licence Obligations (Gas System Planner Licence Condition C7.4).

Potentially feed into advisory requests that NESO receive.

GAC Members

Consumers

Industrial Consumers – *MEUC - Eddie Profitt*

Domestic Consumers – *Citizens Advice*

Transport and Storage

Storage Providers – *UESO Nick Wye*

Transmission Networks- *National Gas – Liz Ferry*

Distribution Networks – *SGN – Marcus Hunt*

Independent Gas Transporters – *INA Vicki Spiers*

Interconnectors – *Mutual Energy - Paul McGuckin*
GNI - Stephen O'Riordan
Interconnector - Pavanjit Dhesi

Shippers and Suppliers

Large Shippers / Suppliers – *Energy UK – Julie Cox / Richard Fairholme & Kirsty Ingham*

Small – Medium Shippers / Suppliers – *Energy UK / Joint Office*

Industrial Shippers / Suppliers – *ICoSS – Gareth Evans*

Governance and Regulation

Government – *DESNZ - Ben Holley*

Regulator – *Ofgem - Adrian Richardson*

Code Administration – *Joint Office – Paul McKie*

Billing, Settlement and Market Data – *Xoserve – Clive Nicholas*

Cross Market

Skills and Jobs – *IGEM – Oliver Lancaster*

Climate Change Advisory – *E3G Chris Galpin*

Academia - *Joe Howe*

Evolving Markets

Hydrogen Markets – *Hydrogen UK – Brett Ryan*

Carbon Capture Utilization and Storage – *CCSA – Mark Sommerfield*

Biomethane Markets – *Grissan - Nic Crowe*

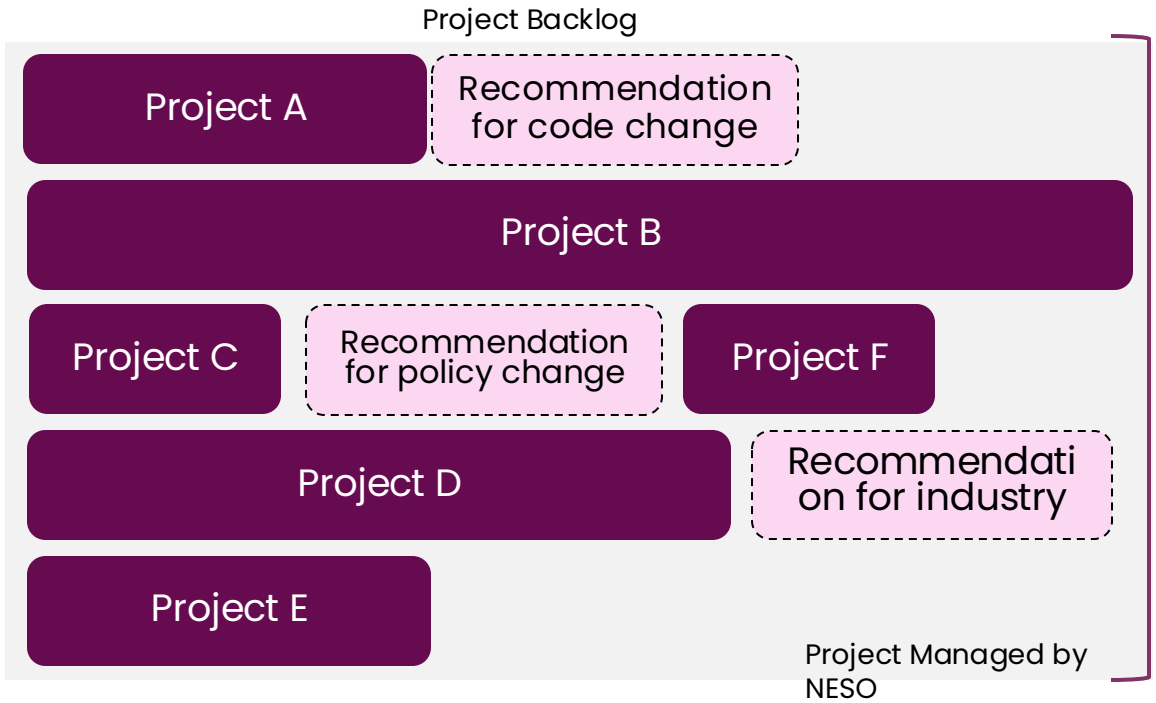
LNG Markets – *Rotating between terminals*

Gas Future Market Plan Projects

Challenges identified in developing the gas markets of tomorrow

Projects identified and scope defined

- ✓ Defined output
- ✓ Manageable scope
- ✓ No duplication or replication with industry groups
- ✓ Aligned with priorities
- ✓ GAC agreement on Project Execution Plan developed by NESO



Future Market Plan

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Project Guiding Principles

Explore gas market changes needed to support the energy transition.

