Markets Advisory Council

21st February 2024

ESO

Agenda

Agenda Item	Lead	Time (13:00 – 17:00)
Arrival from 1pm		
Welcome	Steve Jennings	14:00 – 14:15
NESO progress, op model and implications for the MAC	Claire Dykta	14:15 – 14:30
Flexibility Strategy	Amy Weltevreden	14:30 – 15:30
Break		15:30 – 16:00
Scheduling & Dispatch	Cian McLeavey-Reville	16:00 – 16:45
Whole energy strategy	Martin Crouch	16:45 – 17:00

Close at 5pm with possible extension to 5:30pm if required.

Flexibility Markets Strategy

Amy Weltevreden

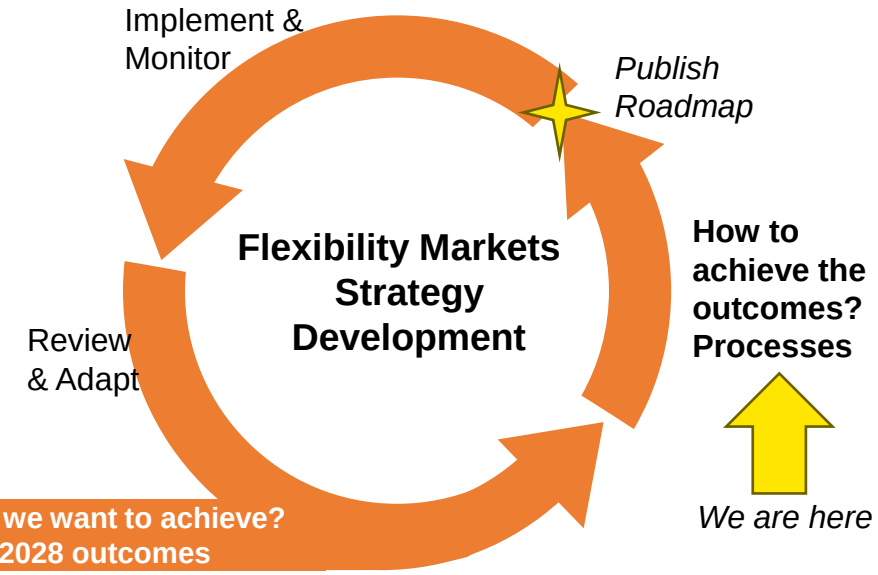
ESO

Purpose of Today

2028 Flex Markets Strategy:

To grow flexibility from DERs and CERs in mid-term

Why We Need DiFlex? → **Define the Vision** → **What we want to achieve? 2028 outcomes**



What do we want to achieve from today's session

- Provide updates since our last conversation
- Gather your input on strategy work, warm up for Call for Input
- Introduce engagement plan for the next steps

Key questions we would like to hear your feedback

- Your feedbacks on proposed processes
- Your feedbacks on stakeholders' values and if they are addressed by the strategy
- Your feedbacks on the engagement approach and next steps

Updated Flexibility Markets Strategy Map & Scope

We have updated the strategy map and added processes and principles since the last MAC meeting

2035 Strategic Objective: Enough Low Carbon Flexibility Is Built, And It Is In The Right Place, with Flexibility Operating to Deliver Whole Electricity System Value, on a Fully Decarbonized Electricity System

2028 Outcomes
What must we achieve?

- A level playing field and barrier free market for competition between all type of flexibility, enabling low carbon technologies
- Coherent & coordinated flexibility markets across Great Britain
- A solid foundation for future market arrangements

Process
What must we focus on to deliver this?

How do we achieve the outcomes?

Principles
What approach we follow to design strategy

- Deliver in partnership
- consumer value driven
- Digital first mindset
- Transparent at every stage
- Technology inclusive
- Be flexible and adaptable
- Encourage innovation and creativity

Scope of the Flexibility Markets Strategy

Zero Carbon Flexibility Technologies:
- Distributed Energy Resources
- Consumer Energy Resources

Out of Scope:
- Low carbon 'peaking' plants, for example biomass boilers or gas plants with carbon capture and storage.

