Welcome to

ESO Spring Markets Forum

May 2024

ESO

Housekeeping

Wifi –
Network: GuestWiFi
Password: Events2024#

Please submit your questions via Slido - the code is **Markets**

No planned fire drills so if you do hear an alarm, make your way to the nearest fire exit

Please make sure phones are on silent and if you need to take any calls, please do so in the lobby

The presentation in this room will be recorded - the recording and slides from the day will be available on the website afterwards

Agenda

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Timings	Session
10:00 – 10:15	Introduction and welcome from Head of Markets
10:15 - 11:05	Looking to the future in Markets
11:05 – 11:20	Break
11:20 - 11:50	Improvements to Balancing
11:50- 12:30	Next Steps in our Key Markets
12:30 - 13:15	Lunch
13:15 – 13:45	Panel
13:45 - 14:00	Summary, Q&A and close
14:00 – 14:15	Break
14:15 - 15:30	Optional - Marketplace


Introduction

ESO - NESO

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Chief Executive Officer
Fintan Slye

Chief Operating Officer
Kayte O'Neill

Director of Strategic Energy Planning
Julian Leslie

Director of System Operations
Craig Dyke

Director of Transformation & Major Projects
Colm Murphy

Director of Engineering & Customer Solutions
Matt Vickers

Director of Customer
Anu Gibson

Director of Markets
Rebecca Beresford

Director of Resilience & Emergency Management
Matt Magill

Chief Financial Officer
Charlie Pate

Director of Digital, Data & Technology
Shubhi Rajnish

Director of People
Andreia de Mel Cabral

Director of External Affairs
Jake Rigg

Director of Strategy & Policy
Claire Dykta

Director of Legal & Regulation
Zoe Morrissey

Markets Leadership team

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Interim Director of Markets

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Strategic planning

Market development

Resilience and Security

Markets Priorities

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Review of Electricity Market Arrangements - REMA

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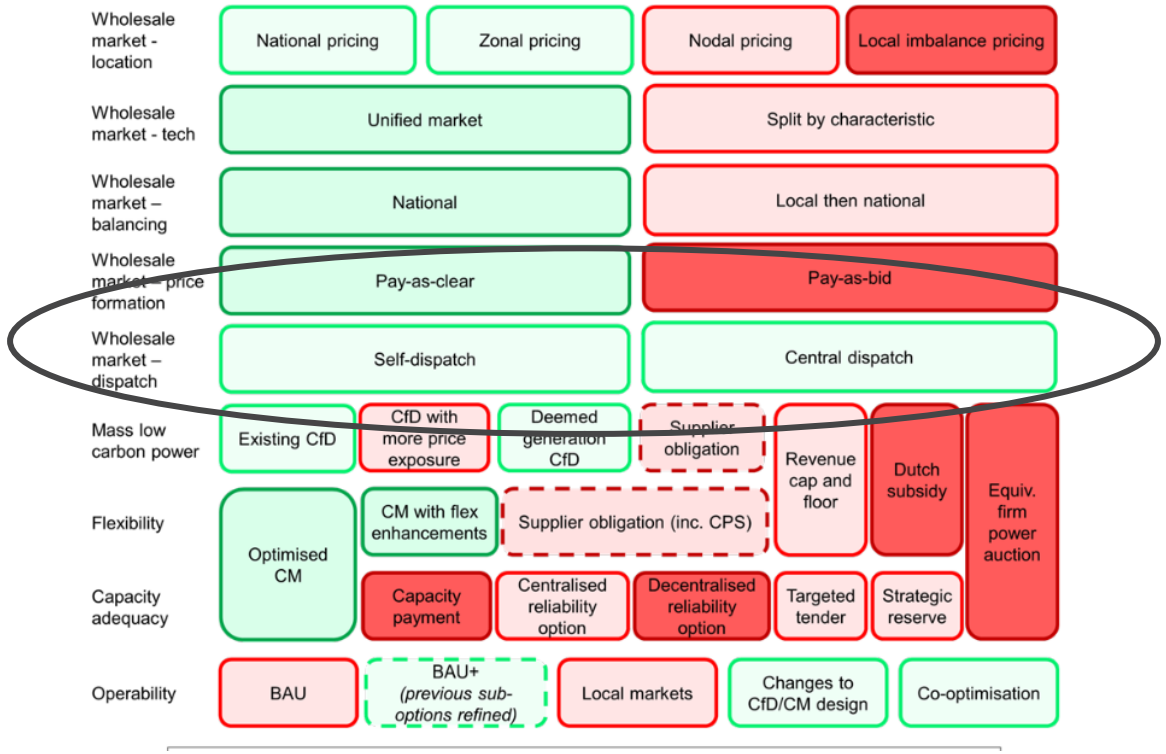
DESNZ' REMA programme is establishing the enduring market arrangements for a net zero system, and ESO is now a formal delivery partner alongside DESNZ and Ofgem

REMA vision

- Increase the deployment of low carbon technologies
- Provide the right signals for system flexibility
- Reward consumers through improved price signals
- Optimise assets operating at local, regional and national levels
- Ensure system security at all times

REMA 2nd Consultation Options Summary



Our assessment of Dispatch in REMA has 3 parts

Establish the case for change

Build shared understanding of what issues should be addressed with scheduling & dispatch reform, including implications for BM

Identify possible solutions

Work with industry, within REMA programme timescales, to identify options for reforming dispatch arrangements

Develop solutions for REMA evaluation

Identify shortlist of dispatch options and support DESNZ to assess within the broader REMA programme

ESO Case for Change

Working with consultants AFRY, we have identified three key issues with the current design:

Incentives	The energy markets do not provide scheduling incentives in line with system needs and operational requirements
Visibility and access	Incomplete ESO 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

Next steps and future engagement with industry

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Public webinar – 21 May

Establish the case for change

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Identify possible solutions

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Develop solutions for REMA evaluation

Identify shortlist of dispatch options and support DESNZ to assess within the broader REMA programme

Registration to our webinar

Net Zero Market Reform website

Flexibility Market Strategy

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ESO Flexibility Strategy

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2035 Mission

Transforming to a fully decarbonised electricity system which is reliable, affordable and fair to all

Our vision

Enabling all flexibility resources to move seamlessly between markets, driven by effective market signals, delivering whole electricity system value to consumers

2029 Outcomes

What must we achieve?

Maximising **Competition**

Co-ordination of GB markets

Coherent market arrangements

Workstreams

Which are the actions that will help us achieve these outcomes?

5-Year strategy development

Barriers & pain points identification & removal

Standardization across all GB flexibility markets

Coordination with DSOs

Paving the way for Future Market Arrangements

Transform GB flexibility markets digital infrastructure

How can you get involved

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- The Flexibility Market Strategy Call for Input will be open from Monday 20 May 2024 concluding end of June 2024 – please visit this link for the documents.

- We will hold a Q&A session w/c 5th June, please sign up here if you're interested in attending.
- We're also planning an in-person workshop after the call for input has closed to discuss your feedback.

- Please sign up to our newsletter so that you are the first to hear our announcements and any news.

We're keen to hear your thoughts, so please do reach out for 1-1 calls if desired. Our email address is:

flexibilitystrategy@nationalgrideso.com

Routes to Market Review

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Routes to Market Review - Demand Side Flexibility

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We believe that demand side flexibility has a key role to play in operating a secure, low cost, zero carbon system. Our Flexibility Market Strategy aims support the evolution of demand side flexibility by focusing on unlocking further access to core markets and a route to market for flexibility service providers.

