Public

Balancing Programme Beyond 2025 Webinar

30 Jan 2025

NESO
National Energy System Operator

Agenda

#BPBeyond2025

Time	Agenda Item
14:30 – 14:35	Welcome & Recap on activities
14:35 – 14:50	Enhanced Dispatch Results & Polls
14:50 – 15:05	Data & Transparency Results & Polls
15:05 – 15:20	Whole System & Flex Results & Polls
15:20 – 15:30	Next Steps & Close

Whilst there will not be a live Q&A during the webinar, please do post any questions you have in Slido - **#BPBeyond25** - ensuring to list both your full name and organisation and we will follow up with you after the webinar.

Questions posted in Slido will be published online with answers.

Slido will close at the end of the webinar; if you have any further questions, please get in contact with us at box.balancingprogramme@nationalenergyso.com.

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Balancing Programme System Transformation

The Balancing Programme was established to develop the balancing & forecasting capabilities that the Electricity National Control Centre needs to deliver reliable and secure system operation, facilitate competition for the benefit of consumers and meet our ambition for net-zero carbon operability.

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Why do we need to transform?

1. Manage increased **number of market participants**

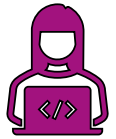
2. Quickly **adapt** to new requirements, innovation and services

3. Enable **level playing field** for new flexibility services

4. Optimise **balancing cost**

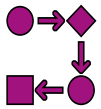
How are we delivering this transformation?

Current System Changes: Delivering changes and improvements to our current balancing systems, responding to identified need, ahead of OBP being fully implemented in 2027.



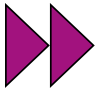
Development of New Systems: Developing and delivering two new platforms for balancing and forecasting which are reliable, resilient and secure, and modernise Control Room operations.

Process Improvement: Reviewing current processes to understand what changes and information are required to enhance operation in line with our objectives.



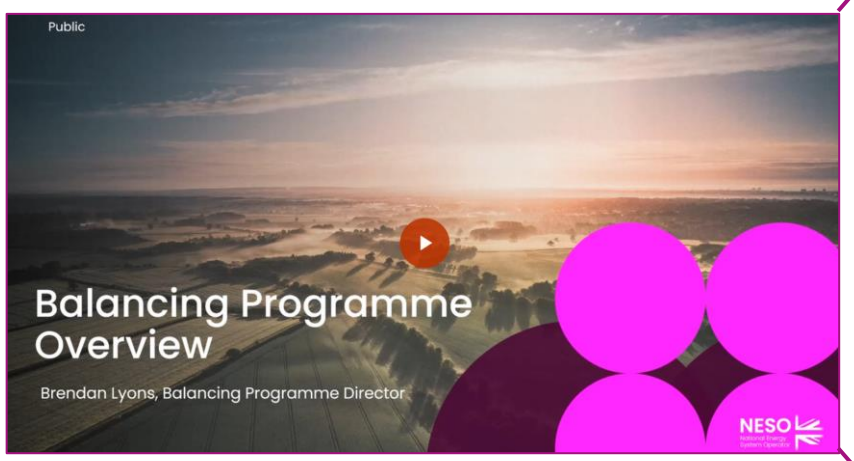
Trials & Innovation Projects: Collaborating on trials & innovation projects to build an understanding of requirements for future balancing capabilities through lessons learned.

Enabling Market reform: Through our system changes and development we enable market reform in response to evolving requirements & need.

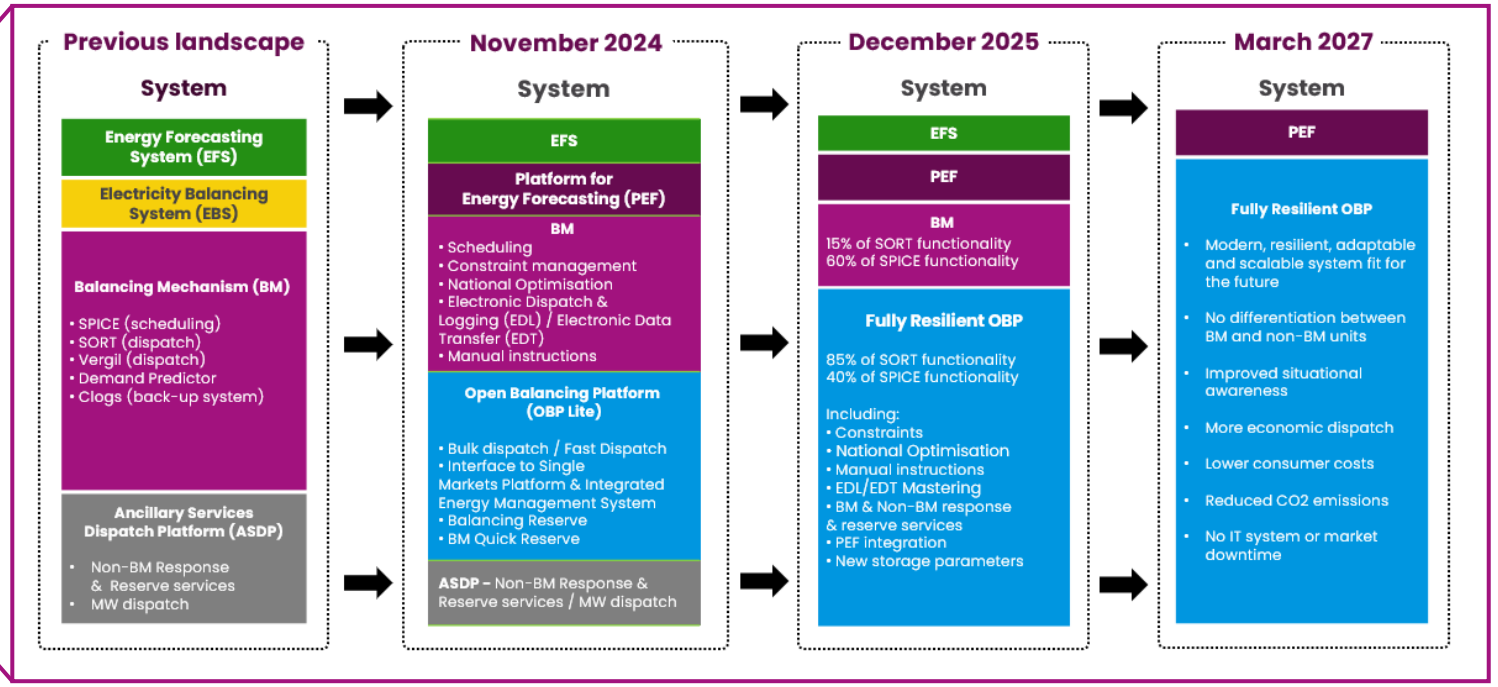


System Transformation – Where are we?

To date the programme has done extensive work to modify our existing balancing & forecasting capabilities to meet changing market conditions and customer requirements, but now we are looking beyond 2025.



In this video, Brendan Lyons, Balancing Programme Director, talks about where we are in our balancing & forecasting transformation journey.



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Future Capabilities: Recap

The Balancing Programme are working with Industry through a series of engagement sessions which started in June 2024, to shape and develop balancing & forecasting capabilities beyond 2025.

We want to ensure the Programme's roadmap aligns with customer expectations, whilst enabling a decarbonised energy system and delivering consumer value.

During our most recent engagement, we asked Industry to complete three short surveys to gather their feedback on potential capabilities beyond 25 – focussing on significance to business, delivery challenges & understanding of the capability.

Survey Areas

ENHANCED DISPATCH	WHOLE SYSTEM & FLEX	DATA & TRANSPARENCY
Co-optimization (Energy, System, and Ancillary Services)	TSO/DSO Coordination	Data Publication for Distributed Assets
Non-integer Bid Offer Acceptances (BOAs)	Integration of New Asset Types	Data Exchange (e.g. Industry Standard APIs)
Increased Number of Bid Offer Pairs	Evolution of Demand-Side Flexibility Markets	Network Model Exchange (Common Information Model - CIM)
Aggregated Dispatch for Sub-1MW Resources	Availability of Demand-Side Flexibility	Transparency of Non-Balancing Mechanism (Non-BM) Data
Decentralised Dispatch	Enhanced European Coordination	Automated Reporting of Optimisation Decisions
AI-Based Decision Support Tools	Zonal and Local Demand Optimisation	Continuous Improvement in Dispatch Efficiency Monitoring and Transparency
Including Carbon in Balancing Mechanism (BM) Decisions	Constraint Forecasting	Inertia Forecasts

Pink boxes represent ideas suggested at June 2024 Balancing Programme event

74

Responses across the 3 surveys

Enhanced Dispatch Survey Results

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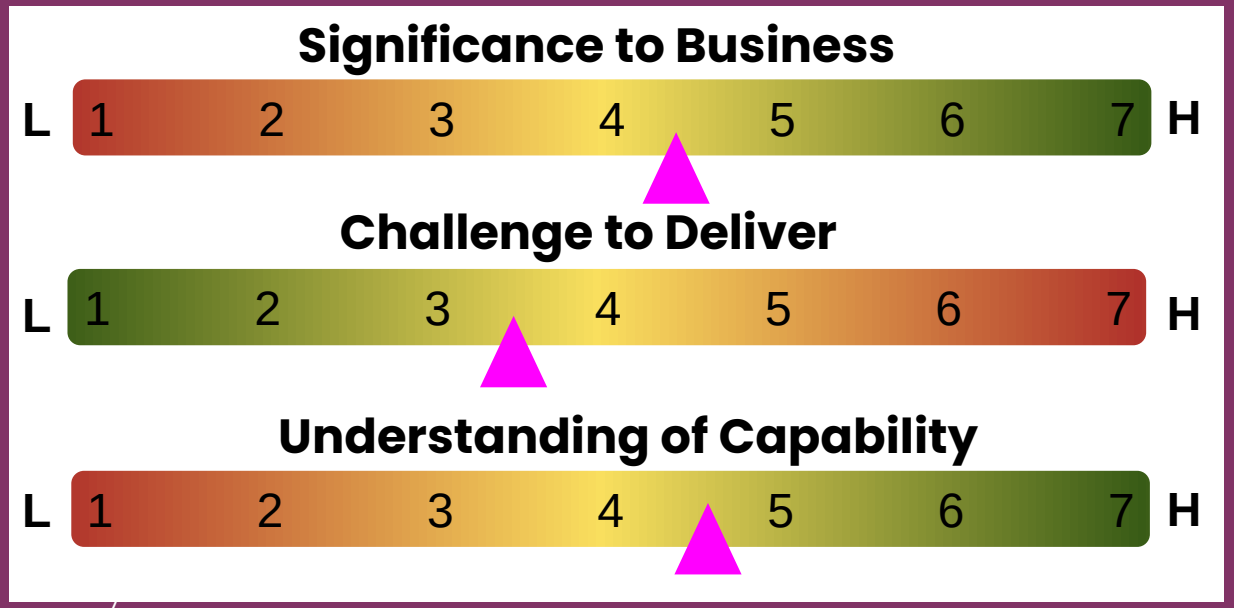
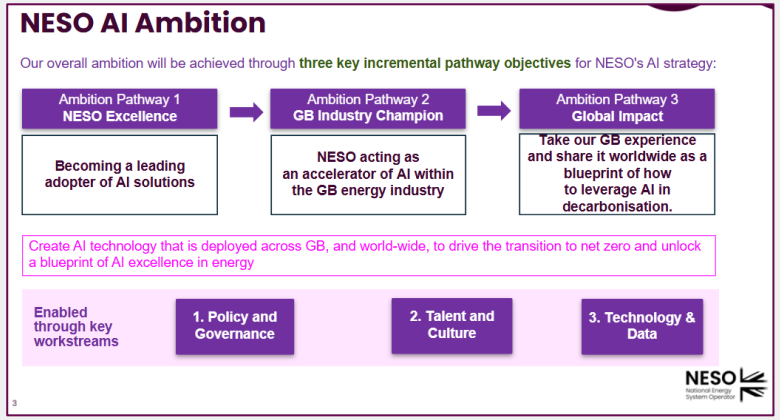
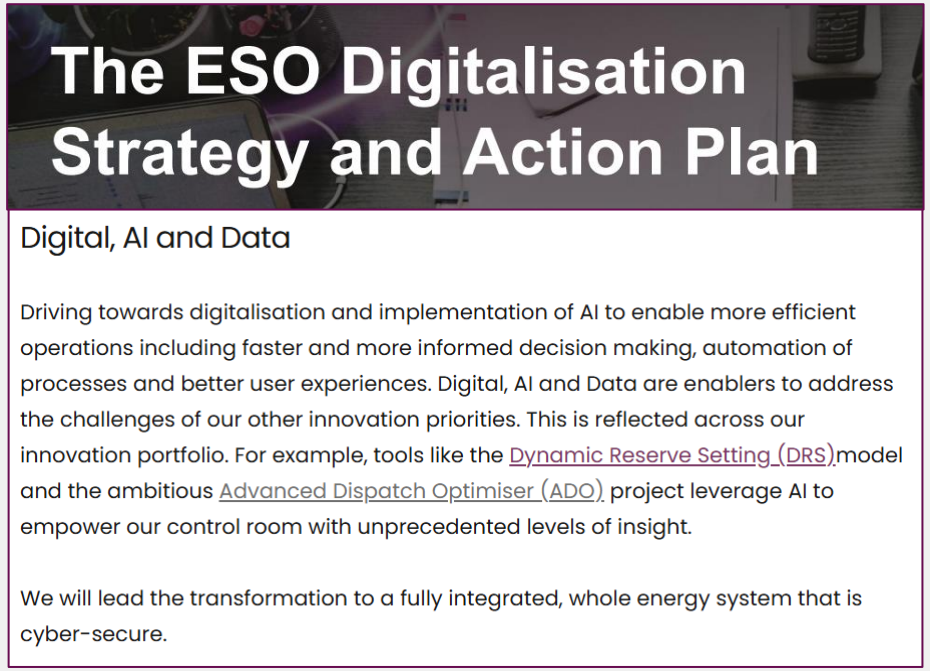
AI-Based Decision Support Tools