Strategy published elsewhere:
- Hydrogen
- Interconnectors

In Scope

- **Thermal Constraint**
  - LCM/RDP
  - DSOs
- **Frequency**
  - Response
  - Reserve
- **Within day**
  - DFS
- **Energy Balancing**
  - BM
- **Network Charges**
- **Adequacy**
  - CM
  - WM

Out of Scope

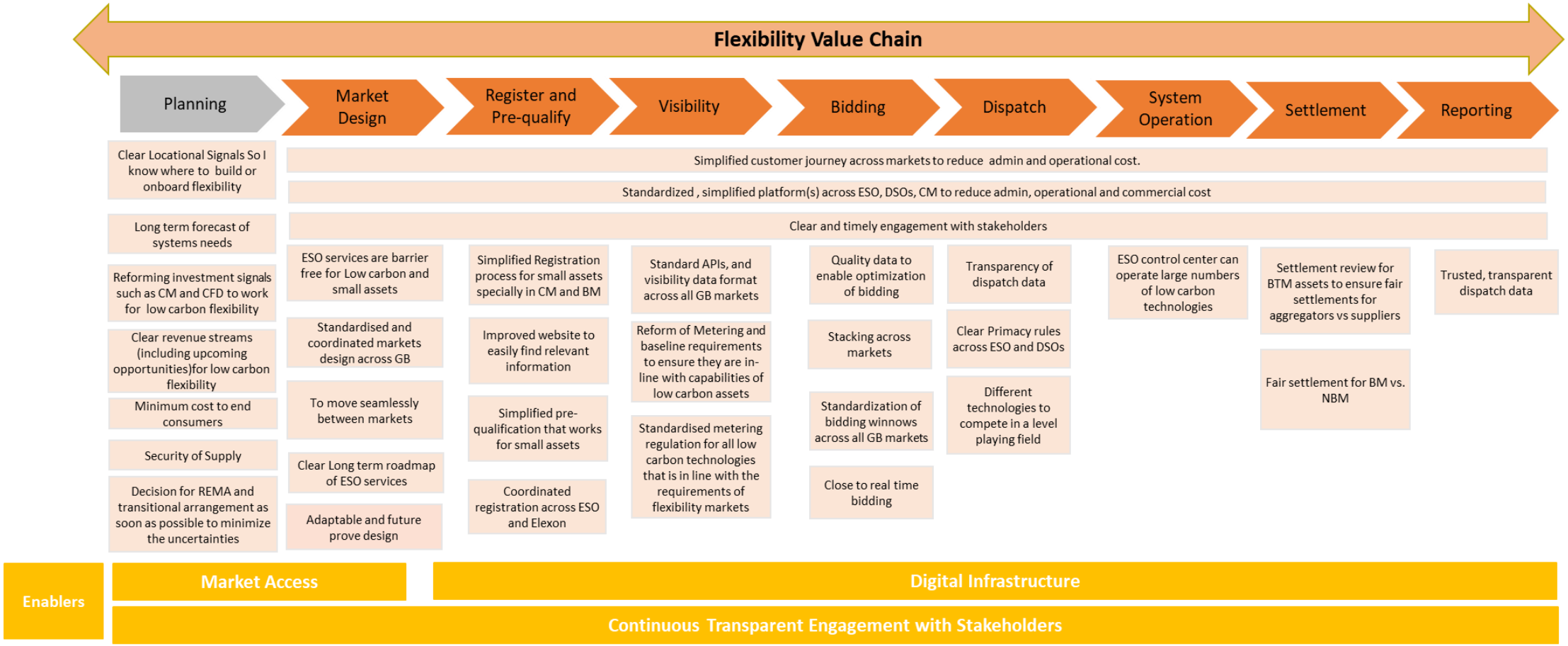
- Voltage
- Restoration
- Stability

Out of Scope of the first report, please refer to the Market Roadmap

Discussion questions