To support this, we are

Undertaking a Routes to Market Review for Demand Side Flexibility to identify barriers to our markets

Developing a process for prioritisation & removal of barriers

Communicating our approach to removing prioritised barriers & timelines for doing so

Routes to Market Review - Demand Side Flexibility

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Alongside the Flexibility Market Strategy, Call for Input, we are publishing a draft Routes to Market Review for Demand Side Flexibility, with the aim of working with industry to gain a common understanding of :

- The current characteristics and capabilities of demand side flexibility , and
- the barriers that are preventing demand side flexibility from participating in our markets.

How can you get involved

We are looking to engage with industry throughout this process.

The Route to Market Review questionnaire will be open until the end of June.

Please sign up to our Flexibility Markets Strategy call for input Q&A session to find out more.

Gas Markets

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Developing a gas market strategy

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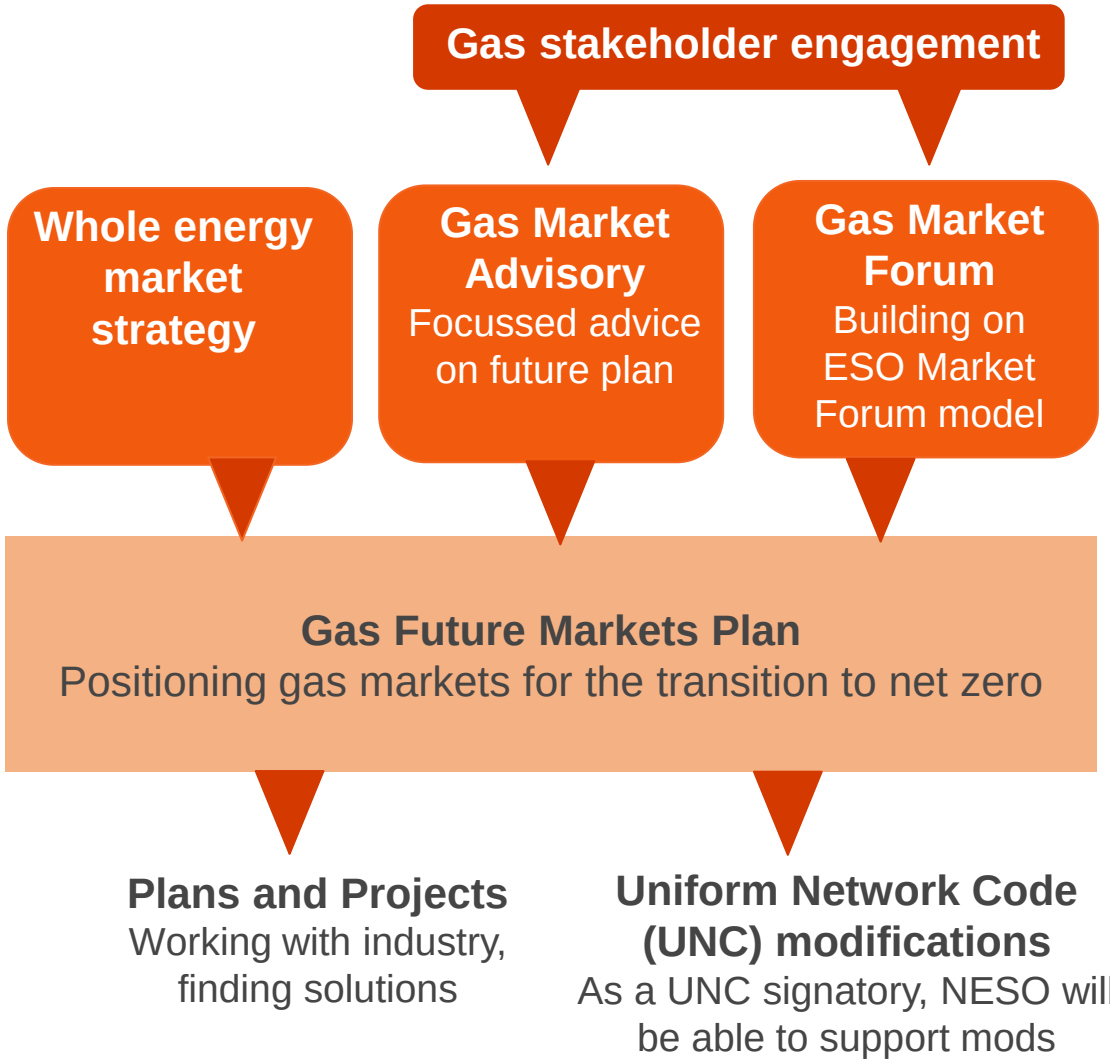

Whole Energy

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Developing a whole market strategy

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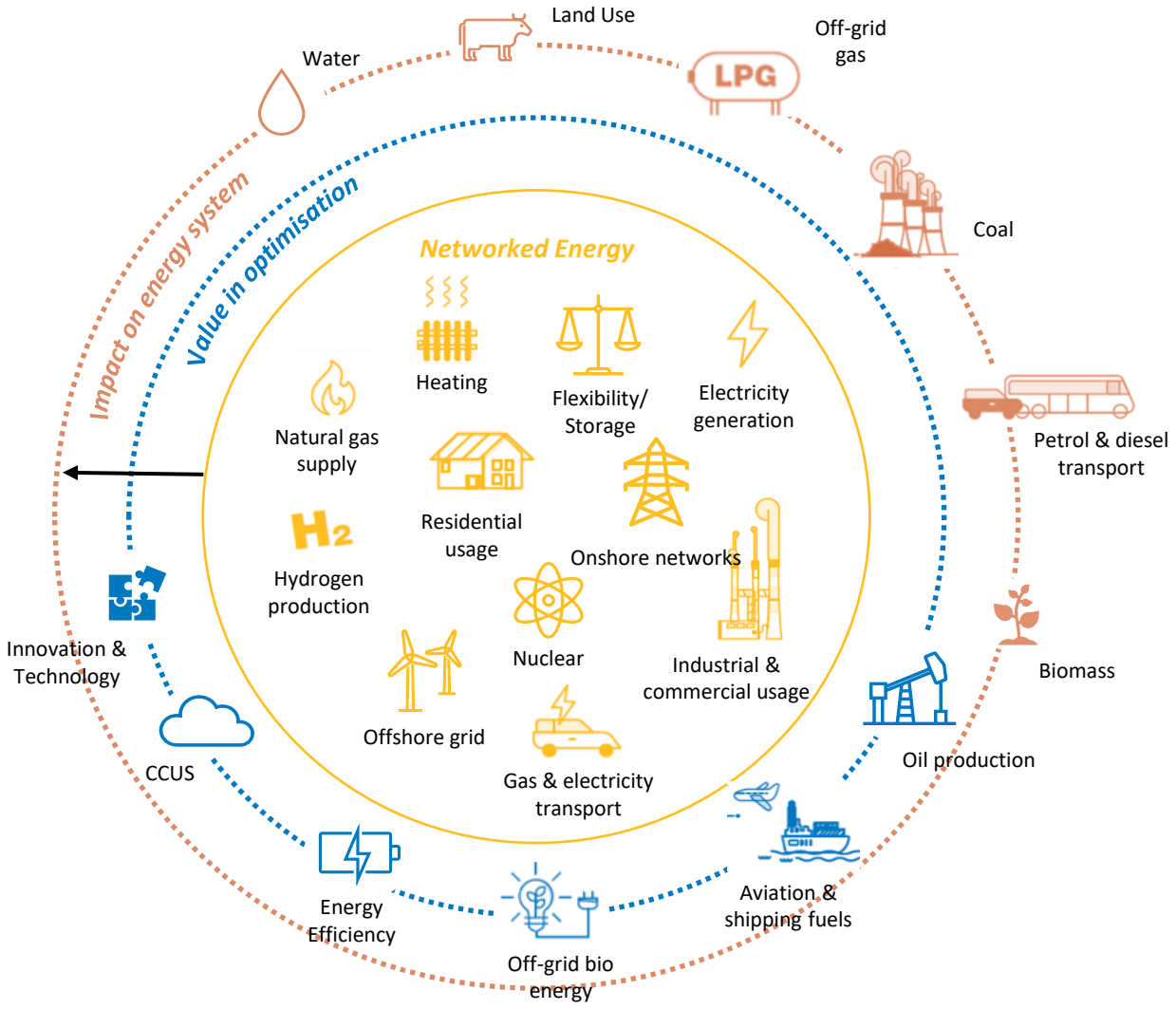
Whole Energy System



Assessment of Great Britain's **whole energy market and policy mechanisms,** focusing on interactions between vectors:

- What are the risks from current siloed market design?
- What are the opportunities to improve future market design?