Leverage artificial intelligence/machine learning to assist Control Engineers in making more informed decisions. These tools can analyse vast amounts of data, identify patterns, and provide recommendations, enhancing the efficiency and effectiveness of grid management.





[Innovation - National Energy System Operator]



[Digitalisation Strategy & Action Plan]

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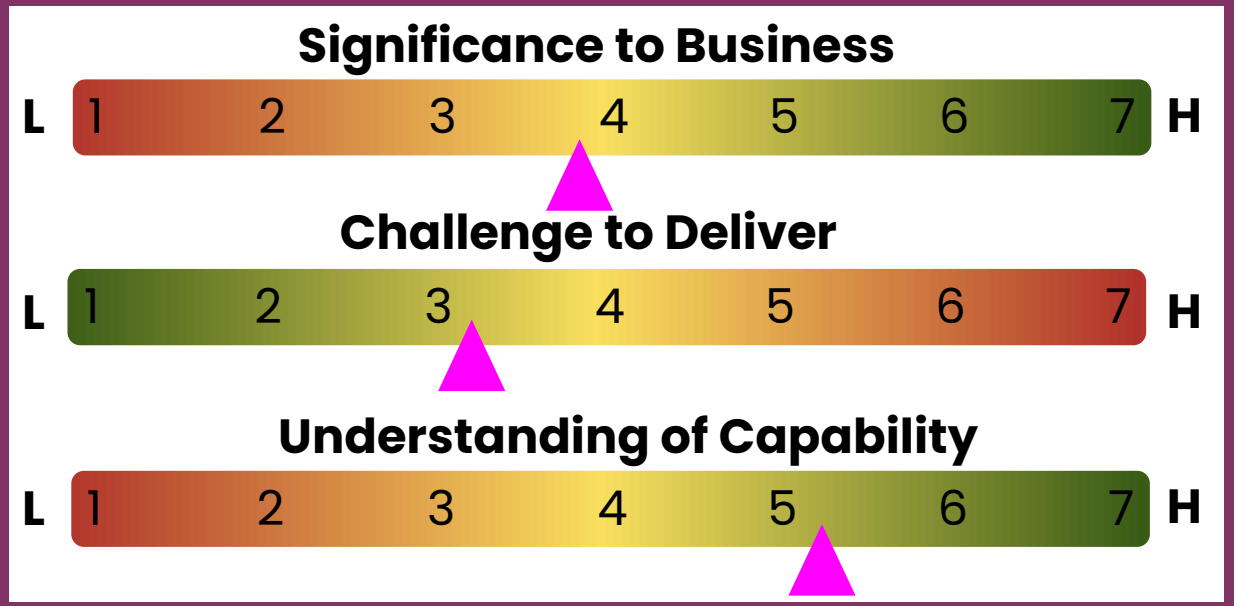
INDUSTRY SUGGESTION

Non-integer Bid Offer Acceptances

Refers to the ability to accept bid and/or offer volumes in non-integer increments. This approach allows for more precise and flexible management of electricity generation and demand, reducing imbalances and improving overall system efficiency.



Potential Trials:

- Use the QR code or link below to register your interest

Register your interest here

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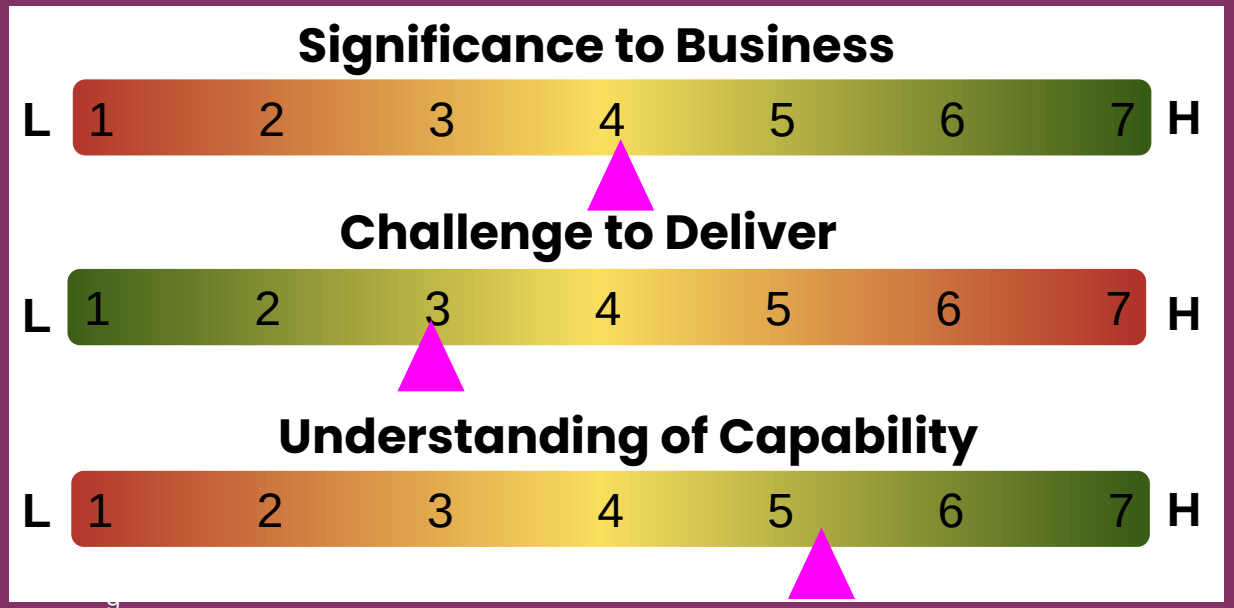
Aggregated Dispatch for Sub-1MW Resources

Refers to the aggregation and dispatch of small-scale energy resources, each with a capacity of less than 1MW. By aggregating these resources, they can participate in energy markets and provide grid services, enhancing flexibility and supporting the integration of distributed energy resources.



INDUSTRY SUGGESTION

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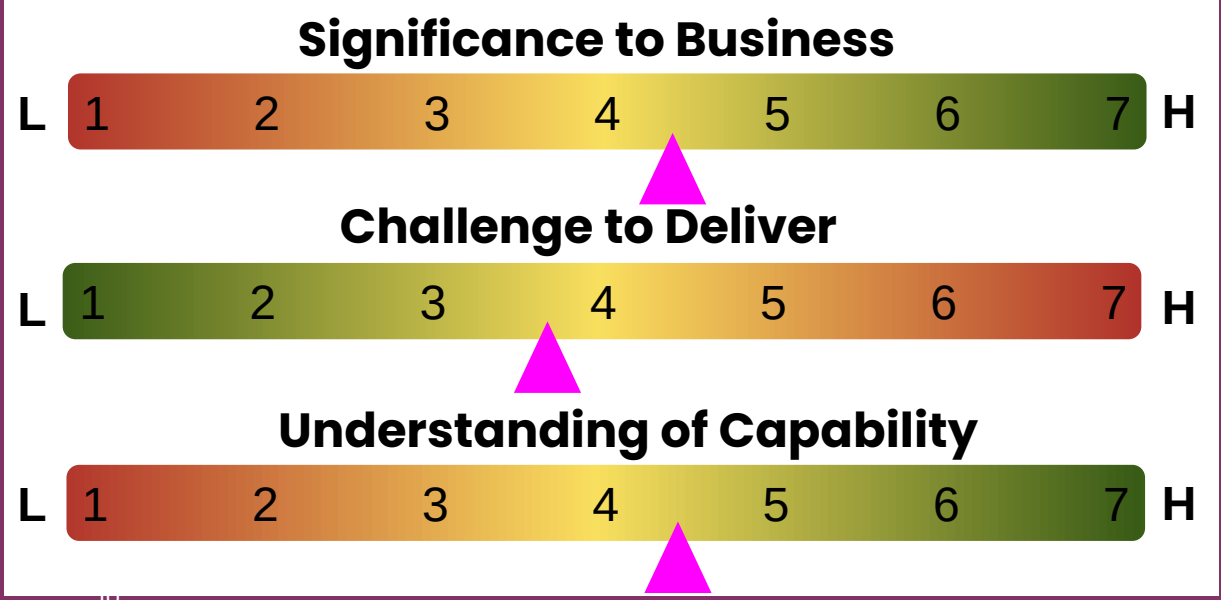
Including Carbon in Balancing Mechanism Decisions

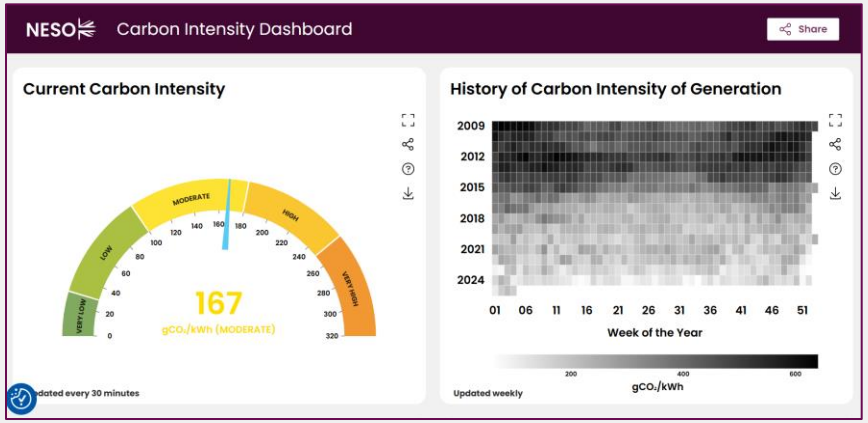
INDUSTRY SUGGESTION

Involves factoring in the carbon emissions associated with different generation/demand sources when making dispatch decisions. This approach aims to reduce the overall carbon footprint of grid operations, support the transition to a low-carbon energy system, and align with broader environmental goals.



