Markets Forum

November 2024

NESO
National Energy System Operator

Agenda

Time	Topic
9.00-10.00	Registration and Refreshments
10.00-10.25	Welcome and Introduction
10.25-11.00	Whole Energy and Clean Power Overview
11.00	2 min Silence
11.02-11.15	**BREAK**
11.15-12.00	Whole Energy and Clean Power Breakout Sessions
12.00-12.45	Whole Energy and Clean Power Breakout Sessions
12.45-1.30	**LUNCH**
1.30-1.45	Code Reform Discussion
1.45-2.45	Panel Session
2.45-3.00	**BREAK**
3.00-3.30	Marketplace / Networking
3.30-4.15	Q&A and Close

(note fire alarm test at morning break)

NESO
National Energy System Operator

Welcome

NESO
National Energy System Operator

Housekeeping

- Slido: MFNOV24
- Raise your hand

Questions

- WIFI password: NESO24

Internet

- Grey first floor breakout room
- Black second floor breakout room

Grey & Black Lanyards

- Refreshments will be served in the foyer
- Fire alarm test morning break

Breaks

NESO
National Energy System Operator

NESO Team

Rebecca Beresford

Director of Markets

Jon Wisdom

Head of Market Change Delivery

Cathy Fraser

Head of Market Requirements

Rebecca Yang

Head of Capacity Market & CfD Delivery Body

Penny Garner

Head of Market Frameworks

Lizzie Blaxland

Head of REMA Design

Cian McLeavey-Reville

Head of REMA Programme

Vicki Mustard

Head of whole Energy and Gas

Becky Hart

Head Flexibility Strategy

Paul Wakeley

Head of Strategic Network Development

NESO Purpose, Vision and Values

Our purpose is to forge the path to a sustainable future for everyone.

Our vision is a future where everyone has access to reliable, clean and affordable energy; our work will be a catalyst for change across the global community.

Our values are what define us, setting the foundation for our purpose and guiding us as we move towards achieving our vision.

Accelerate Progress

Be Curious

Build Trust

Create Belonging

NESO
National Energy System Operator

The UK's 2023 Energy Act set the legislative framework for an independent system planner and operator to be set up to help accelerate Great Britain's energy transition, leading to the establishment of the National Energy System Operator (NESO).

Our Primary Duties

NESO will promote the following three objectives:

Net Zero

Efficiency & Economy

Security of Supply

Our Secondary Duties

NESO will also have regard to:

Facilitating Competition

Consumer Impacts

Whole System Impacts

Facilitating Innovation

NESO
National Energy System Operator

NESO Priorities

Clean Power

Decarbonised Energy

Consumer Value

Customer Centricity

Digital Mindset

People Value

NESO
National Energy System Operator

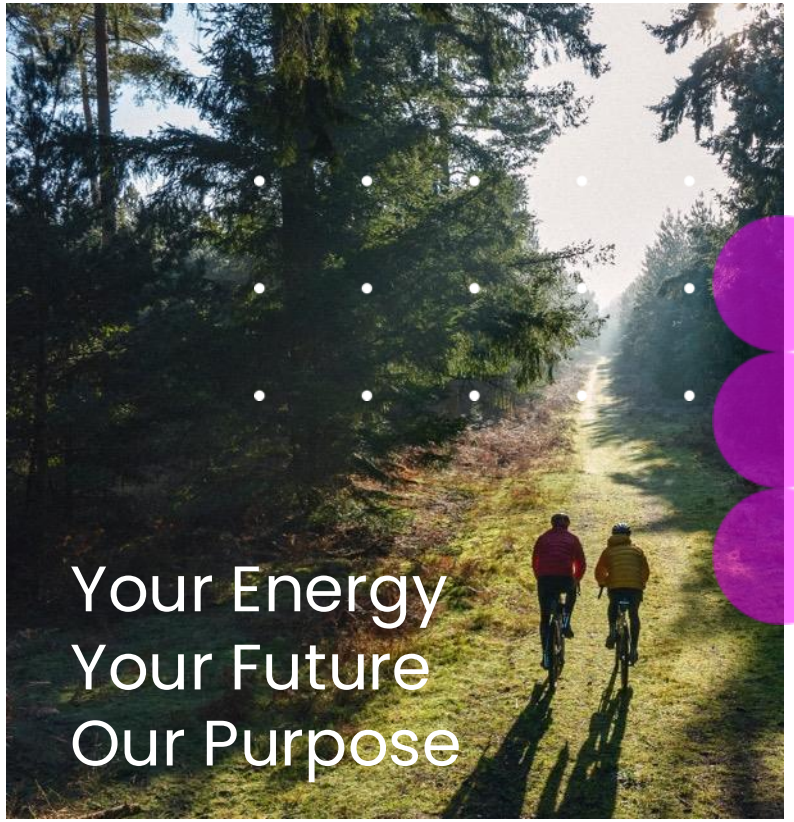
Highlights of 2024

- New EMR portal went live to enable increase participation in Capacity Market
- Commitment to transparency around our operational decisions
- Setting up our Gas and Whole Energy Team
- Delivery of major code change projects to support our Net Zero commitments
- Delivery of the largest CfD round by volume
- Flexibility strategy call for input and consultation
- Engaged more collaboratively for our constraints workstream
- Support Clean Power 2030 report delivery

NESO
National Energy System Operator

Objectives of the day

- Our first Whole Energy Markets Forum
- Sharing latest updates from NESO
- Collaborative discussion
- Building networks



NESO
National Energy System Operator

Agenda

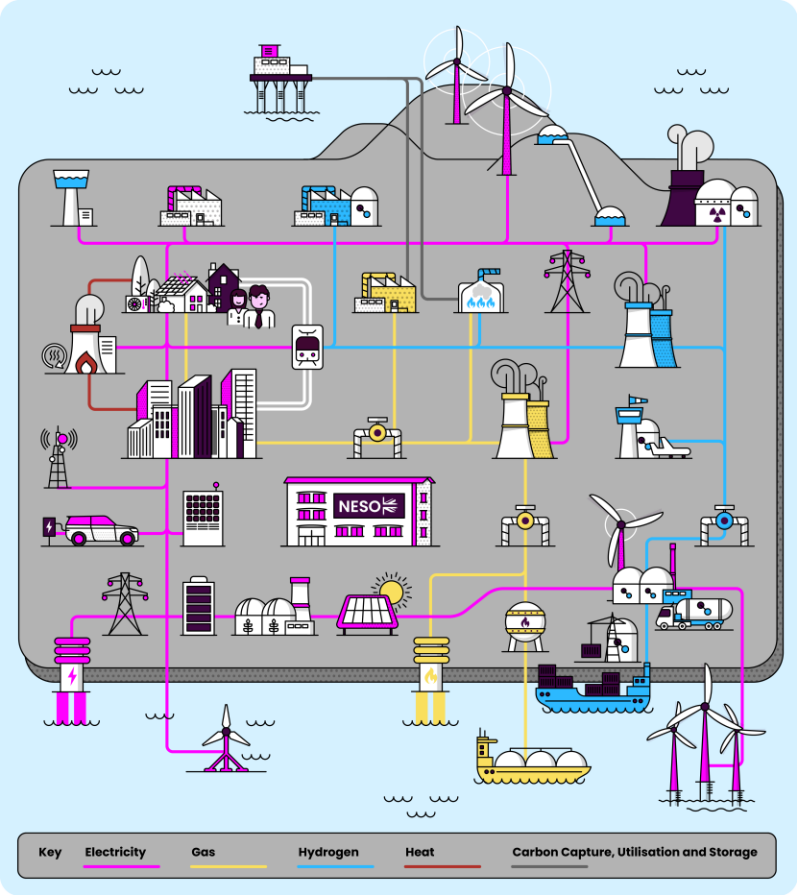
Time	Topic
9.00-10.00	Registration and Refreshments
10.00-10.25	Welcome and Introduction
10.25-11.00	Whole Energy and Clean Power Overview
11.00	2 min Silence
11.02-11.15	**BREAK**
11.15-12.00	Whole Energy and Clean Power Breakout Sessions
12.00-12.45	Whole Energy and Clean Power Breakout Sessions
12.45-1.30	**LUNCH**
1.30-1.45	Code Reform Discussion
1.45-2.45	Panel Session
2.45-3.00	**BREAK**
3.00-3.30	Marketplace / Networking
3.30-4.15	Q&A and Close