How we do it:

- Multi-phased study (2024-2026) starting with Phase 1: case for change, by September 2024
- Developing a robust analytical framework
- Collaborative approach with stakeholders
- Learn from comparable markets
- Defining themes for further targeted exploration

Developing a whole market strategy

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Challenges

1. Consumer acceptability
2. Pace & scale
3. Optionality & capital efficiency
4. Operational efficiency
5. Complexity & resilience

Analytical framework

1. Identification of as-is Market Design across vectors
2. Where are the challenges and risks?
3. Assessment of opportunities / solutions
4. Interdependencies & sequencing

Developing a whole market strategy

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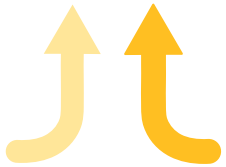
Building the case for change

Types of market change options



Convergence

Aligning key elements of market design across different vectors (eg consistent carbon price; technology agnostic support)

Coupling

Integrated & mutually dependent market design across vectors (eg implicit capacity allocation follows energy commodity trades)

Indicative examples of opportunities

- **Residential heat**: lessons from smart meters; beyond early adopters to mass market and fairness for the last movers
- **Accommodating intermittency:** beyond capacity and flexibility to provide multi-day resilience
- **Industrial decarbonisation**: coordination of customer asset lifecycles with energy supply and network build
- **Institutional change**: local energy network plans/charges; combined system operation or market governance

Market Frameworks

Whole Electricity System Frameworks

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Promoting Whole Electricity System thinking in industry frameworks

Nov 23

Establish Team

Team established to focus on areas where more holistic and coordinated reform to codes and arrangements would add value

Jan 24 – Jul 24

Workplan and Stakeholder Engagement

Develop scope and definition

Potential assessment areas identified and stakeholder engagement to agree priority

Baseline plan

Mar 24 – Jan 25

Assessment of ideas

Carry out detailed analysis of areas identified

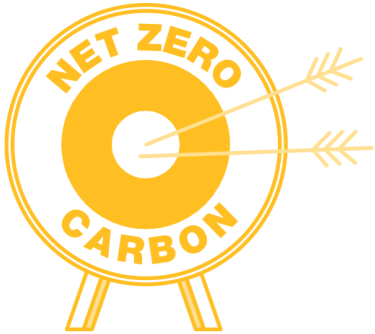
Create clear case for change

Mar 25 onwards

Recommend changes

Areas of change that affect the frameworks identified

Raise modifications or recommendations to responsible bodies



Whole Electricity System Frameworks

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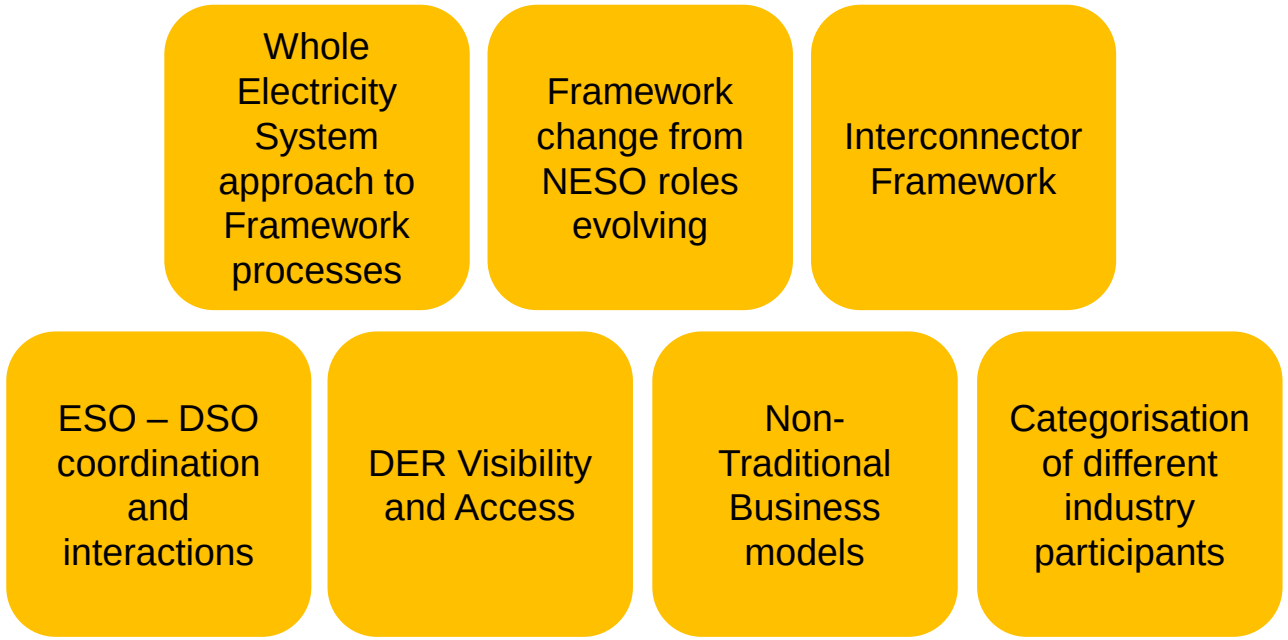

We will be seeking **feedback from industry on areas for assessment** and prioritisation over the summer. In the meantime, if you have any comments, please contact keren.kelly1@nationalgrideso.com

Market-Wide Half Hourly Settlement (MHHS)

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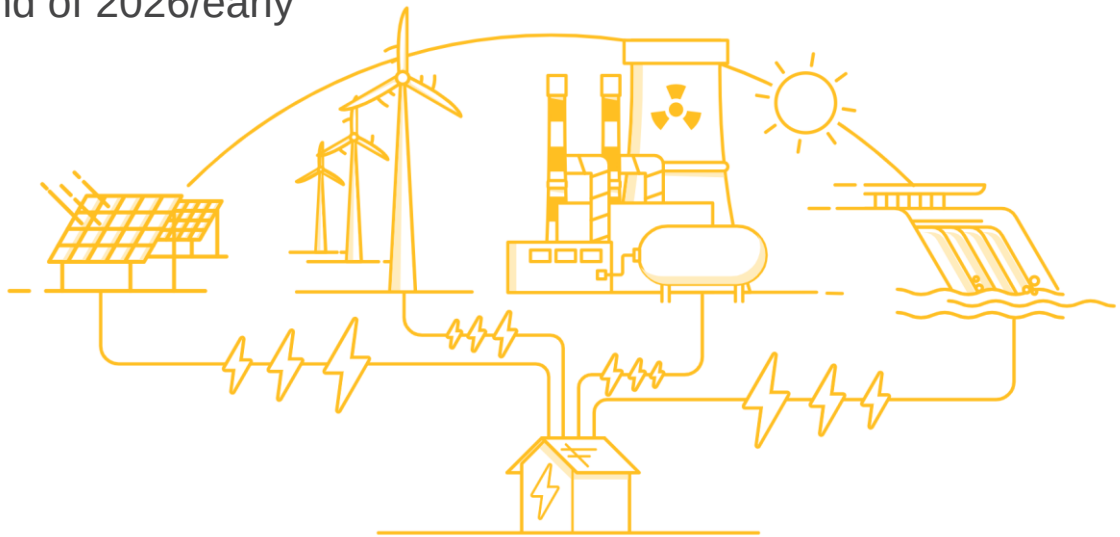
What is it?