[Clean Power 2030 - National Energy System Operator]

[NESO's Carbon Intensity Dashboard]



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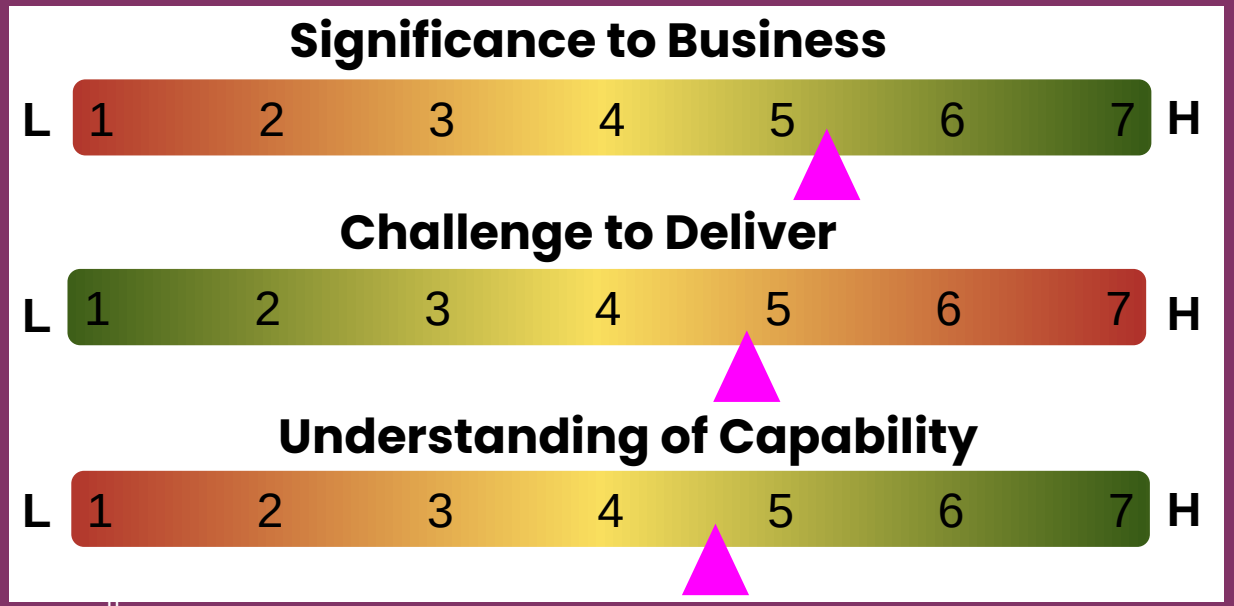
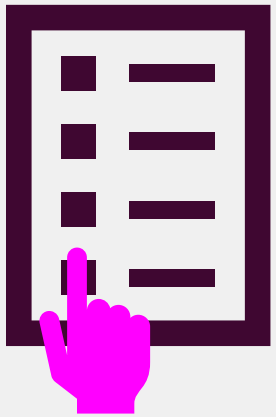
Co-optimization (Energy, System, and Ancillary Services)

Involves the simultaneous optimisation of multiple interdependent services or resources within the energy system. This approach aims to maximise overall efficiency and minimise costs by considering the dependencies and interactions between different services, such as energy, system stability, and ancillary services.



Previous event content

LIVE POLL



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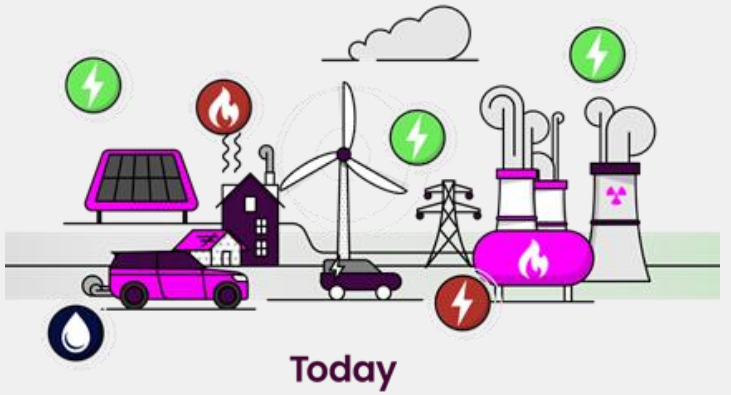
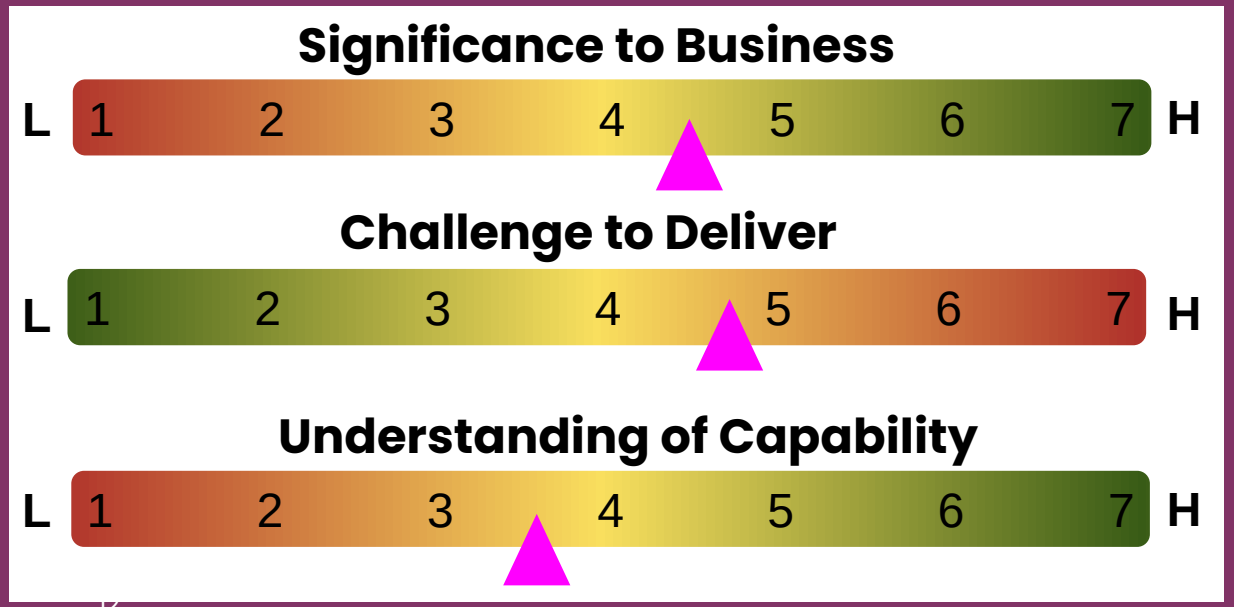
Decentralised Dispatch

Refers to the process of managing electricity generation and demand at a more localised level. Instead of relying solely on central control, decentralised dispatch allows for more flexible and responsive management of distributed energy resources. This approach can enhance grid resilience, reduce transmission losses, and support the integration of renewable energy sources.





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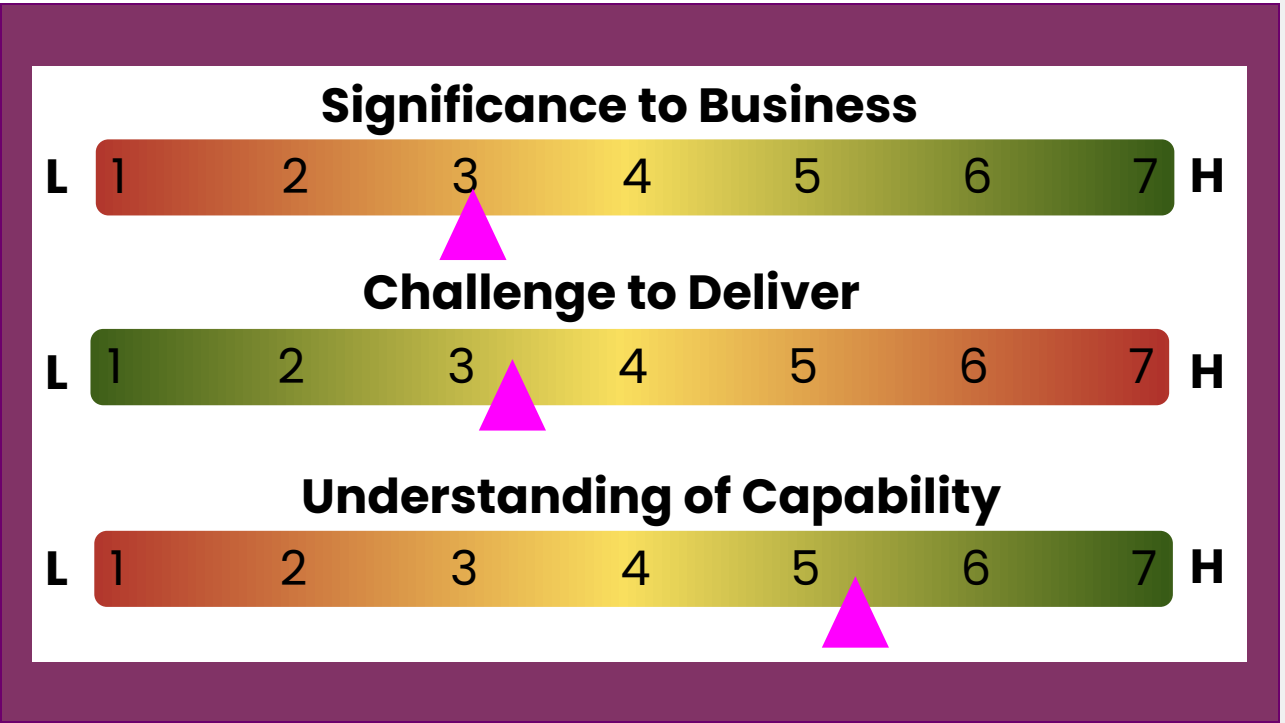
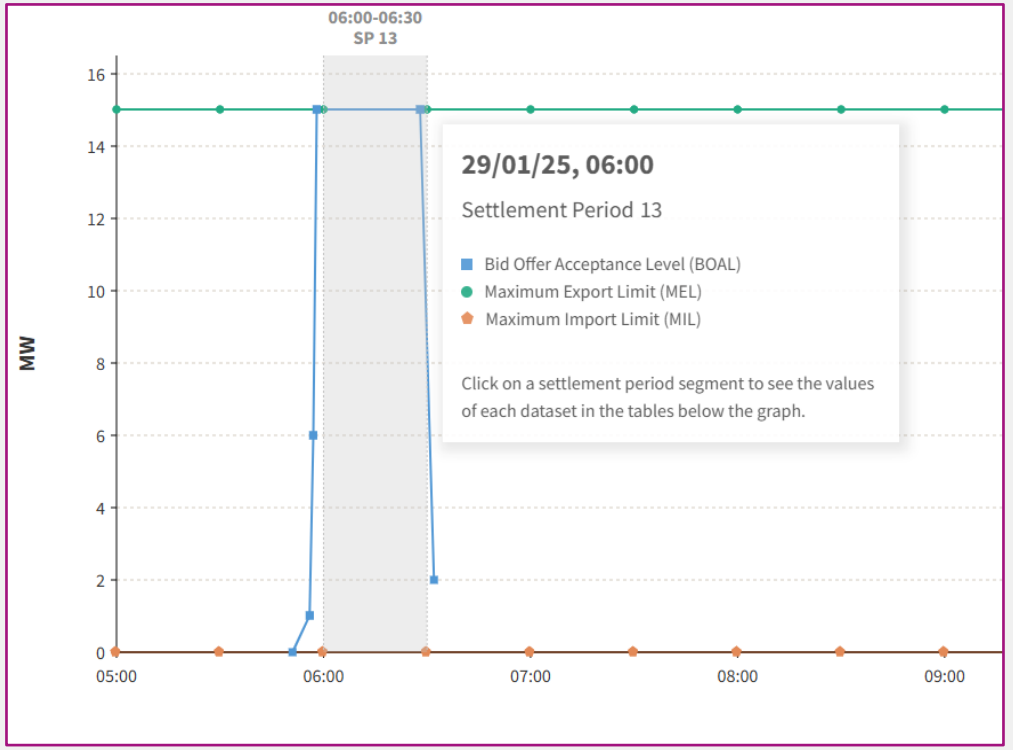
Increased Number of Bid Offer Pairs

INDUSTRY SUGGESTION

Involves allowing market participants to submit more than the current 5 bid and offer pairs for each settlement period. This approach enhances market liquidity, provides more flexibility for participants, and improves the overall efficiency of the market. Note: This would require a Balancing and Settlement code change.