(note fire alarm test at morning break)

NESO
National Energy System Operator

Whole Energy

ESO's strategic remit, following the 2023 Energy Act, includes Whole Energy Market Strategy as part of its advisory role



NESO's Whole Energy Market Strategy (WEMS)

A Whole Energy Market

Whole Energy Market Strategy (WEMS)

Electricity Gas Hydrogen Networked heat
Networked carbon

The value provided by a **Whole Energy Market Strategy** includes:

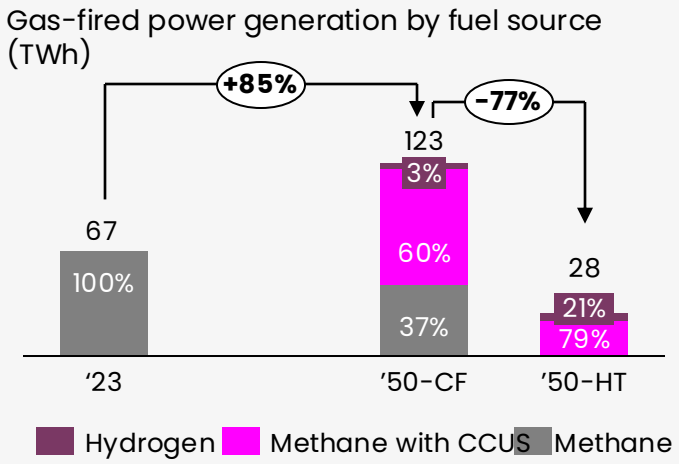
- Exploring how **interactions between markets impact the energy trilemma**
- Identifying opportunities for **greater coordination across markets**
- Shaping the **evolution of whole energy market arrangements.**

NESO
National Energy System Operator

On the 2050 trajectory, we can expect an increasing number & complexity of interactions between vectors

Power Generation

Dispatchable gas-fired generation decarbonisation



2023 – 2050 Case Study across our most ambitious FES scenario and the counterfactual

- There is **a broad range on the future** role of gas-fired power generation.
- **Growing roles** for **hydrogen**
- To meet **Clean Power by 2030**, unabated gas-fired power generation will need to **decline** by **95%.**

Interaction energy changes from 2023–2050 across least and most ambitious FES scenarios: Counterfactual (CF)[1] and Holistic Transition (HT)[2]
1. Holistic Transition is a FES pathway with credible decarb., achieved with a mix of electrification and hydrogen 2. Counterfactual is FES scenario with slowest decarb., involving minimal behavior change and low decarb. of heat and industry 3.Other entails community, electric heating,biomass CHP, biofuel and biomass boilers
Source: Future Energy Scenarios (FES) 2024

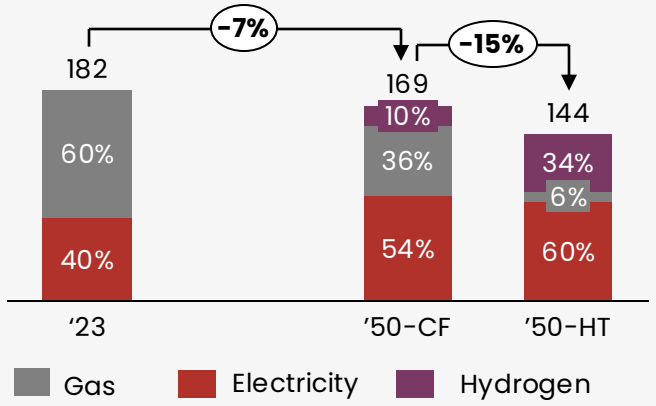
NESO National Energy System Operator

On the 2050 trajectory, we can expect an increasing number & complexity of interactions between vectors

Industrial consumption

Industrial process heat decarbonisation

Industrial energy demand by technology (TWh)



2023 – 2050 Case Study across our most ambitious FES scenario and the counterfactual

- Increasing **interactions with electricity and hydrogen** to decarbonise industrial heat.
- There is a **broad range on the role** of **hydrogen**, providing between **17 TWh** and **49 TWh** of energy for industrial heat decarbonisation.