- Reforming electricity settlement
  - Site-specific
  - Half hourly energy reconciliation
- Suppliers will migrate sites to new arrangements between April 2025 and October 2026
- The settlement cycle will reduce from 14 months to 4 months (end of 2026/early 2027)



Why is it important?

- Expected net consumer benefits of between £1.6bn and £4.5bn by 2045
  - Each year of delay to implementation of MHHS = £90m lost consumer benefits
- Significant enabler across multiple areas
  - Flexibility and market participation
  - Increased visibility at distribution level
  - Data for demand forecasting and planning

Q&A

Enhancing the use of Energy Storage Assets in the Balancing Mechanism

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Enhancing energy storage in the BM

In October 2023, we engaged with Industry on our plan to **enhance the use of energy storage in the Balancing Mechanism (BM)**, responding to concerns raised regarding low utilisation of battery assets.

Our plan is focused on:

Improving dispatch data transparency, providing a deeper understanding of operational actions in the control room and the reasons for these

Enhancing system and process capabilities within the Control Room, in line with the transition to the Open Balancing Platform (OBP)

Enabling new Energy Storage parameters to enhance use of storage in the BM

Co-creating future capability and market solutions that enable efficient dispatch of all assets in the BM

Our plan combined both pre-existing planned activity & and new deliverables; we have continued to engage with Industry throughout, incorporating feedback within the evolving plan.

Battery utilisation figures – what impact we are seeing

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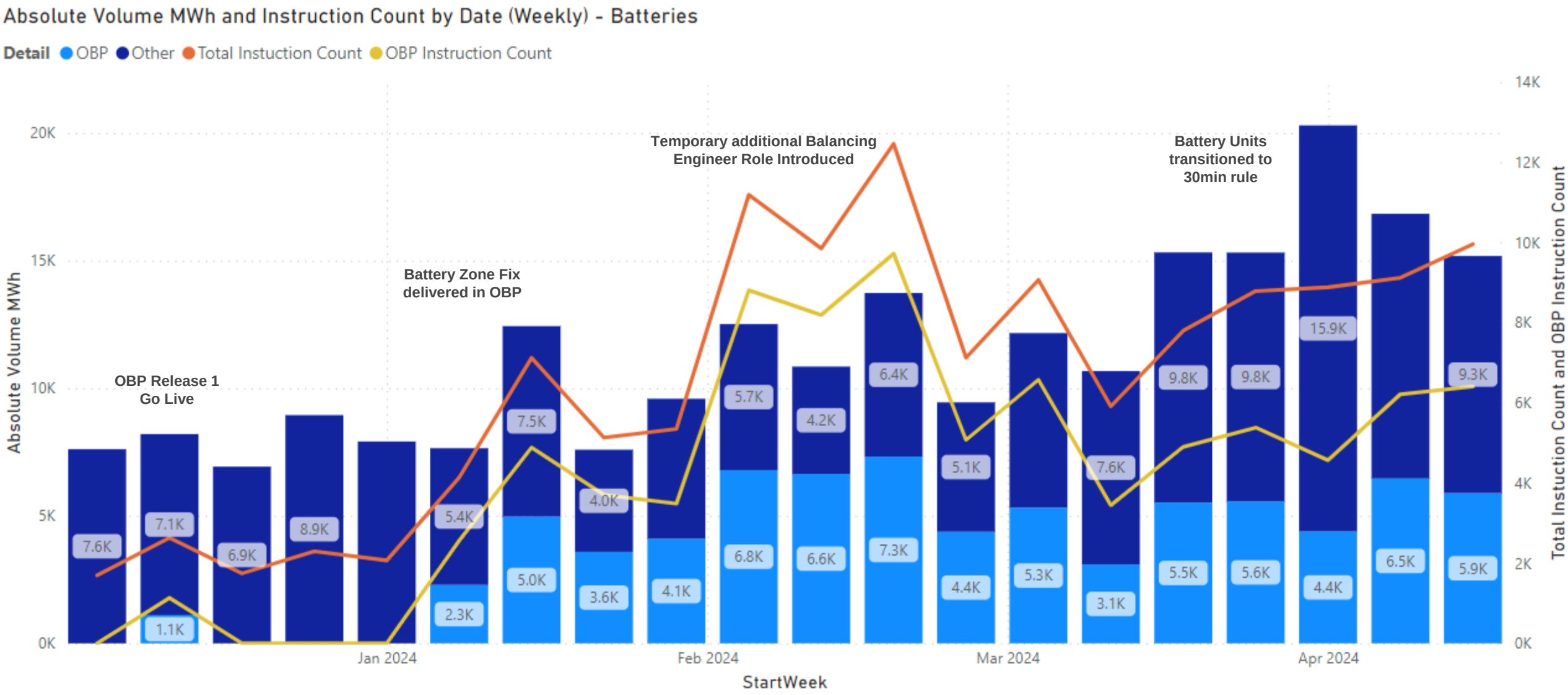

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Battery utilisation figures – what impact we are seeing

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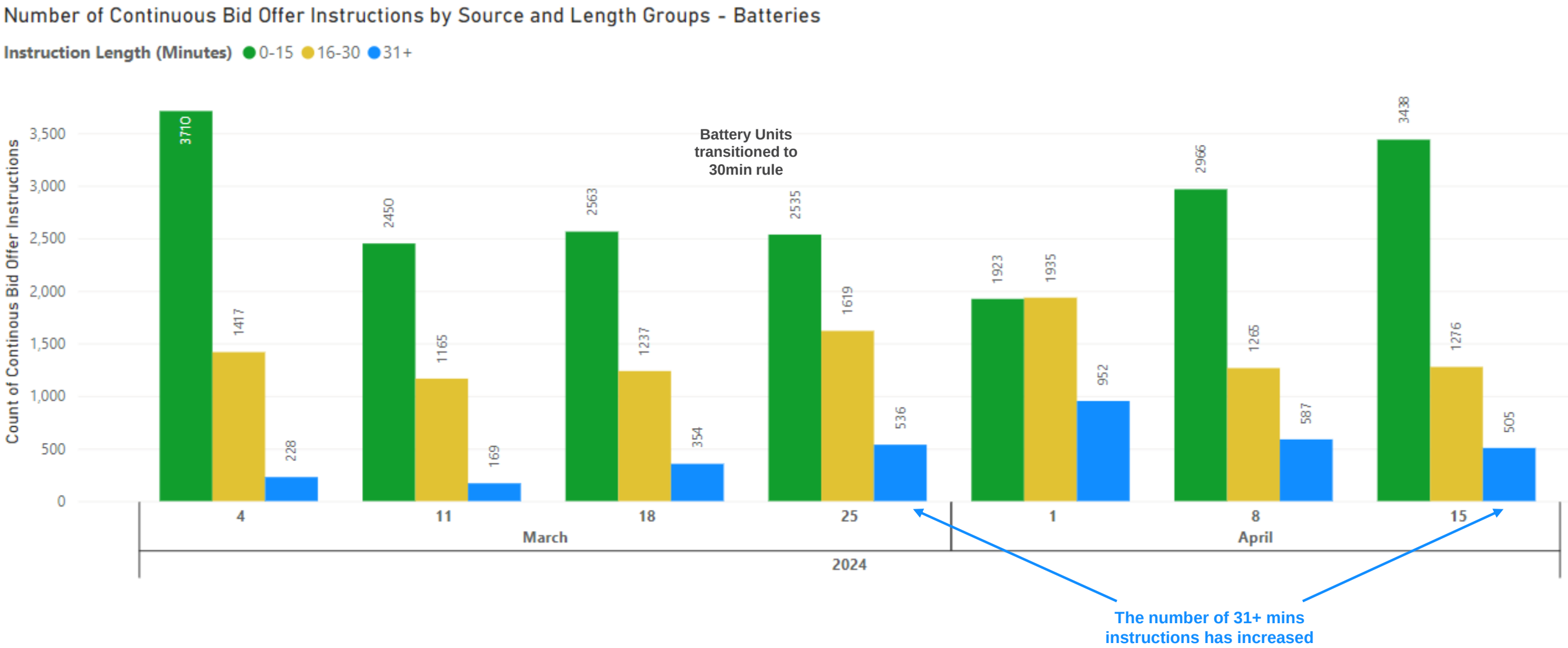