BMRS Datasets



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Enhanced Dispatch Overview

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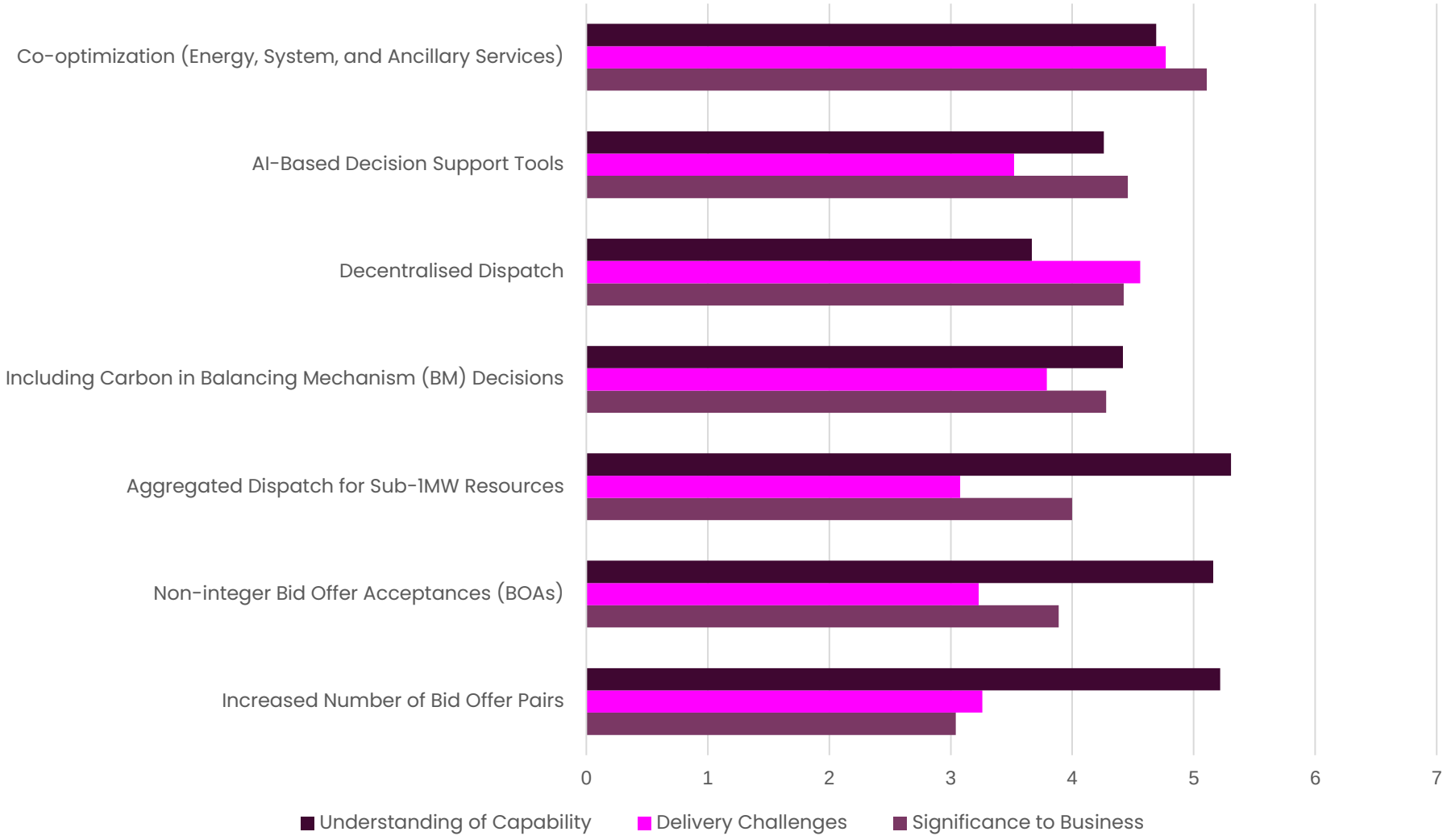

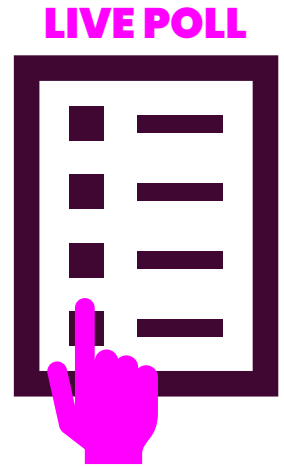

Data & Transparency Survey Results

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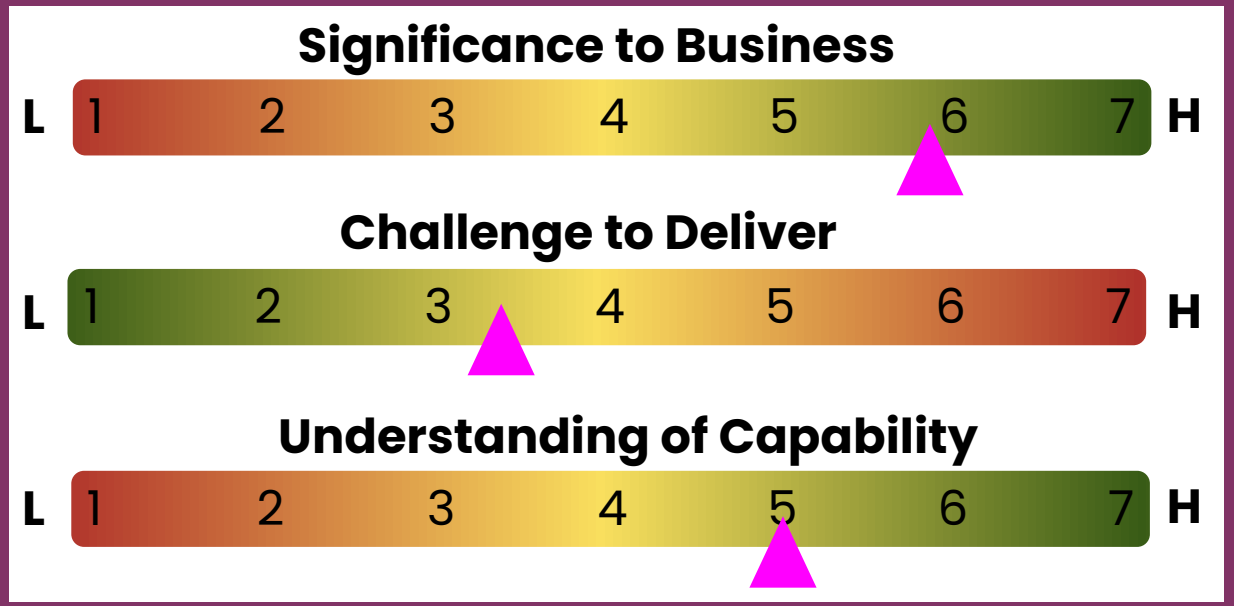
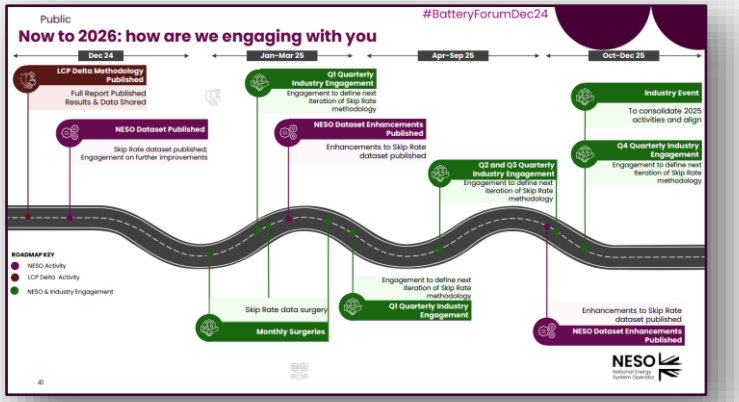
Continuous Improvement in Dispatch Efficiency Monitoring and Transparency

Involves enhancing efforts to monitor and evolve the efficiency of dispatch processes. This includes implementing best practices, leveraging advanced analytics, and ensuring transparent reporting of dispatch performance.



[Enhancing Storage in the Balancing Mechanism]



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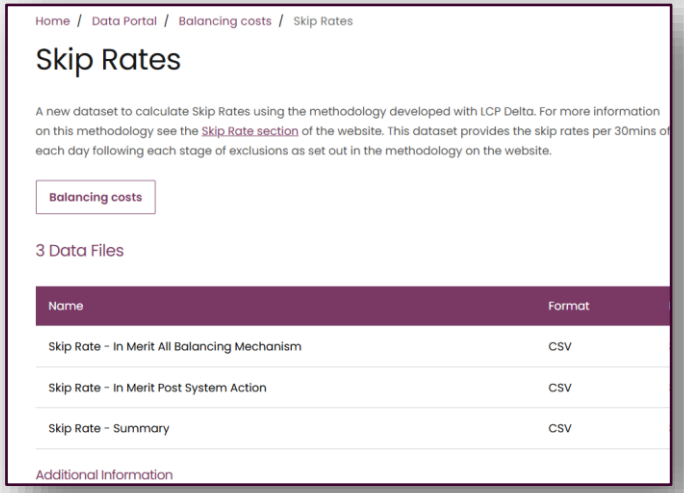

.box.NC.customer@nationalenergyso.com

Further information here

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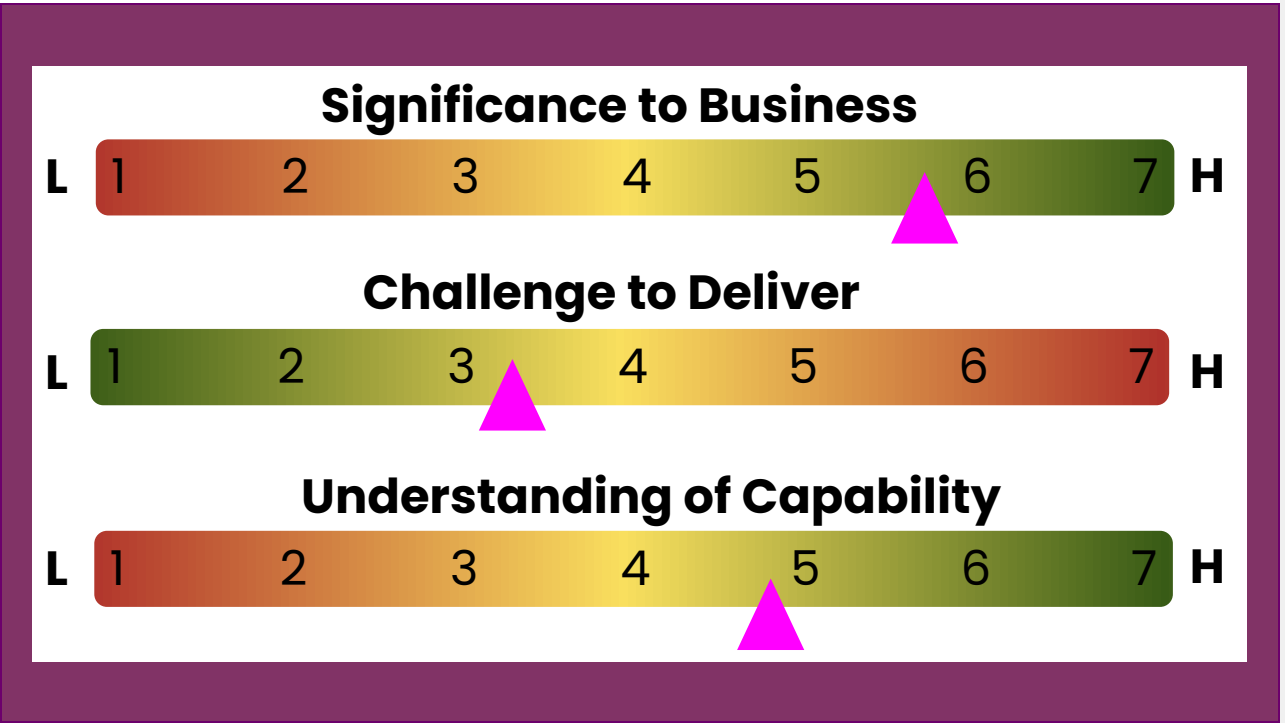
Automated Reporting of Optimisation Decisions

Involves using automated systems to generate and publish reports on optimisation decisions. This approach enhances transparency, improves accountability, and provides stakeholders with timely and accurate information on decisions.