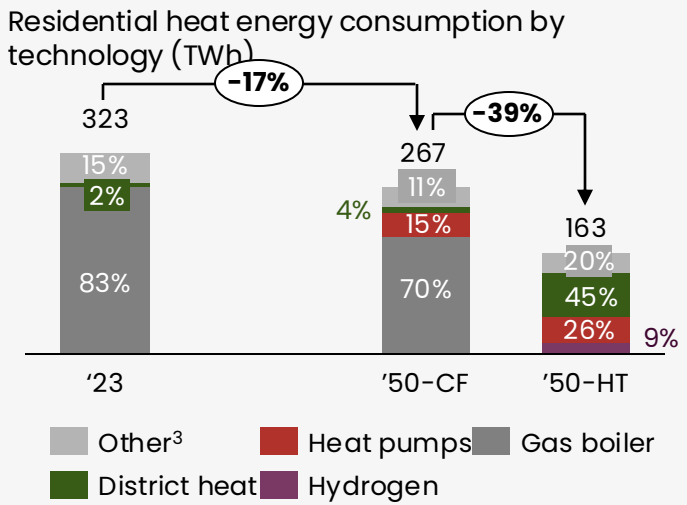
Interaction energy changes from 2023–2050 across least and most ambitious FES scenarios: Counterfactual (CF)[1] and Holistic Transition (HT)[2]
1. Holistic Transition is a FES pathway with credible decarb., achieved with a mix of electrification and hydrogen 2. Counterfactual is FES scenario with slowest decarb., involving minimal behavior change and low decarb. of heat and industry 3.Other entails community, electric heating, biomass CHP, biofuel and biomass boilers
Source: Future Energy Scenarios (FES) 2024

NESO National Energy System Operator

On the 2050 trajectory, we can expect an increasing number & complexity of interactions between vectors

Residential consumption

Residential heat decarbonisation



2023 – 2050 Case Study across our most ambitious FES scenario and the counterfactual

- Broad **range of vector interactions** and **role of technologies** especially the role of **heat pumps** and **District Heat**
- In the Holistic Transition FES, there is a **100% substitution of natural gas boilers;** predominately by heat pumps and district heating.

Interaction energy changes from 2023–2050 across least and most ambitious FES scenarios: Counterfactual (CF)[1] and Holistic Transition (HT)[2]
1. Holistic Transition is a FES pathway with credible decarb., achieved with a mix of electrification and hydrogen 2. Counterfactual is FES scenario with slowest decarb., involving minimal behavior change and low decarb. of heat and industry 3.Other entails community, electric heating, biomass CHP, biofuel and biomass boilers
Source: Future Energy Scenarios (FES) 2024

NESO National Energy System Operator

Phase 1: Whole Energy Market Strategy Case for Change

Our aim

To collaborate with industry to develop new and innovative whole energy market thinking, supported by NESO market experience and existing NESO programmes including:

Review of Electricity Market Arrangements (REMA), Future Energy Scenarios, Clean Power 2030 and Strategic Energy Planning

Establish case for change

Bringing industry experts together to collaborate on developing a holistic energy market strategy