What's next

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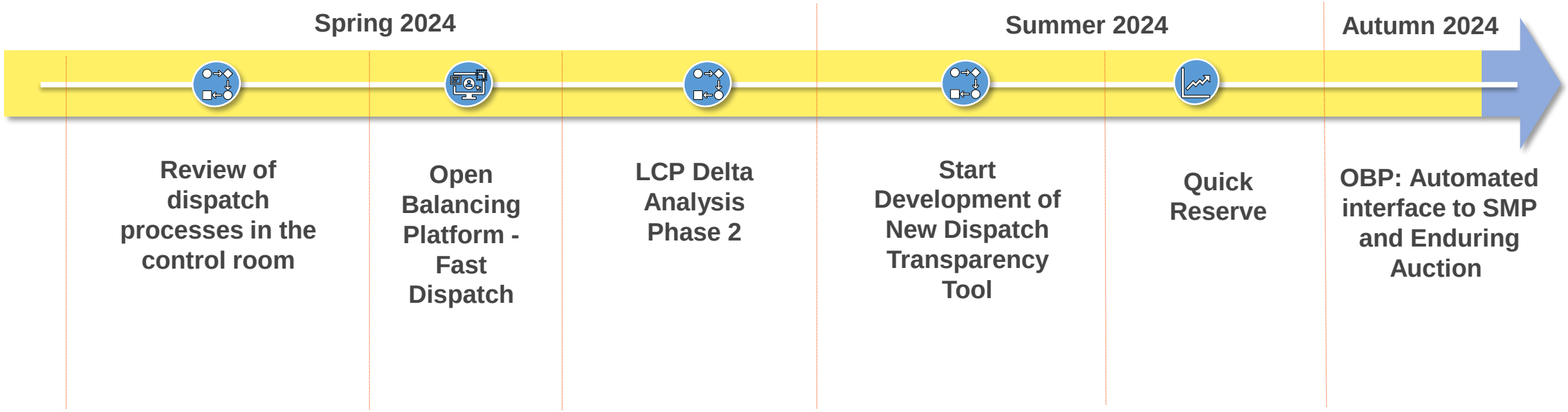

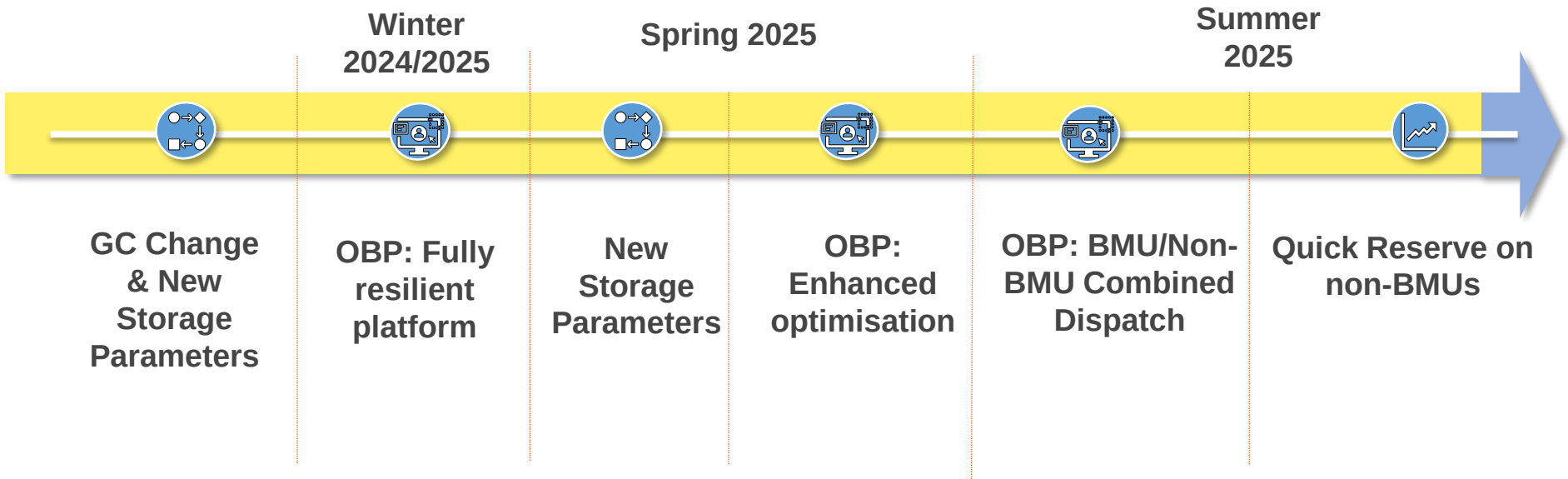

Balancing costs

Key Messages

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Balancing costs are projected to rise out to 2030.

Constraint costs are likely to increase until the end of the decade. In our most ambitious decarbonisation scenario, up to 80 GW of generation will connect by 2030

Decisions made now will shape balancing costs into the 2030s.

Key strategic decisions made on Connections, new network development and REMA will have a huge impact on future balancing costs

ESO initiatives create savings worth ~£18bn before 2030.

The ESO has been undertaking a wide range of initiatives outlined in our balancing costs portfolio that are aimed at minimising balancing costs. We continue to be proactive in seeking out new market solutions.