1. Do you have any feedbacks regarding the updated outcomes and principles?

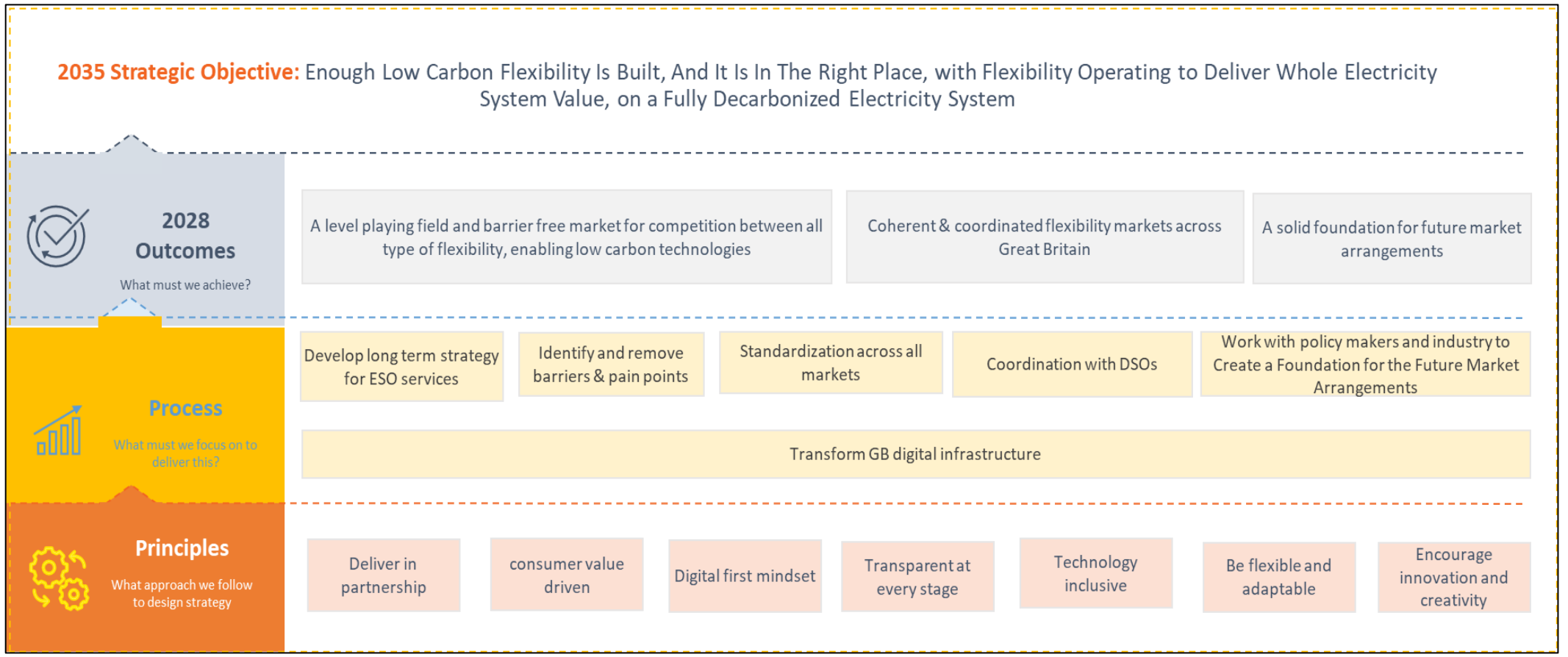
What Do Stakeholders Value? The Key to Grow Distributed Flexibility



Discussion questions

1. Do you identify any gaps in what the stakeholders value?

Processes: How Do We Achieve The Outcomes?



Discussion questions

1. Do you agree that the proposed processes achieve the 2028 outcomes?
2. Do you identify any gaps in the actions of each process?