We want to engage with you to proactively progress whole energy market evolution

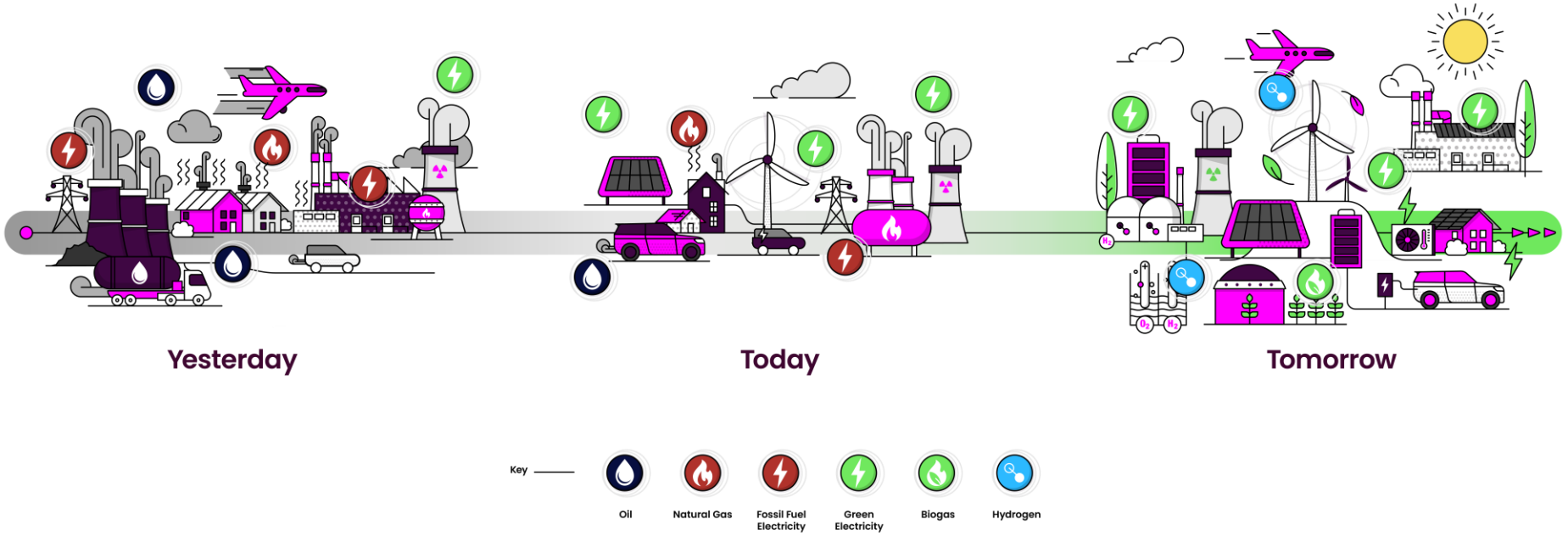
Breakout session to follow bringing Whole Energy Market Strategy to life

NESO
National Energy System Operator

Clean Power 2030

What has Government asked NESO to do?

- The Government has an ambition for Britain to be supplied with clean power by 2030
- The National Energy System Operator was asked to provide independent advice on the pathway towards the 2030 ambition



NESO
National Energy System Operator

Describing clean power

**this was a NESO working assumption in the development of the advice and has not been formally agreed by Government*

How is NESO describing clean power?

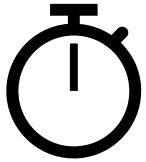
GB produces at least as much clean power as our total annual electricity demand. Unabated fossil fuel generation is reduced to the minimum required to keep the system secure, considering the availability and deliverability of alternatives.
For 2030, we expect this to be less than 5% of total power generation in a typical year.

Clean Power in numbers			
	Share of GB clean power produced to GB consumption[1]	**Share of unabated fossil generation[2]**	**Carbon Intensity[3]**
Today	~60%	33%	~150 gCO2e
Clean Power 2030	≥100%	<5%	< 20 gCO2e

[1] Annual TWh domestic clean power production over total electricity consumed by GB homes and businesses
[2] Unabated fossil generation as a proportion of total electricity generation excluding exports
[3] Carbon emitted from GB electricity production

NESO National Energy System Operator

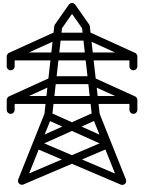
Markets will enable CP2030



Flexibility Our clean power pathways will require demand side flexibility at peak to grow by 4 - 5 times current levels. Reforms to the market supported by digitalisation and innovation are needed to unlock consumer and demand side flexibility.

Investment Getting the right mix of accurate market signals and policy support sufficient to mobilise an average of over £40 billion of investment annually in energy infrastructure over the next five years.

Efficiency Wholesale market arrangements and investment mechanisms must provide value to consumers by being coherent with policies to provide the right information and incentives to market participants to remove inefficiencies in the market.