Understanding the role of all molecules and their role in current respective markets

Understanding the role of new vectors and what is needed to develop a market

Understanding cross vector interactions (WEMs approach)

NESO Primary and Secondary Duties

Reference NESO publications

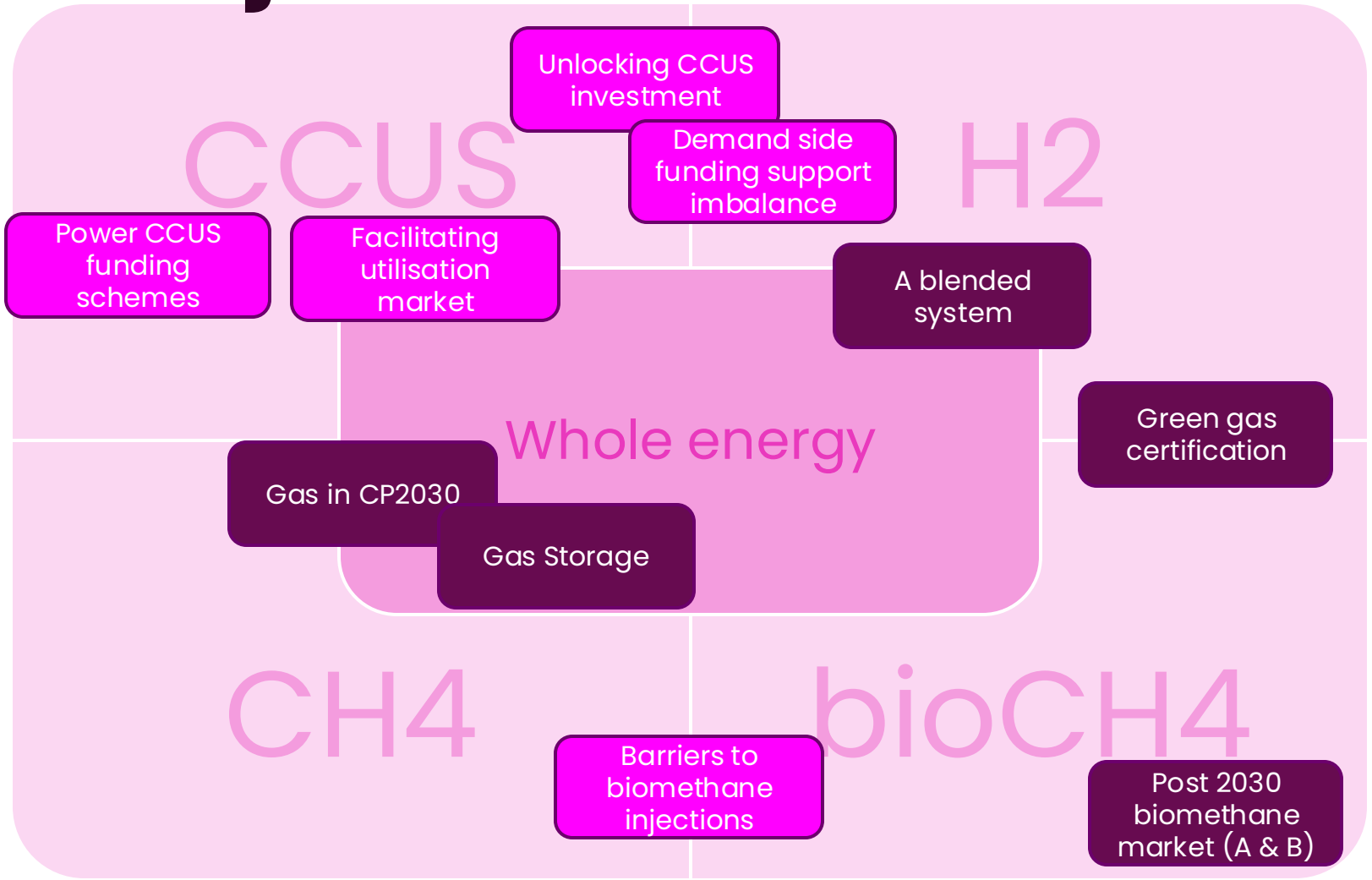
Clean Power 2030

WEMS Report

FES 25

Project Identification

GAC Project Ideation



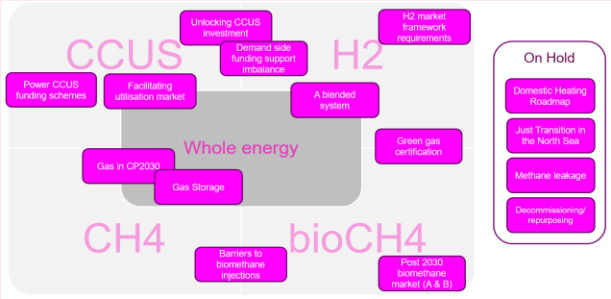
On Hold

- Domestic Heating Roadmap
- Just Transition in the North Sea
- Methane leakage
- Decommissioning/ repurposing
- H2 market framework requirements

GAC Project Development Timeline

01 GAC
30th January

Identification of key areas



Feedback sessions with GAC Members

02 GAC
14th May

Project prioritisation

- Gas storage
- Green gas certification
- Gas in CP 2030
- A blended system
- Post 2030 bioCH4 market

Feedback sessions with Markets Forum

03 GAC
~ July

Project planning

- ✓ Stakeholder input to project design to ensure they are “fit for market”
- ✓ Validating project planning stage

Discussion

Markets Forum Ask

During the remaining time, we will cover some of the potential topics and are interested to hear your thoughts across the following three key areas:

1

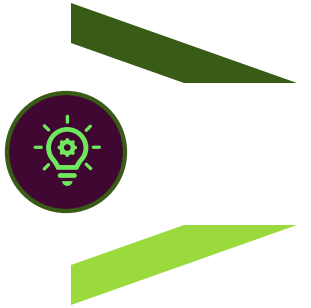
Project Validation

- Is the project needed by the market?
- Do you see value in NESO and the GAC investing time in this project?