INDUSTRY SUGGESTION

Current Publications:

- Next Optimisation Stakeholder Event Planned for February (exact date TBC)
- Sign up to participate here:

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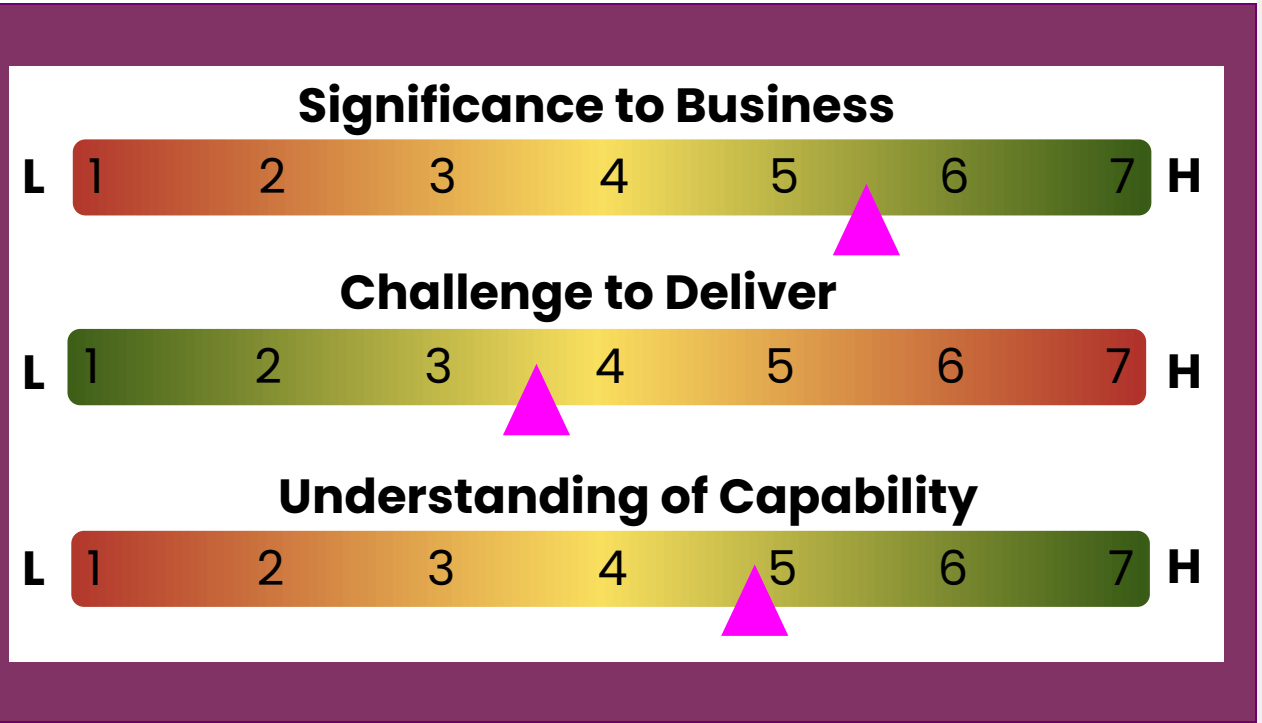
Transparency of Non-Balancing Mechanism (Non-BM) Data

Involves making information about non-BM energy resources publicly available. This includes data on their availability, performance, and participation in services. By enhancing transparency, stakeholders can better understand and integrate these resources into the grid, facilitating more efficient grid management.



INDUSTRY SUGGESTION

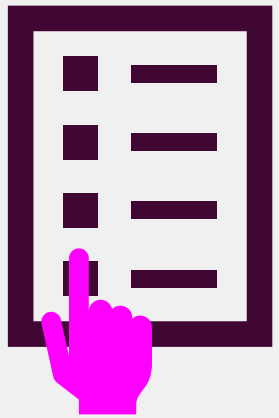
Current Publications:

- Ancillary Services Auction Results
- Non-BM Ancillary Service Dispatch Platform (ASDP) Instructions
- Non-BM Ancillary Service Dispatch Platform (ASDP) Window Prices

NEW!

- Elexon: Adjustment Actions & Data

LIVE POLL



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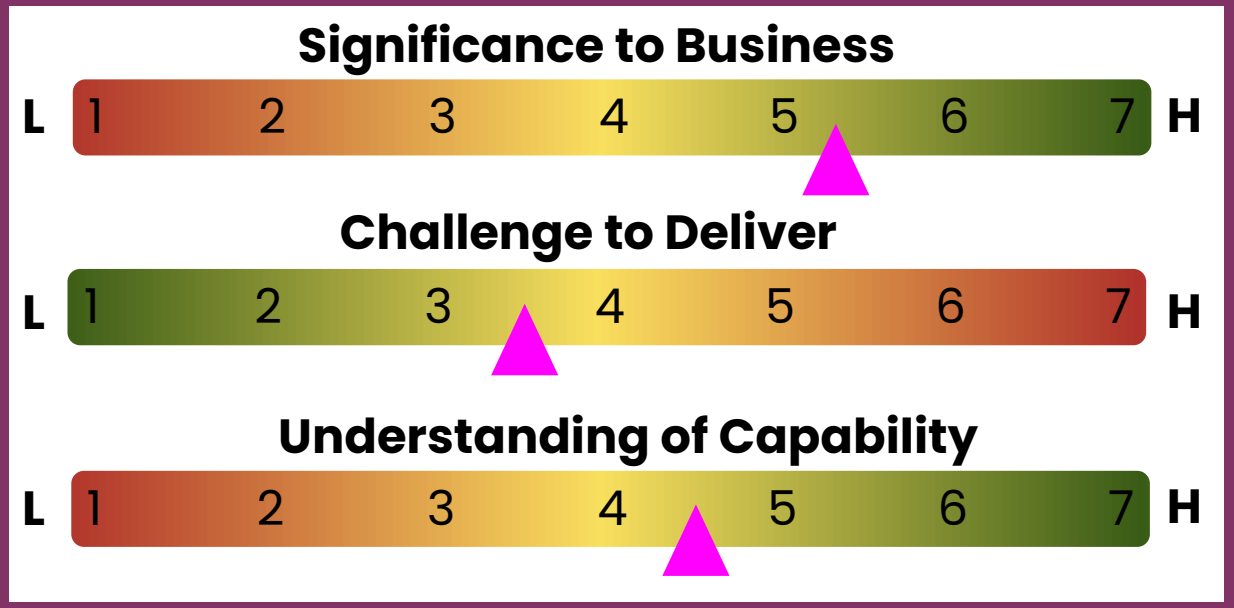
Data Publication for Distributed Assets

Involves making information about distributed energy resources (DERs) publicly available. This includes both static data (e.g., location and capacity) and dynamic data (e.g., real-time output). By publishing this data, stakeholders can better understand and integrate DERs into the grid, enhancing transparency and facilitating more efficient grid management.



INDUSTRY SUGGESTION

Relevant Activities:

Flexibility Market Asset Registration

Transformation to Integrate Distributed Energy (TIDE) Programme

TIDE@nationalenergyso.com

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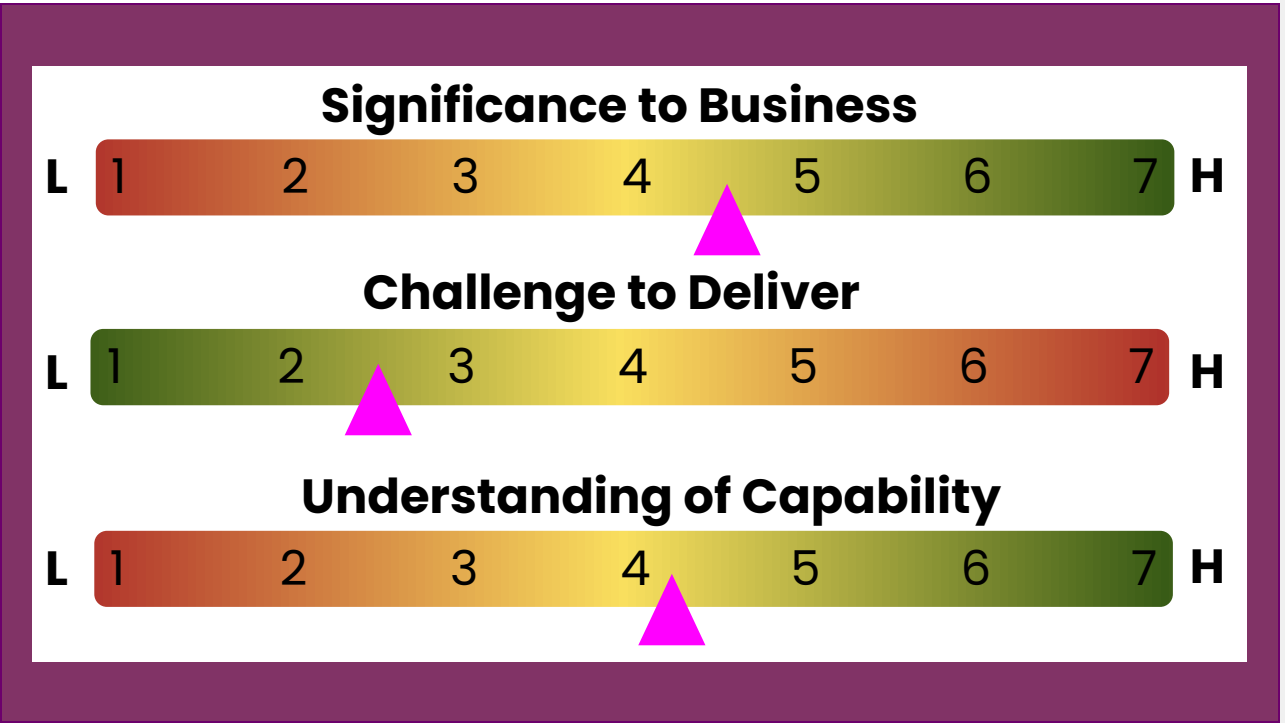
Inertia Forecasts

Involves predicting the inertia of the electricity grid, which is a measure of its ability to resist changes in frequency. Accurate inertia forecasts are essential for maintaining grid stability.



INDUSTRY SUGGESTION

Comments:

- *It would be great to have historical data on inertia as well as forecasts*

Outturn System Inertia

Ongoing Activities:

- Dynamic Containment Forecasts
- GE Tool Development
- Operational Transparency Forum

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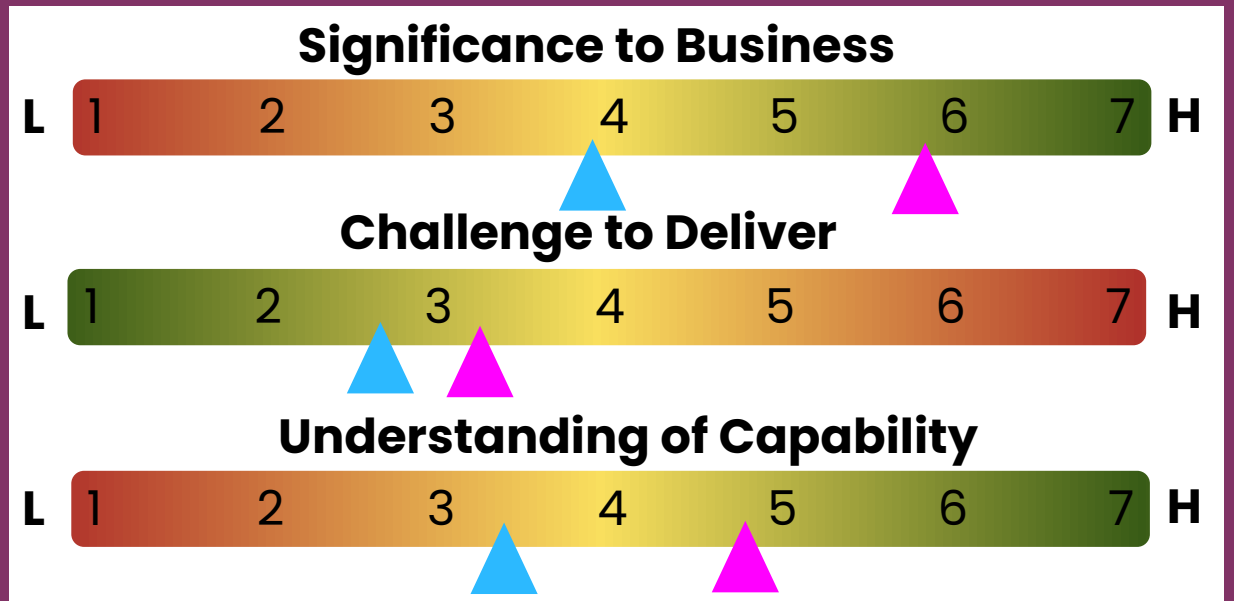
Data Exchange (e.g., Industry Standard APIs)

Enables seamless communication between different IT systems and platforms. APIs allow for the realtime exchange of data between system operator, market participants, and other stakeholders.