Operability Operating a clean power electricity system in 2030 requires the ability to operate a network with < 5% unabated gas across the year. This means securing additional assets and services across stability, frequency, thermal constraints, voltage and restoration.

NESO
National Energy System Operator

Break

11.15 Go to breakout rooms
Grey lanyards first floor
Black lanyards second floor

Slido: #MFNOV24

NESO
National Energy System Operator

Lunch

12.45-1.30

Slido: #MFNOV24

NESO
National Energy System Operator

ofgem Making a positive difference for energy consumers

Energy Code Reform: project update

OFG1161

Slido: #MFNOV24

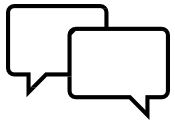
1. ECR project aims

Energy code reform aims to ensure that the codes underpinning market operation can respond to the significantly changing sector, enabling change to be delivered more efficiently and effectively in the interests of consumers, and to support the transition to net zero.

The reforms aim to create a framework that is:

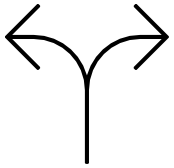
- forward-looking, informed by and in line with the government's net zero ambitions, and ensures that codes develop in a way that benefits existing and future energy consumers
- able to accommodate a large and growing number of market participants whilst ensuring effective compliance
- agile and responsive to change
- makes it easier for any market participant to identify the rules that apply to them and understand what they mean

2. Progress to date



Consultation

In 2019 and 2021, we consulted on the overall approach to code reform, with a focus on what the new governance framework should look like and who should take on any new roles.



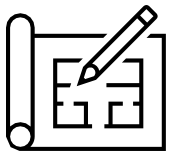
Decision

In 2022, we decided on the nature and scope of code reform, covering 11 codes and 5 central systems, and confirmed our intent to retain a strong role for industry in advising, informing and supporting code managers through the introduction of new stakeholder advisory forums.

Legislation

In 2023, we welcomed the successful passage of the Energy Act, which established the new code manager licensing regime and granted Ofgem new strategic code functions, including:

- the duty to publish an annual strategic direction statement;
- the power to select code managers;
- the power to make direct code changes under specific circumstances; and
- the power to issue enforceable directions to central system delivery bodies.



Implementation

In 2024, we are working jointly with DESNZ to finalise remaining elements of the code manager selection and licensing process. We are also preparing to implement the new governance framework, using transitional powers granted by the Energy Act 2023 to Ofgem for a period of up to seven years.

Slido: #MFNOV24

3. Summary of key decisions – Ofgem implementation consultation

1. Designation

To implement code reform using our transitional powers, we intend to recommend to the Secretary of State that eleven codes and five central systems should be designated as 'qualifying documents' and 'qualifying central systems' respectively under the Act.

2. Consolidation

We have decided to proceed with proposals to consolidate eight of the existing codes into: an electricity commercial code; an electricity technical code; and a gas network code. We will proceed to consider rationalisation of a range of governance-related provisions as part of the consolidation exercises.

3. Strategic direction

We intend to publish the first Strategic Direction Statement (SDS) for all codes within the scope of energy code reform in 2025. We intend to take forward our proposal to insert a new standard licence condition (subject to consultation) related to the SDS in all existing gas and electricity licences.

4. Governance

The role of industry participants will remain a central element of industry code governance. We are proceeding with our preferred option of a fixed, impartial membership for Stakeholder Advisory Forums. We will also take forward our proposals to harmonise and extend the ability of code panels to prioritise the assessment of code modification proposals and introduce a consistent set of prioritisation criteria.

5. Transition

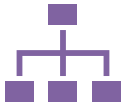
We have decided to proceed with a three phased approach to transition and are proceeding with the sequence indicated in the consultation: BSC and REC during Phase 1; electricity commercial code and gas network code during Phase 2; and electricity technical code and SEC during Phase 3.