2

Project Milestones

- What do you see as some of the key milestones or deliverables to make this project a success?



3

Project Risks

- Do you know of any other workstreams in industry that may overlap with this workstream?
- Are there any risks or issues you see with this project?

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The Future of Gas Storage

We need considerations and recommendations for ensuring security of supply across different molecular gases into the future

Key facts and considerations:

- **GB has ± 35 TWh of gas storage** – Do we need to maintain this level as we transition to green gases?
- **Storage provides flexibility to the whole energy system** - What medium term flexibility requirement is required for the GB gas market?
- **FES 2024 called for more certainty on the role of H2 storage**
- **Linepacking can also be used as a buffer storage** – What is the role of linepack today and what will it be tomorrow?
- **Storage is key to GB's security of supply** – How to we maintain this role in the new Business model for storage?

YOUR FEEDBACK

1  **Project Validation**  **Project Milestones**  **Project Risks**

2 Are you aware of any other key initiative looking into the future role of storage?

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Gas in Clean Power 2030

Ensuring unabated gas power plants are kept online on the run up to 2030.

Key facts and considerations:

- **CP2030 Action Plan foresees a shift in the role and frequency of unabated gas generation –** How do you see the role of unabated gas changing between 2030-2050?

- **HM Government's Action Plan articulates this future role around 3 aspects:**
  - **An exit pathway for unabated gas plants;**
  - **Additional pathways to enable decarbonisation of unabated gas;**
  - **Placing obligations on power plants.**

  What is the most urgent discussion to be engaged?

- **NESO has produced the CP2030 advice –** What tools or frameworks could the market consider to enable unabated gas power plants to operate effectively?

YOUR FEEDBACK

1  **Project Validation**  **Project Milestones**  **Project Risks**

2 Are you aware of any other key initiative on the role of unabated natural gas in the power system beyond 2030?

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Hydrogen Blending

Compiling industry views and producing independent analysis on whether hydrogen should be blended into the gas network.

Key facts and considerations:

- **As of December 2023, the UK Government's "minded to" position is in support of blending up to 20% hydrogen by volume in the GB gas distribution networks under specific conditions –** Has the downstream impact of blending at distribution level been fully considered?
- **The HSE safety case decision at distribution level is ongoing but expected by the end of 2025**
- **At transmission level there hasn't been an official government "minded to" position as of yet. The safety evidence has also been submitted to the HSE for a safety case decision.**
- **EU Gas Package stipulates a regulatory threshold of up to 2% blend between European countries –** how should this be considered when discussing UK blending decisions?

YOUR FEEDBACK

1 **Project Validation** **Project Milestones** **Project Risks**

2 Are you aware of any other key initiative looking into the Hydrogen Blending outside of the 0849R Workgroup

Green Gas Certification

Developing potential options for certification schemes, and understanding the potential cross molecule changes to enable trading

Key facts and considerations:

- **Green gas certification is a key aspect to transitioning the gas system –** Is certification a key aspect to decarbonise the gas system?
- **Several schemes are in place to (REGOs, GoOs, ETS etc…) –** Do you think the current system is too complex?
- What are the broader implications any certification scheme should consider?
- **The EU is about to implement a Union Database to enhance traceability of gas and prevent double counting, using a single mass balancing unit for third country, creating a barrier to import –** Should EU and UK certification schemes be aligned?

YOUR FEEDBACK

1  **Project Validation**  **Project Milestones**  **Project Risks**

2 Are you aware of any other key initiative looking into green gas certification?

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Post 2030 Biomethane market

Understanding the future market requirements to support the growth of the biomethane market after the end of the Green Gas Support Scheme (GGSS).

Key facts and considerations:

- **The UK is on track to reach 8TWh of biomethane injected into the gas grid by 2030 (7 TWh currently)** - How will the biomethane market evolve after 2030?
- **The GGSS has supported the injection of 18,847 MWh of green gas into the grid –** What is your assessment of the scheme so far?
- **The Green Gas Support Scheme (GGSS) is expected to support 3.3 TWH of annual biomethane production at its peak by around 2033/34 -** Should the scheme be extended ?
- **DESNZ will launch a consultation in Autumn 2025 about the future policy framework with the objective to support the most cost-effective and efficient solutions for industrial decarbonisation –** What are you views?

YOUR FEEDBACK

1  **Project Validation**  **Project Milestones**  **Project Risks**

2 Are you planning to submit a response to the upcoming DESNZ's consultation on the future policy framework?