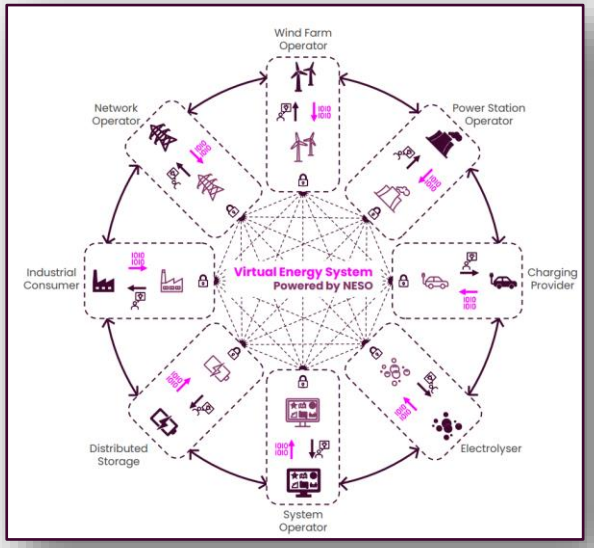
Network Model Exchange (Common Information Model)

Involves standardising the exchange of network data between different systems and stakeholders. CIM provides a common vocabulary and data structure, enabling seamless communication and integration of network models. This approach enhances interoperability, improves data quality, and supports more efficient grid management.

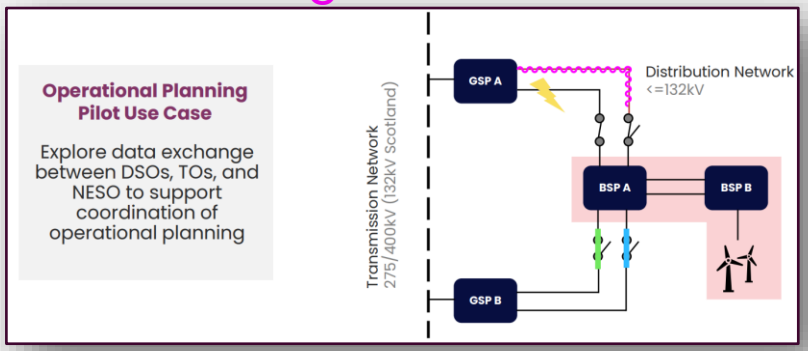


Relevant Activities:

Virtual Energy System



Data Sharing Infrastructure Pilot



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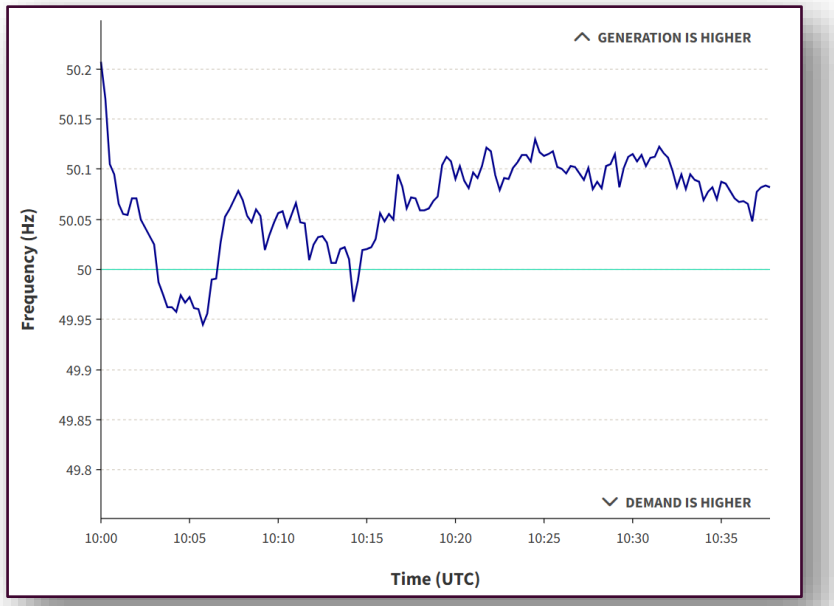
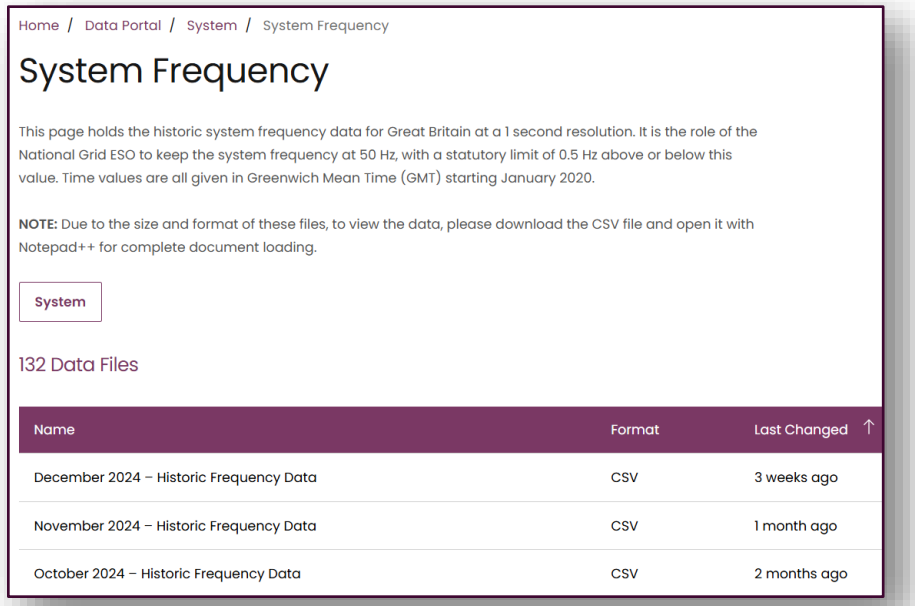
Additional Suggestions for Data & Transparency

Questions:

1.Can we have live secondly frequency data to reduce the gap between new market entrants and legacy?



https://bmrs.elexon.co.uk/rolling-system-frequency



https://www.neso.energy/data-portal/system-frequency-data

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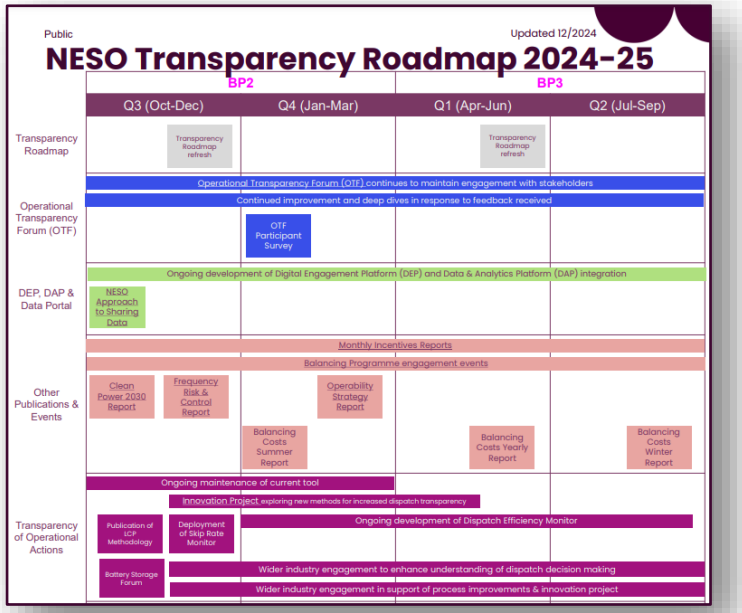
Additional Suggestions for Data & Transparency

Questions:

2. Can there be more transparency on transparency data, including timelines and updates when things aren't hit?



https://www.neso.energy/document/350626/download

We actively embrace the need to share our data with our customers and the industry, fostering transparency, innovation, and collaboration. We have set out how we will go about this on our webpage: ***Data Sharing Approach | National Energy System Operator***

If you would like to request data that is currently not shared via the Open Data Portal or our public website, please submit a request through the ***Data Request Form****.*

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Data & Transparency Overview

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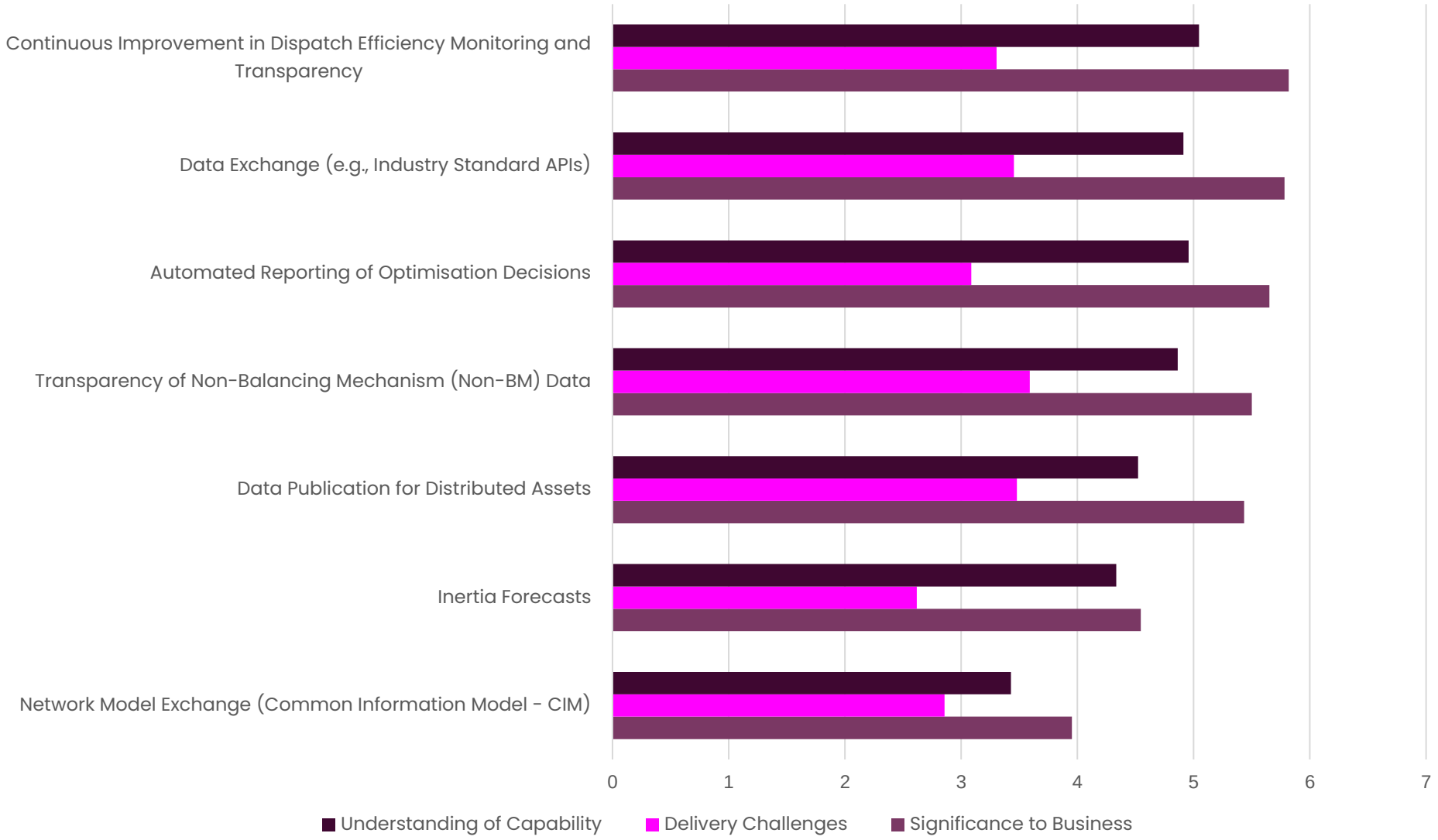
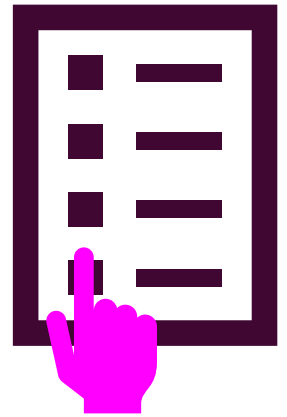