Balancing cost projections

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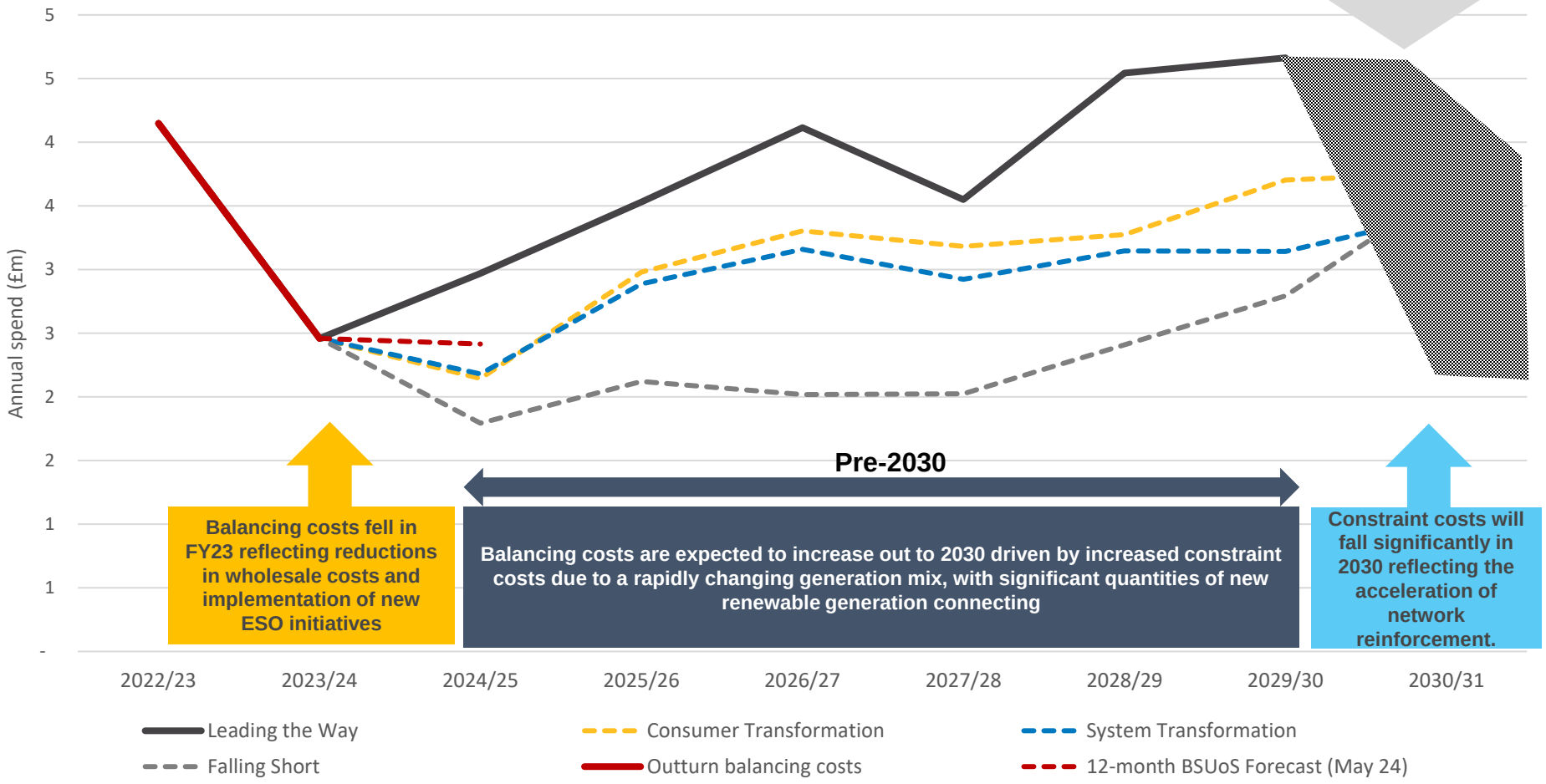
Projection of balancing costs extrapolated from Leading the Way residual thermal constraint projection

Connection dates for new network build remain uncertain. Our modelling assumes most projects outlined in the ASTI framework will connect in 2030, driving large cost reductions in this year. If these projects are delayed it is likely to have a significant impact on savings.



Post-2030

There is significant uncertainty in forecasts post-2030 with notable differences between scenarios. Post-2030 thermal constraints depend largely on policy decisions such as wholesale market reform, position of electrolysers, position of new nuclear SMRs and position of onshore wind.

ESO initiatives create savings worth ~£18bn before 2030

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Thermal Constraints

Response and Reserve

Voltage Constraints

Stability Constraints

Improving System Operation

Balancing costs Portfolio

Annual Balancing Costs Report Webinar

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Sign up for our webinar about our first Annual Balancing Cost Report

Date: 17 May 2024
Time: 11:00 – 12:00 PM
Location: Microsoft Teams

Agenda

Introduction
Key messages
A look back at recent balancing costs
Future balancing cost projections
Audience Q&A

The full report will be published on our Balancing Costs webpage on 17 May.

Registration now open for this webinar:

https://events.teams.microsoft.com/event/67a0138a-bf33-44be-b7a1-1a498279106d@f98a6a53-25f3-4212-901c-c7787fcd3495 #

Constraints Collaboration

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Constraints Collaboration Project

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1. Constraints Management Markets (CMM)

1A. Demand for Constraints

- amp CLEAN ENERGY — Increasing demand for power in constrained areas for electrification of heat
- eneus energy — Flex PtX to produce green H_2 and related derivatives
- Statkraft — Demand signal product
- ScottishPower — ncentivising new discretionary demand (H_2 production and electricity storage)
- Flexitricity — 'COOLER HEATING' – commercial heat loads as responsive assets
- sse Business Energy — Long-term constraint management contracts (incentivising new demand)

1B. CMM – Long Term (Multi years to decade ahead)

- TEL the energy landscape — Constraints management markets (CMMs)
- SCOTTISH FUTURES TRUST — Long term contract to manage a portion of the forecast constraint volumes
- sse Business Energy — Competitively allocated season ahead constraint management availability contracts
- EDF — Long-term auction of excess wind

1C. CMM – Short Term (Day to week ahead)

- ZENOBĒ — Pre gate closure constraint management product using scheme 7 trade
- sse Business Energy — Competitively allocated short-term constraint management contracts (D-7)
- EDF — Discounted demand turn up
- EDF — Weekly generation turn down market
- Flexitricity — The 'Big Friendly Battery' for ~8 hours duration

2. Increasing how much can flow over boundaries

2A. Extended intertrip scheme

- FIELD — Extended intertrip scheme
- ZENOBĒ — Intertrip scheme utilisation
- sse Business Energy — Enhance utilisation of the transmission network
- Eku — Battery for constraints: Reducing the line rating from 10 to 3 mins

2B. Flexible assets to support capacity increase

- FIELD — Grid booster
- ZENOBĒ — Transfer booster
- Kona Energy — Paired storage systems across key boundaries
- ZENOBĒ — Flexibility for Active Network Management (ANM) zones and Generation Export Management (GEMS)

Key

- Demand for Constraints
- CMM – Long term
- CMM – Short term
- Increasing how much can flow over boundaries
- Using flexible assets to reduce the flow over boundaries

Q&A

Next steps in our Key Markets

Electricity Market Reform

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Electricity Market Reform 2024 Auction outcomes

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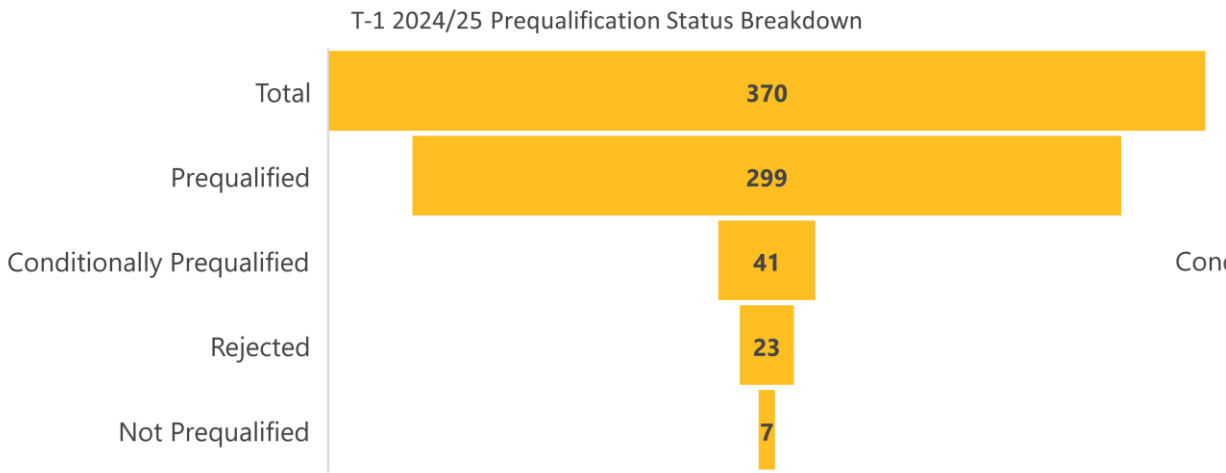
Total cost of the CM Auctions, based on Agreements awarded: £4.72bn