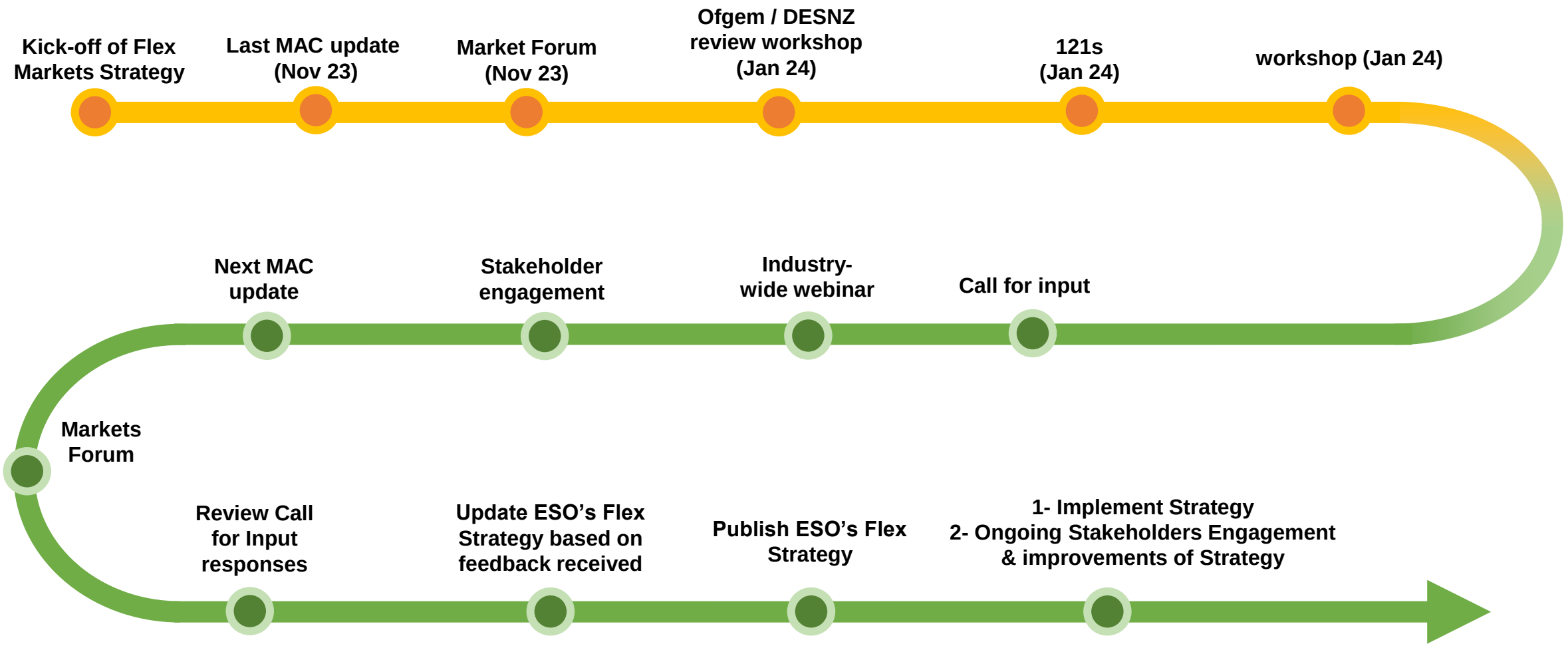
Stakeholders' Values vs. Processes

Processes	Develop long term strategy for ESO services	Identify and remove barriers	Transform GB digital infrastructure	Standardization across all markets	Coordination with DSOs	Work with policy makers and industry to Create a Foundation for the Future Market Arrangements
What Do Stakeholders Value?	Clear Locational Signals So I know where to build or onboard flexibility	ESO services are barrier free for Low carbon and small assets	Simplified customer journey across markets to reduce admin and operational cost.	Standardized , simplified platform(s) across ESO, DSOs, CM to reduce admin, operational & commercial cost	Clear Primacy rules across ESO and DSOs	Minimum cost to end consumers
	Long term forecast of systems needs	Different technologies to compete in a level playing field	ESO control center can operate large numbers of low carbon technologies	Standard APIs, and visibility data format across all GB markets	Stacking across markets	Reforming investment signals such as CM and CFD to work for low carbon flexibility
	Clear revenue streams for low carbon flexibility	Transparency of dispatch data	Improved website to easily find relevant information	Standardization of bidding winnows across all GB markets		Clear Locational Signals So I know where to build or onboard flexibility
	Security of Supply	Reform of Metering and baseline requirements to ensure they are in-line with capabilities of low carbon assets	Simplified Registration process for small assets specially in CM and BM	Standardised and coordinated markets design across GB		Decision for REMA and transitional arrangement as soon as possible to minimize the uncertainties
	Clear long-term roadmap of ESO services	Settlement review for BTM assets to ensure fair settlements for aggregators vs suppliers	Simplified pre-qualification that works for small assets	Standard dispatch API across GB markets		Standardised metering regulation for all low carbon technologies that is in line with the requirements of flexibility markets
		Close to real time bidding	To move seamlessly between markets			Security of Supply