LIVE POLL

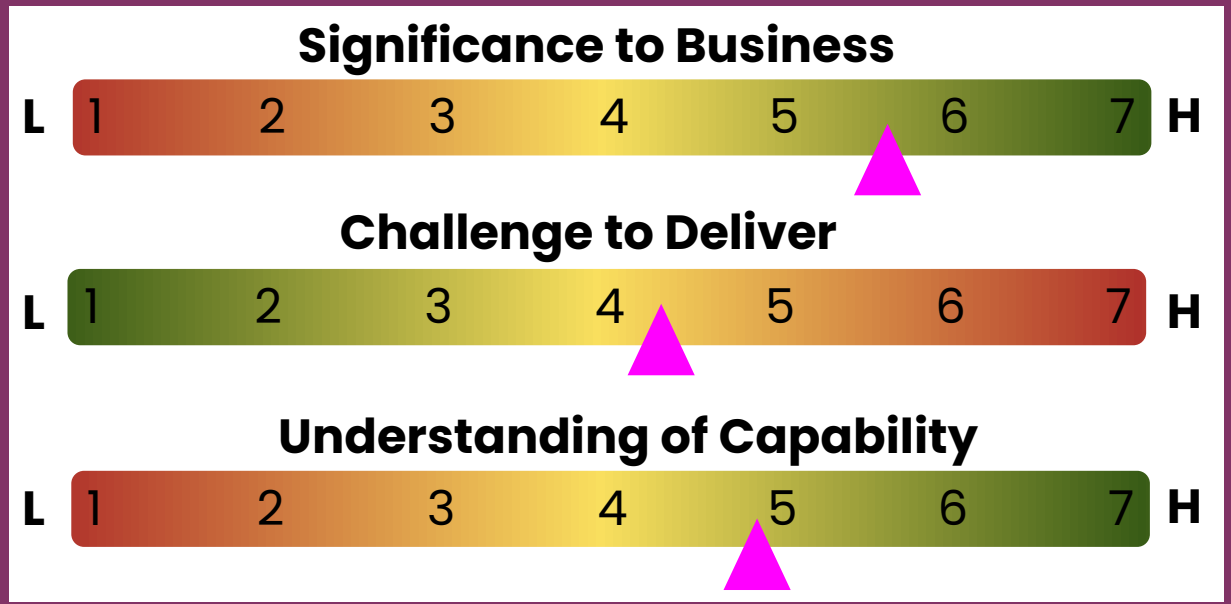


Whole System and Flex Survey Results

TSO/DSO Coordination

INDUSTRY SUGGESTION

Involves the coordinated management of electricity networks at different voltages. This approach aims to enhance the efficiency and reliability of the entire energy system by optimising the interactions between transmission and distribution networks.



ena energynetworks association

Improving operational coordination between networks and companies	Implementation of primacy rules	All DNOs and ESO implement processes and information flows for increment 2 rules
	Harmonisation of data shared between DNOs and ESO	Consistent bilateral operational data exchange between DNOs and ESO
	Harmonise DER visibility information	All DNOs use consistent Distributed Energy Resources (DER) visibility specifications and/or appropriate code mods are triggered

ENA - Open Networks

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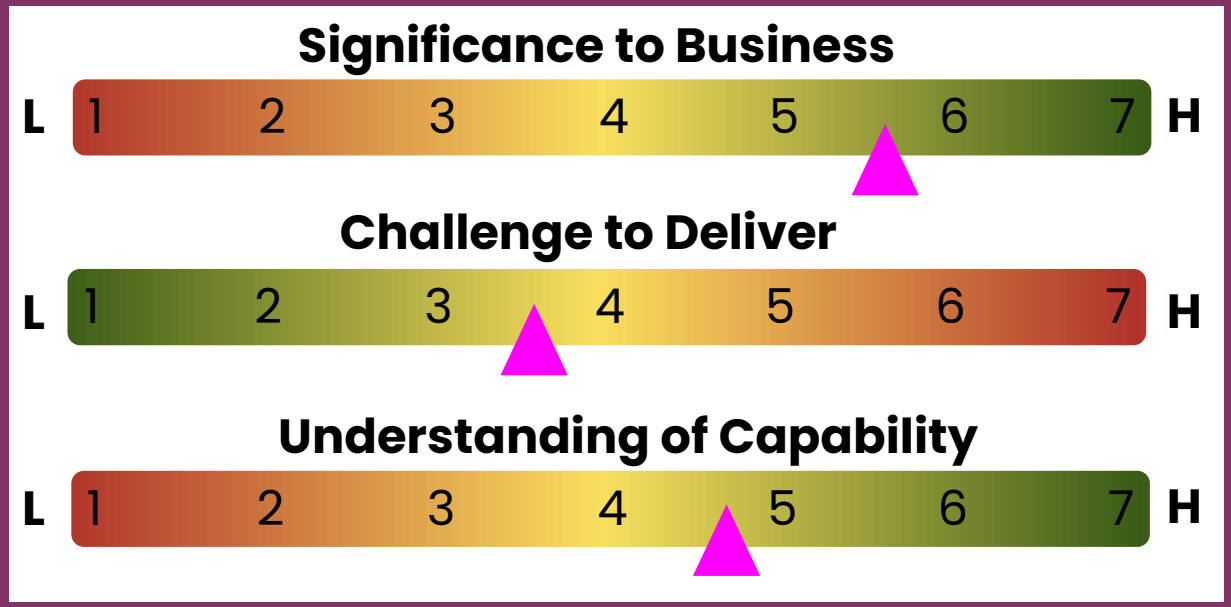
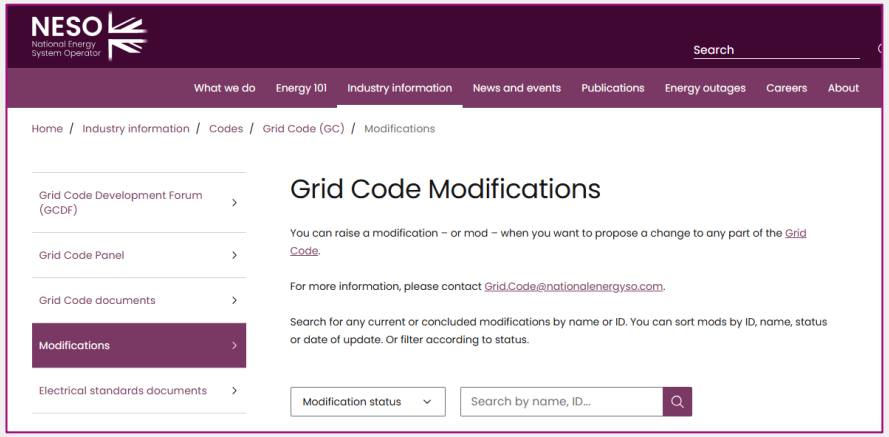
Integration of New Asset Types

Refers to the introduction and integration of new types of energy resources and technologies into the grid. By incorporating new asset types, the grid can become more flexible, resilient, and capable of supporting the transition to a low carbon energy system.



NESO - Hydrogen explained



NESO - Grid Code Changes

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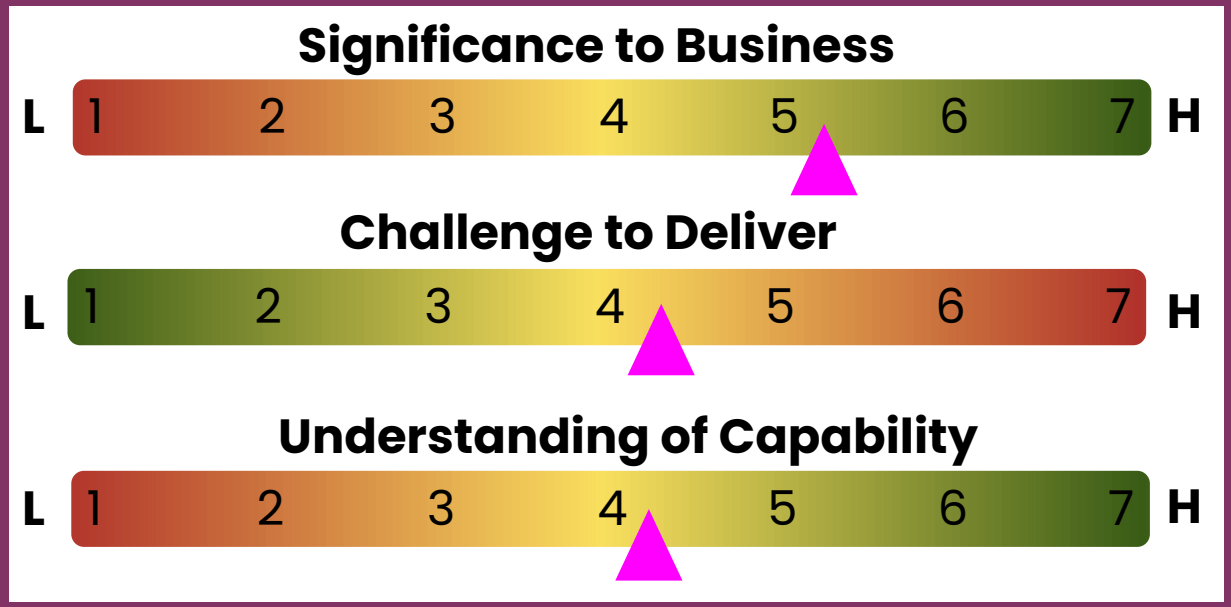
Public

Evolution of Demand-Side Flexibility Markets

INDUSTRY SUGGESTION

Involves the development and enhancement of markets that enable consumers to adjust their electricity usage in response to relevant signals. This approach supports grid stability, reduces costs, and facilitates the integration of renewable energy sources by leveraging the flexibility of demand side resources.



Markets Roadmap - National Energy System Operator

Market facilitator policy framework consultation | Ofgem

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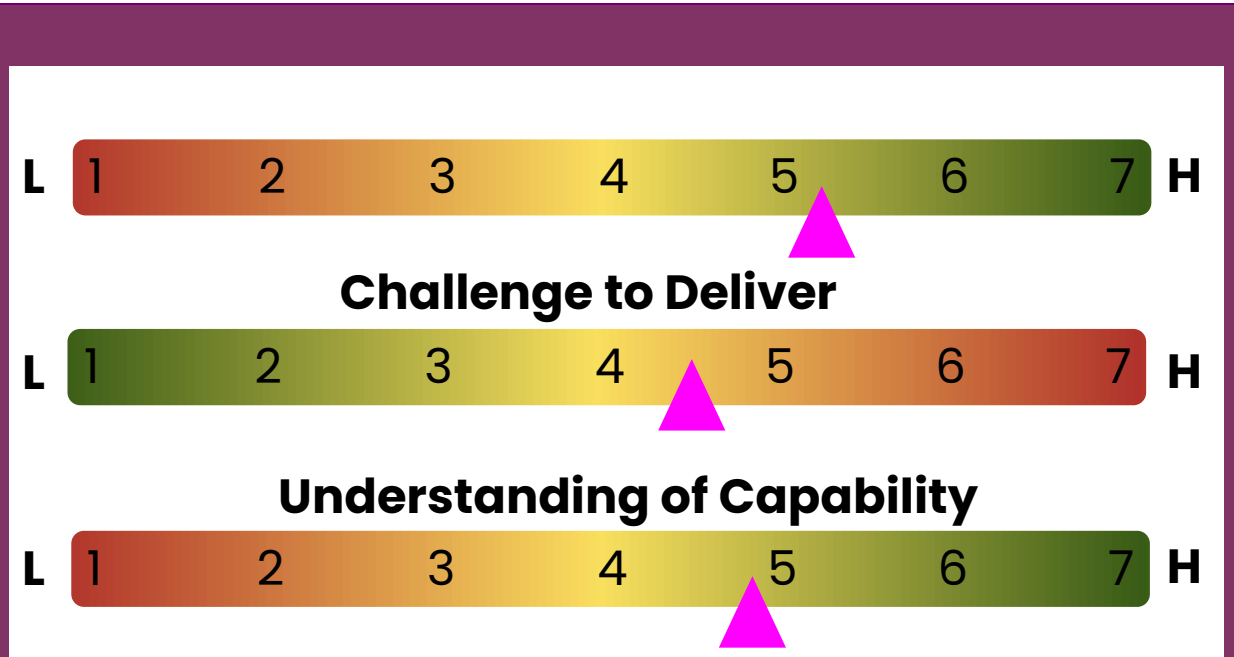
Availability of Demand-Side Flexibility

Refers to the capacity of consumers to adjust their electricity usage in response to relevant signals. This flexibility can be leveraged to balance supply and demand, reduce costs, and enhance grid stability. By increasing the availability of demand-side flexibility, the grid can become more resilient and efficient.