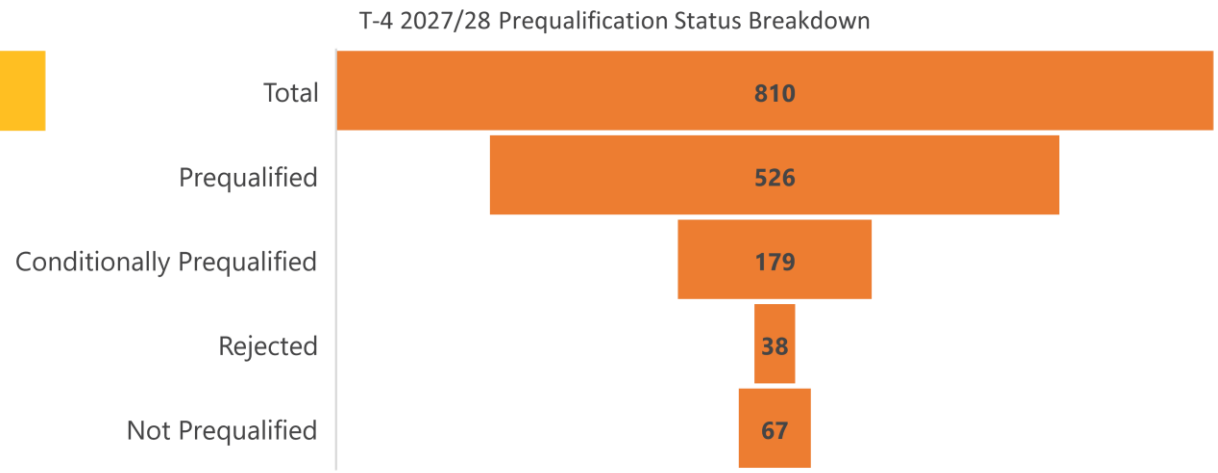
- T-1 DY 24/25 – £273.42m
- T-4 DY 27/28 – £4.44bn

Auction	Capacity Procured (MW)	Total Agreements Awarded	Clearing Price	Capacity Not Awarded (MW)
T-1 DY 24/25	7639.609	277	£35.79	1817.528
T-4 DY 27/28	42830.829	540	£65.00	535.779

Total number of Applications received by the Delivery Body: 1,185

- T-1 Applications received: 375
- T-4 Applications received: 810





EMR New Portal update

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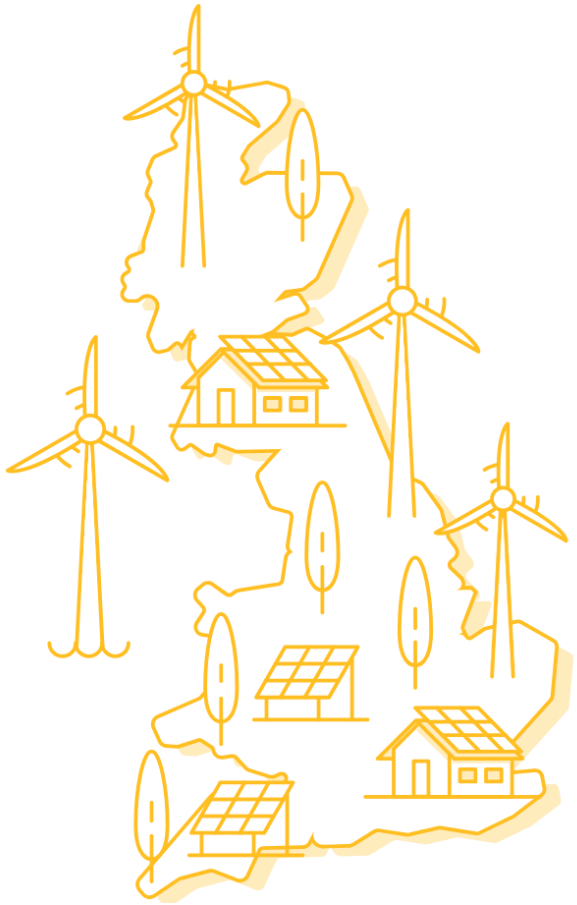
- New Portal opened since January, **901** companies registered representing **>99%** of live CM capacity
- Customer Familiarisation Window - **67** customers representing **298** companies and **>60%** of live CM capacity
- Positive feedback from customers on the New Portal (**8/10**)
- In anticipation of final policy maker decisions, potential regulatory changes from DESNZ Phase 2 consultation and Ofgem's statutory consultation, are being designed and expected to be deployed from late June 2024
- The New Portal will be launched **in June** ready for the upcoming CM round in July 2024 for prequalification applications



Ancillary Service Reform

Enduring Auction Capability (EAC)

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Over the course of 23/24 we have

- Increased Market Capacity from ~3GW to ~4.5GW per day
- Increased DM requirement from 100MW to 150MW and DR cap from 200MW to 350MW
- Phased out Dynamic FFR

EAC has played a pivotal role in growing the market

Enduring Auction Capability

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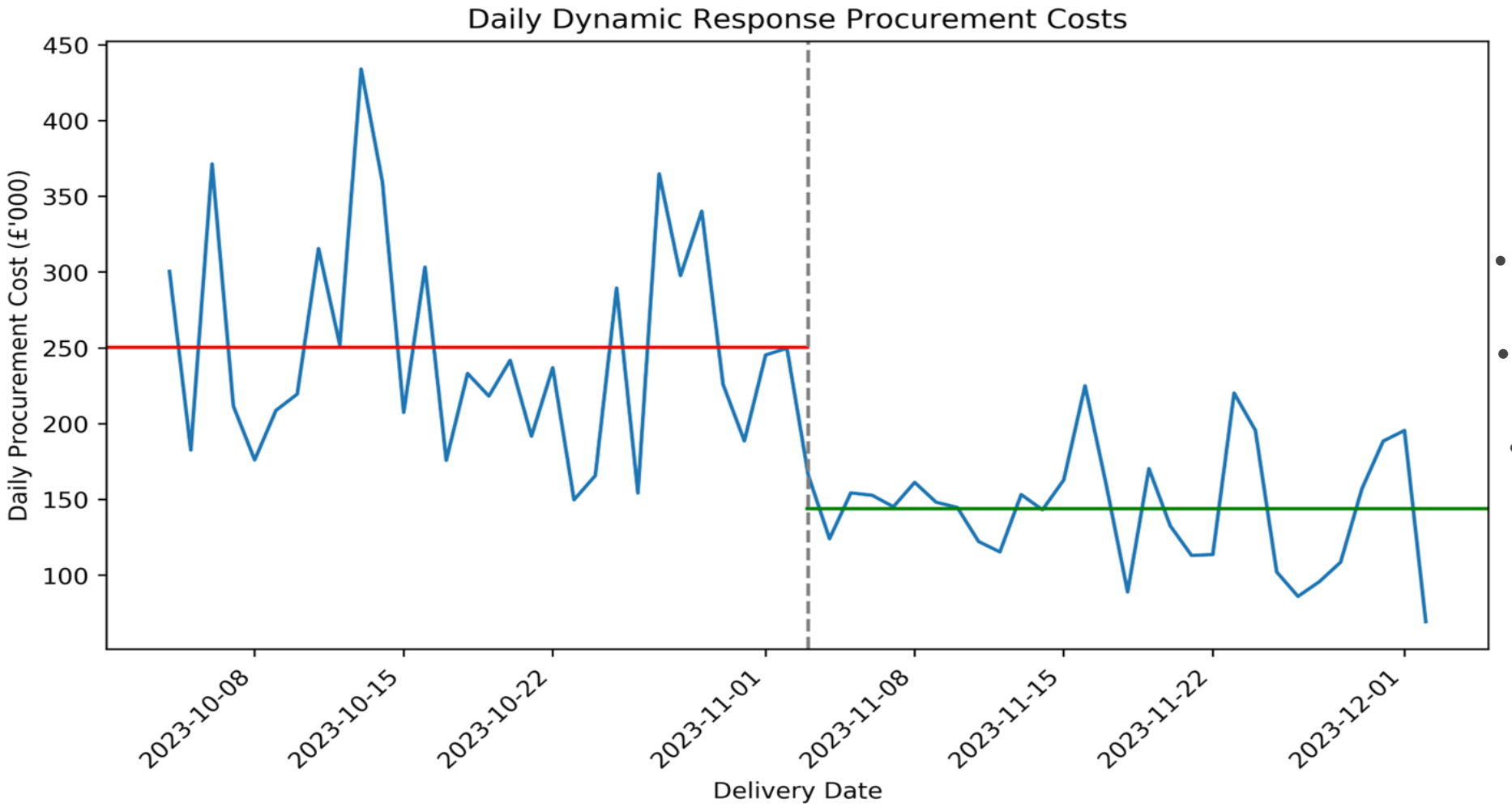