Discussion questions

1. Do the proposed processes address what the stakeholders value?

Summary of Progress To Date & Next Steps



Discussion questions

1. Do you have any feedbacks regarding the stakeholders' engagement?

Scheduling & Dispatch

Cian McLeavey-Reville

Introduction

- We are concerned that ESO's key market, the Balancing Mechanism, is not providing transparent, predictable outcomes at good value for money
- ESO is now supporting DESNZ' REMA Programme by leading the 'Dispatch' workstream. This includes options for reform to the Balancing Mechanism
- We are keen to ensure our process in this work is respected by both industry and the Department

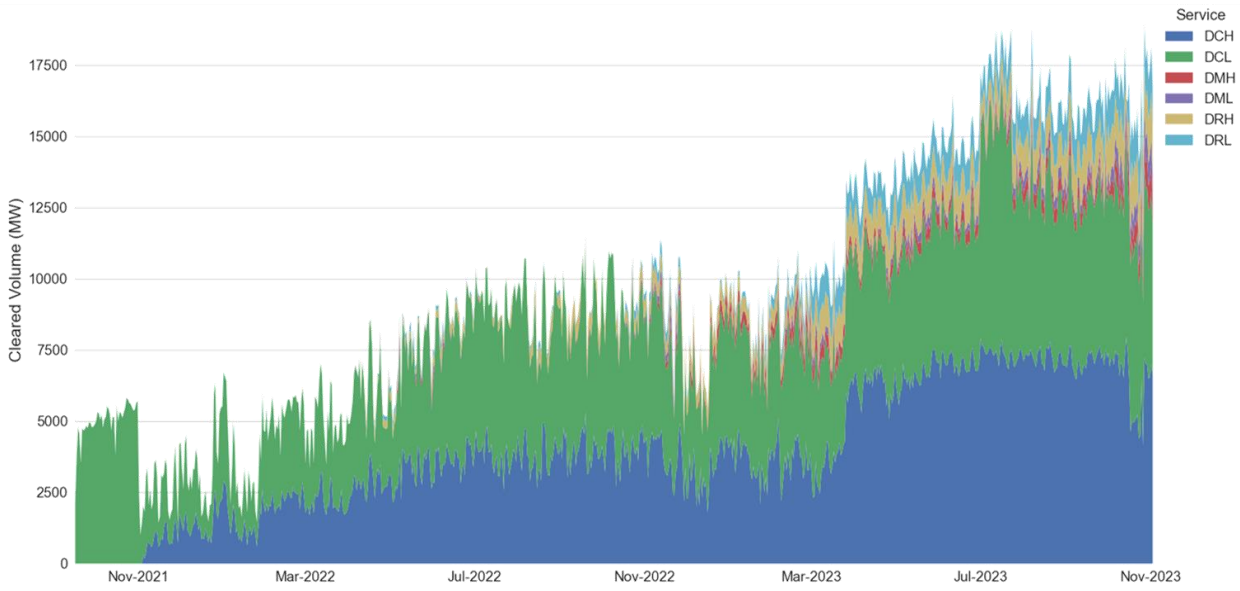
Objectives for the Session:

1. Get the MAC's Feedback on our planned engagement approach with industry
2. Hear your views on what key factors we should consider in changes to balancing & dispatch

Why are we doing this work?