Slido: #MFNOV24

3. Summary of key decisions – Ofgem/DESNZ consultation

1. Code manager licensing

- **Profit status**: code managers will be required to carry out their core regulated activities on a not-for-profit basis.
- **Budgets**: code managers will publish and consult on a draft budget, setting their forecast costs ahead of the budget period. We will further consider whether a defined appeal route would be beneficial to this process. Cost recovery mechanisms will be decided on a code-by-code basis.
- **Incentives**: code managers will not be subject to any financial incentive mechanisms. KPIs will be in place within the codes themselves, and code managers will be able to modify them in consultation with stakeholders.
- **Conflict of interest**: the licence itself will prevent code managers from engaging in preferential or discriminatory behaviour. We will require that code managers do not prevent or distort competition, and that code manager boards must have independent directors.
- **Controls**: a package of financial and operational controls will be implemented to address identified risks associated with the financial stability and operational capability of code managers.
- **Code maintenance**: the licence will require code managers to have in place and maintain the relevant code and we note that consequential changes to existing licence conditions will be needed.



2. Code manager selection

- **Eligibility**: Ofgem will conduct a conflict-of-interest assessment of prospective code managers as part of its selection processes. Additional eligibility requirements or restrictions will not be included in the regulations.
- **Selection route**: Ofgem will have the discretion to select code managers via a competitive or non-competitive route.
- **Selection process**: Ofgem will set assessment criteria for licensing code managers on a non-competitive basis. The regulations will also allow Ofgem to create and license a new Special Purpose Vehicle (SPV) via the non-competitive selection process.

Slido: #MFNOV24

4. Next steps – upcoming consultations

SQSS Licence modification consultation (October 2024):

- We recently published a consultation on the licence modifications that we consider are required to designate the Security and Quality of Supply Standard (SQSS) as a 'qualifying document', related to the National Energy System Operator (NESO) licence and transmission licences.

Code manager selection consultation (Autumn/Winter 2024/25):

- We intend to consult on further details related to the process of selecting and assessing prospective code managers this autumn.

Strategic direction consultation (Winter 2025):

- We intend to consult on the content of the first strategic direction statement this winter and then to publish the final version in Spring 2025. We expect to publish the final Modification Process Workgroup report alongside this consultation.

Implementation consultation (Winter/Spring 2025):

- We intend to consult on further elements of our detailed approach to implementation, including content related to code consolidation, code governance, transition timelines and sequencing, and our new powers to issue directions to responsible bodies for central systems.

Code Managers SLCs & CMA Appeals consultation (Spring 2025)

- We intend to consult on further elements of SLC policy jointly with DESNZ early next year. This consultation will also include content on CMA appeals policy.

ofgem Making a positive difference for energy consumers

Ofgem is the Office of Gas and Electricity Markets. We are a non-ministerial government department and an independent National Regulatory Authority, recognised by EU Directives. Our role is to protect consumers now and in the future by working to deliver a greener, fairer energy system.

We do this by:

- **working with Government, industry and consumer groups to deliver a net zero economy at the lowest cost to consumers.**
- **stamping out sharp and bad practice, ensuring fair treatment for all consumers, especially the vulnerable.**
- **enabling competition and innovation, which drives down prices and results in new products and services for consumers.**

www.ofgem.gov.uk

Slido: #MFNOV24

Panel

Host : Vicki Mustard, NESO

James Tedd
Grid Beyond

Julie Cox
Energy UK

Oliva Powis
CCSA

Joe Howe
University of Lincoln

Andy Manning
Citizens Advice

Slido: #MFNOV24

NESO
National Energy System Operator

Break

Including networking time
2.45-3.30

Slido: #MFNOV24

NESO
National Energy System Operator

Networking – talk to me about…

Rebecca Beresford

Markets

Jon Wisdom

Electricity Product Service Design

Cathy Fraser

Electricity Product development & operations

Rebecca Yang

Capacity Market, Contracts for Difference

Penny Garner

Industry Codes

Lizzie Blaxland

REMA and Clean Power

Cian McLeavey-Reville

REMA

Vicki Mustard

Whole Energy and Gas

Becky Hart

Flexibility Markets

Slido:
#MFNOV24

NESO
National Energy System Operator

Q&A

#MFNOV24

NESO
National Energy System Operator

Thank you & Safe onward journey

Feedback #MFNOV24

NESO
National Energy System Operator