Headlines:

- **57% reduction in clearing prices**
- **69% increase in cleared volume**
- **£86.5m/year projected saving**

Balancing Reserve

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Balancing Reserve launched on 12 March 2024 for reserve capacity available in the Balancing Mechanism (BM) the following day.

As of 9 May 2024

- 17 market participants
- Average clearing price £2.92 (MW/h)
- Market revenue to date around £1.86M

Work is ongoing to evaluate and assess the service

We are keen to hear your feedback
box.futureofbalancingservices@nationalgrideso.com

Balancing Reserve

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Positive Balancing Reserve markets are competitive

Negative Balancing Reserve is not as attractive as we expected

Not seen large impacts on costs or volume

Next Steps

Call for input
Continued analysis and learning

Quick Reserve

To react to pre-fault disturbances quickly to restore the energy imbalance quickly to close to 50.0 Hz

Positive and Negative Quick Reserve

Replacement of the legacy Fast Reserve service to address future system needs.

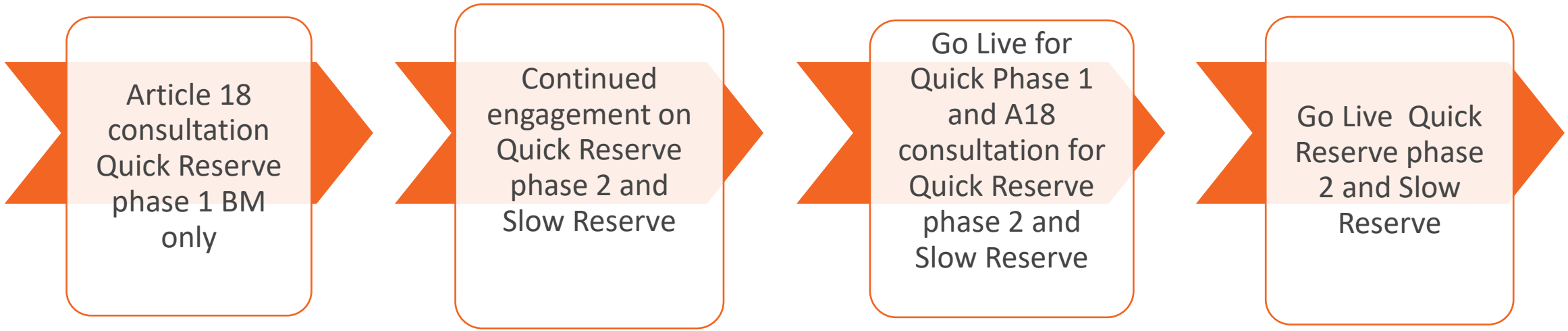
Slow Reserve

Positive and Negative Slow Reserve

Replacement of the legacy STOR service to address future system needs.

Helping to mitigate the largest demand and generation losses on the network

Quick and Slow Reserve Timeline



Frequency Response Reform

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Frequency Response Release 3 consultation will be published in June with key focus areas:

- Ramp Rates
- Monitoring and Reporting
- Availability and State of Energy
- 24/7 Non-BM data submission

Mandatory Frequency Response

- Extend Derogation
- Propose change for long term

Single Markets Platform

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Better buyer of balancing services

Self serve & modern architecture (API's)

Self onboarding experience improved

Customer engagement drive continuous improvement and priortisation

To engage with us, scan the QR code

Demand Flexibility Service

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Demand Flexibility Service (DFS)

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What does the future of The Demand Flexibility Service look like?

Existing derogation for DFS expired on Tuesday 30 April 2024

38 responses to the DFS questionnaire – feedback calls currently underway

Review of the overall revenue proposal was the highest priority on average

Facilitate stacking with other services another top priority

Evolved DFS product to provide a route to market

Demand Flexibility Service (DFS)

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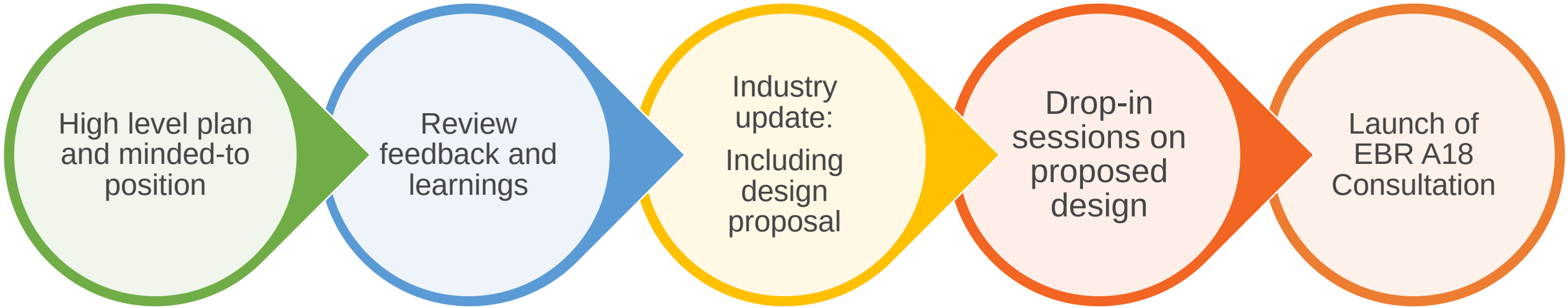
Indicative Timeline



Markets Forum | **May** | **Early June** | **Through June** | **July**

Q&A

Panel

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Panel Host

Vicki Mustard

Head of Gas and Whole Energy Market Development at ESO

Alastair Martin

Chief Strategy Officer at Flextricity

Maurice Lynch

Head of System Flexibility at Northern PowerGrid

Matt Magill

Director of Markets at ESO

Q&A

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