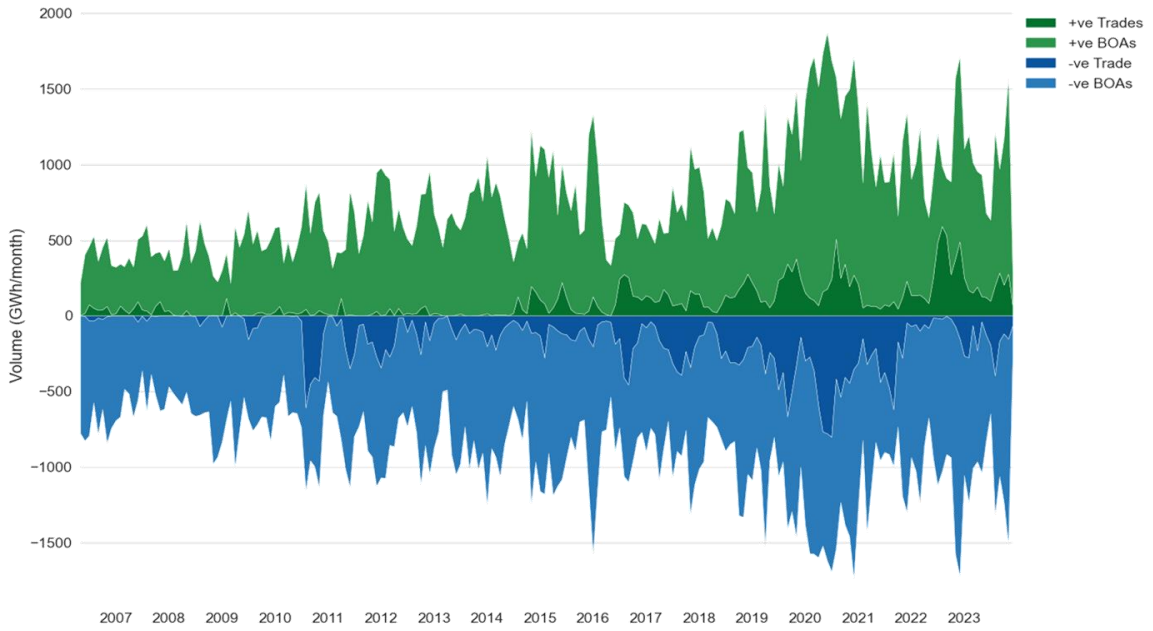
The GB market framework assumes ESO has a ‘residual’ role - but operating a high-renewables system is requiring increased ESO intervention, primarily in the BM

To integrate renewable resource, ESO has transformed how it procures services for balancing the system



Dynamic Frequency Response Services Cleared Volumes, Sept 2021 – Nov 2023

Despite this transformation, ESO interventions to secure the system in the Balancing Mechanism are steadily increasing

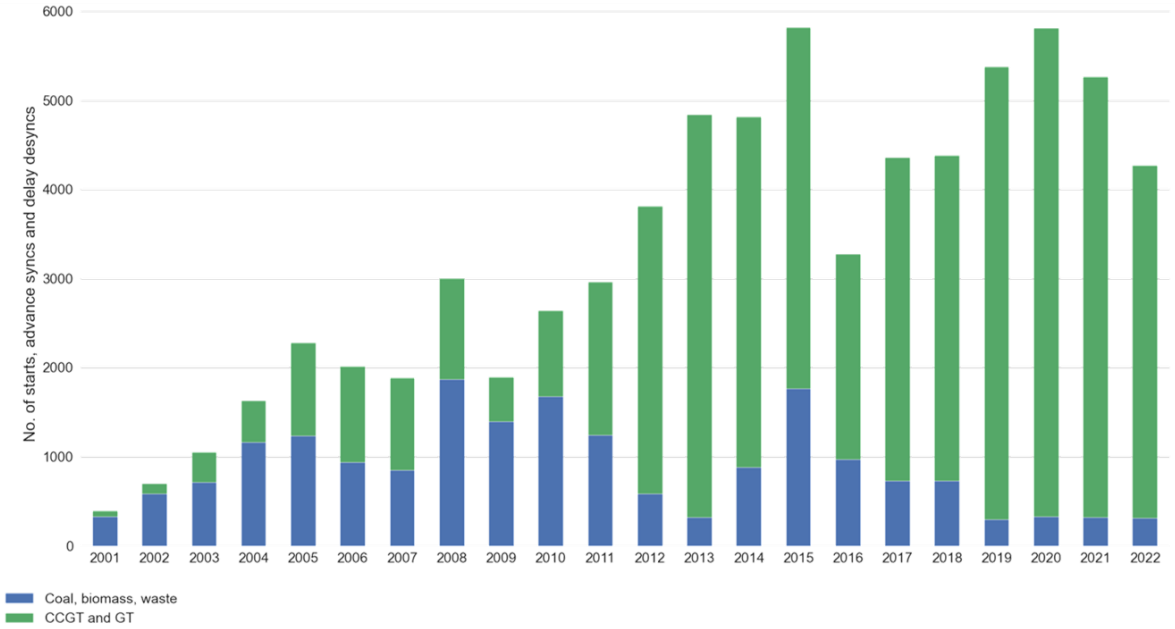


Monthly Balancing Volumes (BOAs and Trades), 2006-2023

Why are we doing this work?

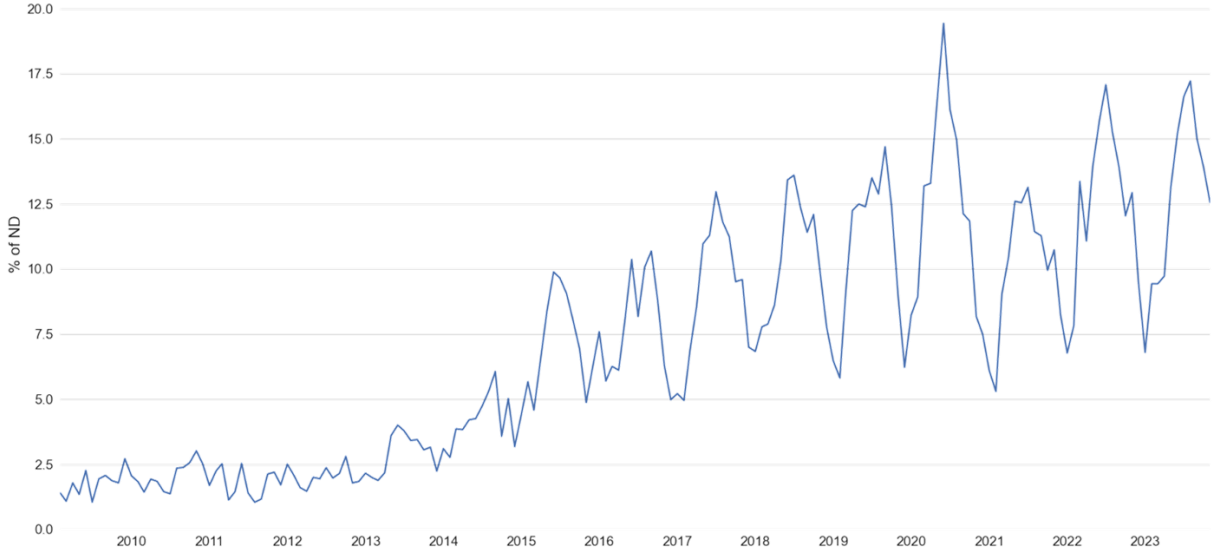
We believe the Balancing Mechanism design does not support its evolving role and context

Redispatching whilst minimising balancing costs requires more proactive ESO decision-making, contrary to the market framework



Unit Commitment Decisions through the BM, 2001-2022

These optimisation decisions are taken with reducing visibility of the wider market context



Embedded Wind and Solar Generation as a Share of National Demand, 2009-2023

Work done so far

We have identified three challenges impacting efficient balancing and dispatch, which we want to test with industry:

Challenge	Impact on market participants
Incentives: The energy markets don't provide scheduling incentives in line with system needs and operational requirements	Market parties can't see underlying drivers of system value and therefore cannot realise potential revenue streams
Visibility & Control: Incomplete ESO visibility of market outcomes, and limited access to some resources, impacts coherence between wholesale market and balancing	ESO decisions are taken with incomplete information, leading to inefficient dispatch and potential underutilisation of key asset types
Intertemporal issues: The current dispatch mechanism does not facilitate effective optimisation of costs and unit constraints over time	Leads to conflicting price signals and impacts transparency of BM decision-making

Next Steps:

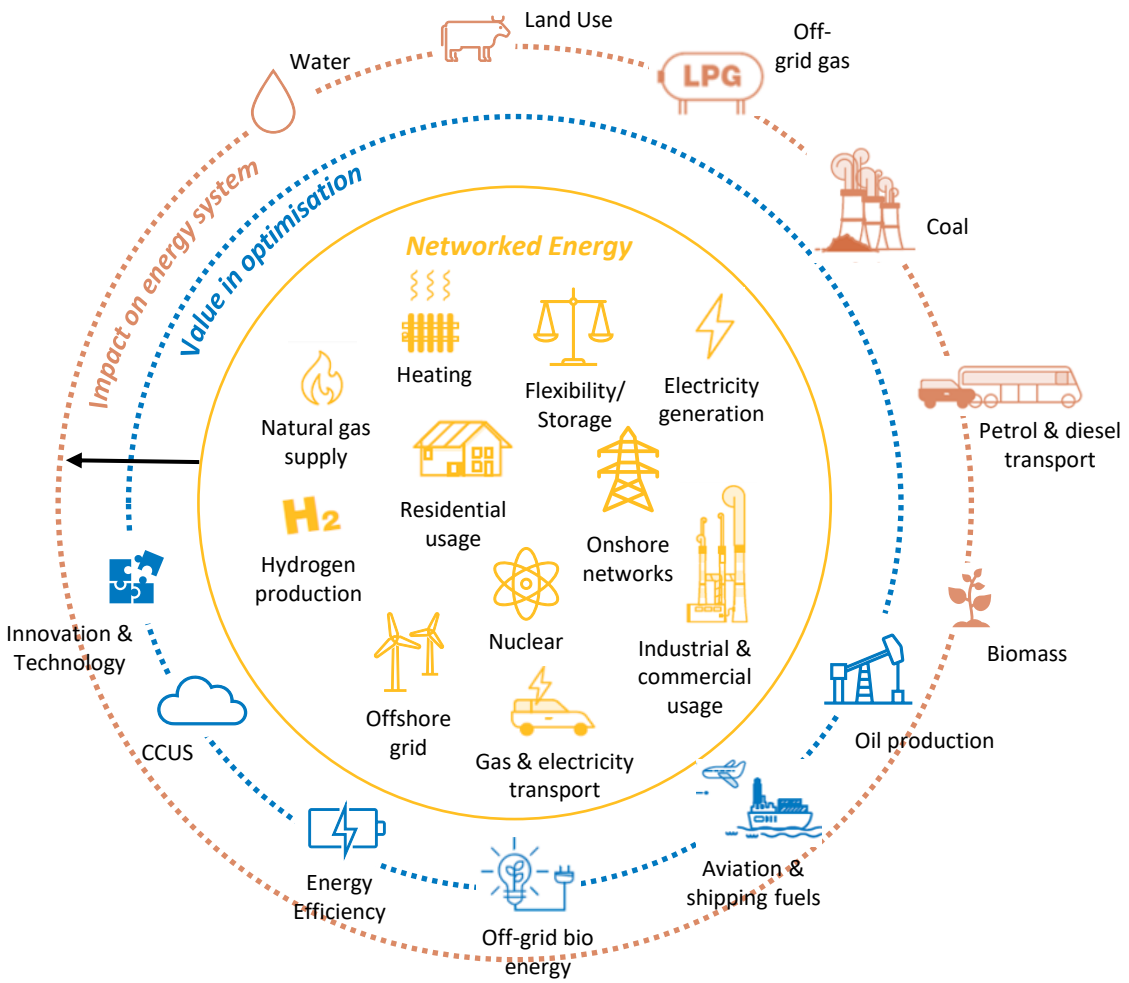
Share our ‘Case for Change’ and ask for feedback	• In-person Industry workshop: mid March • Plan to publish materials and final report following workshop
Canvas options for reform	• Follow-up workshop to ask attendees for their solutions to identified issues
Present co-created list of options	• TBD – pending REMA timescales

Whole Energy Strategy

Martin Crouch

ESO

Developing a Whole Energy Market Strategy



NESO Whole Energy Market Strategy

Assessment of Great Britain's **whole energy market mechanisms,** focusing on vector interactions, with the most urgent questions in mind:

- How to attract the huge investment required to achieve Net Zero by 2050?
- How to ensure energy reliability and security?
- How to deliver an efficient, coordinated and economical zero carbon energy system?
- How to ensure a fair and affordable system for all?
- How to stay competitive in global markets?

How we do it:

- Multi-phased study (2024-2026) starting with analysing Whole Energy Markets at global, national and regional levels
- Collaborative approach with stakeholders
- Learn from comparable markets
- Recommend implementable market design
- Phase 1: case for change, 6 months duration

NESO Webinar: Market Development, 6 March
Becoming the National Energy System Operator (NESO) | ESO (nationalgrideso.com)

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