[Enabling Demand side Flexibility in NESO markets report]



Demand Flexibility Service (DFS)

The Demand Flexibility Service (DFS) helps households and businesses participate in the electricity market by providing incentives, through suppliers and aggregators, for reducing or shifting demand.

[Demand Flexibility Service (DFS) | National Energy System Operator]

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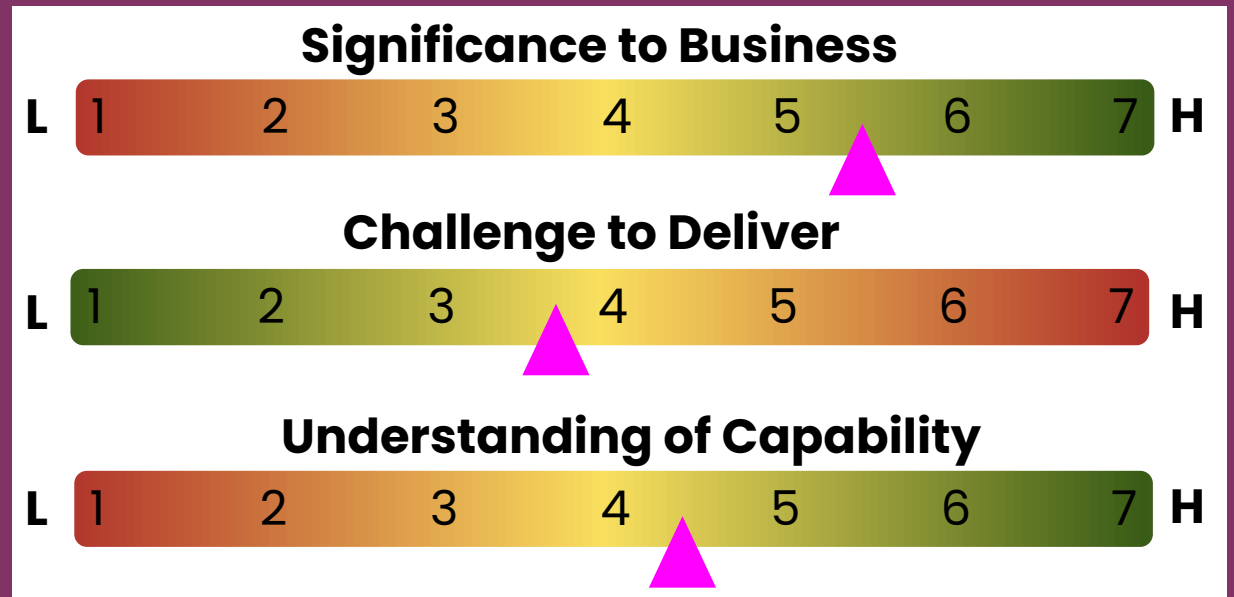
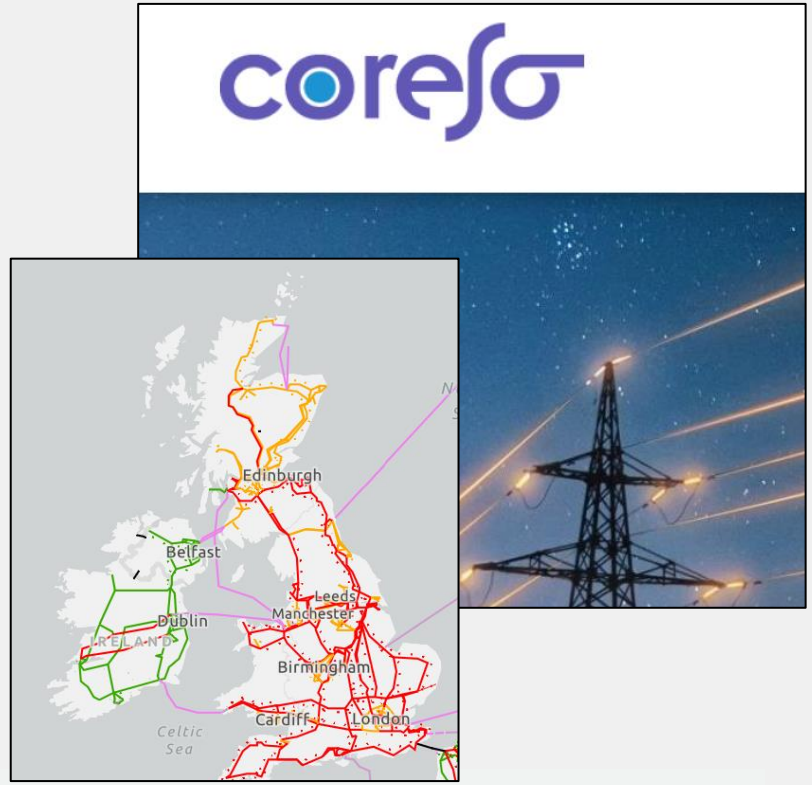
Enhanced European Coordination

Involves improving collaboration and coordination between European energy markets and system operators. This approach aims to optimise cross-border electricity flows, improve system reliability and security.



Further information: Coreso



NEWS

ENTSO-E Awareness System: Celebrating 10 Years of Keeping Europe's Lights On

19 December 2023

Further information: ENTSO-E

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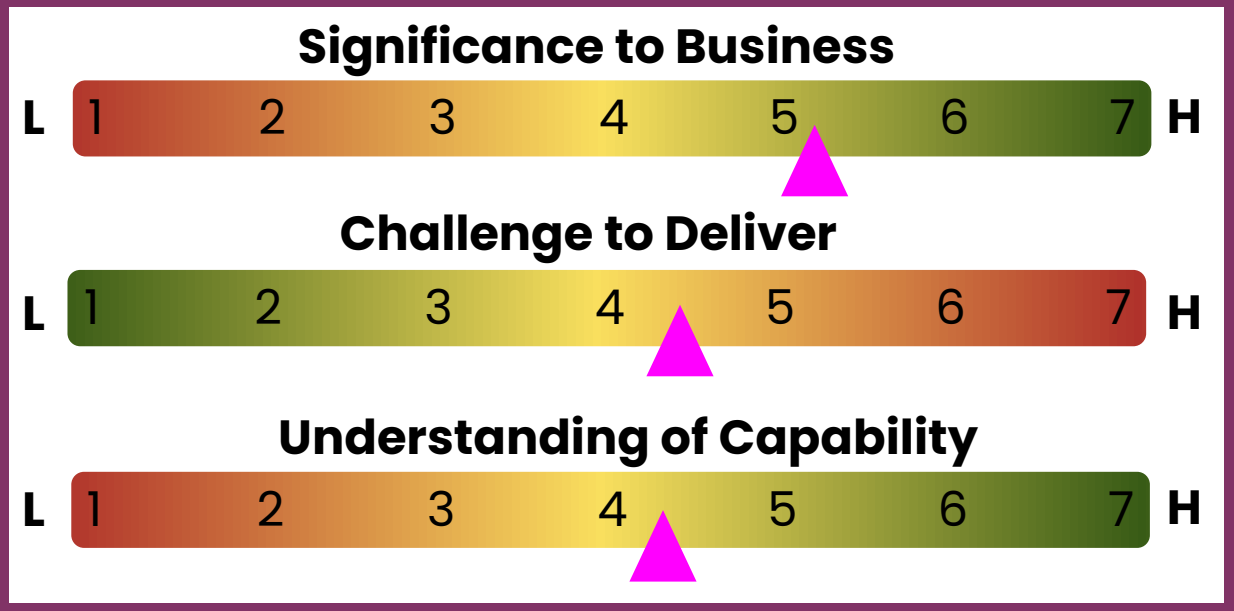
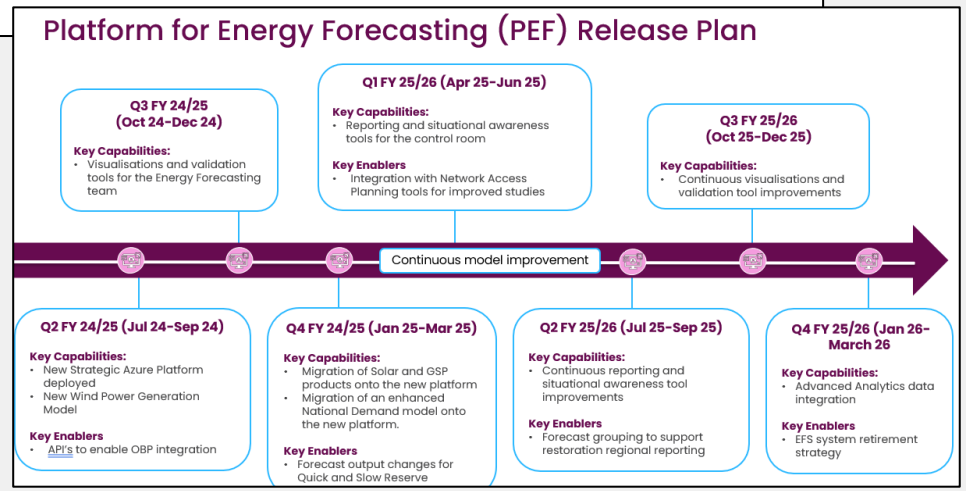
Zonal and Local Demand Optimisation

Focuses on demand movement (levelling) within specific zones and local areas. This involves using advanced forecasting and real time data to adjust demand patterns and timings. The goal is to enhance the overall efficiency of the electricity network.



REMA Second Consultation



PEF Release Plan – Further information

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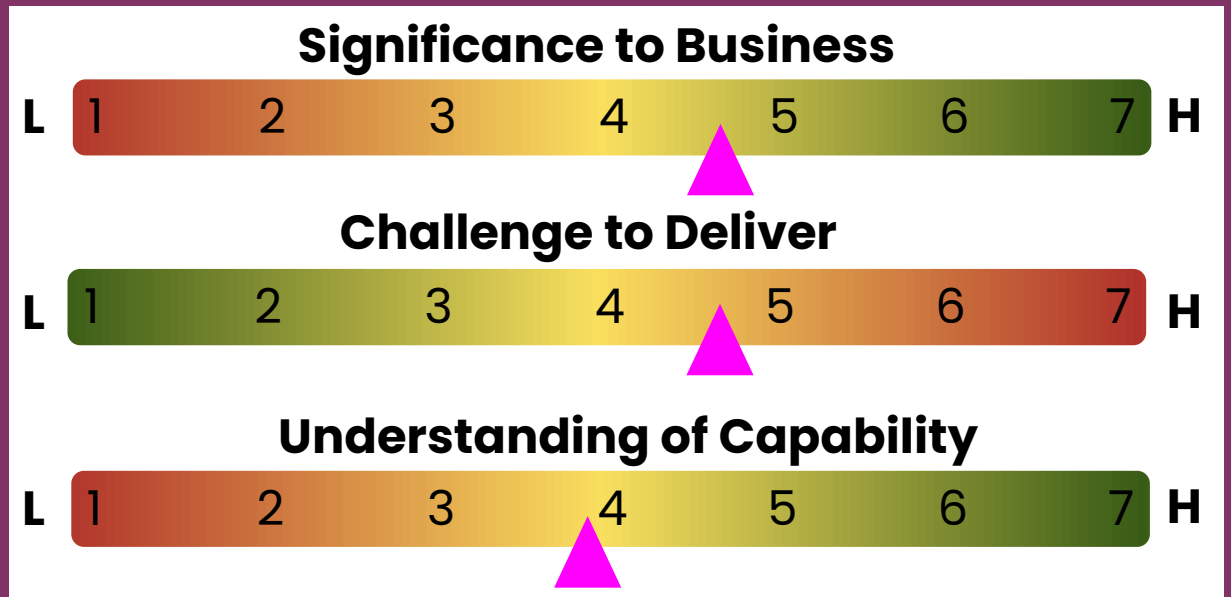
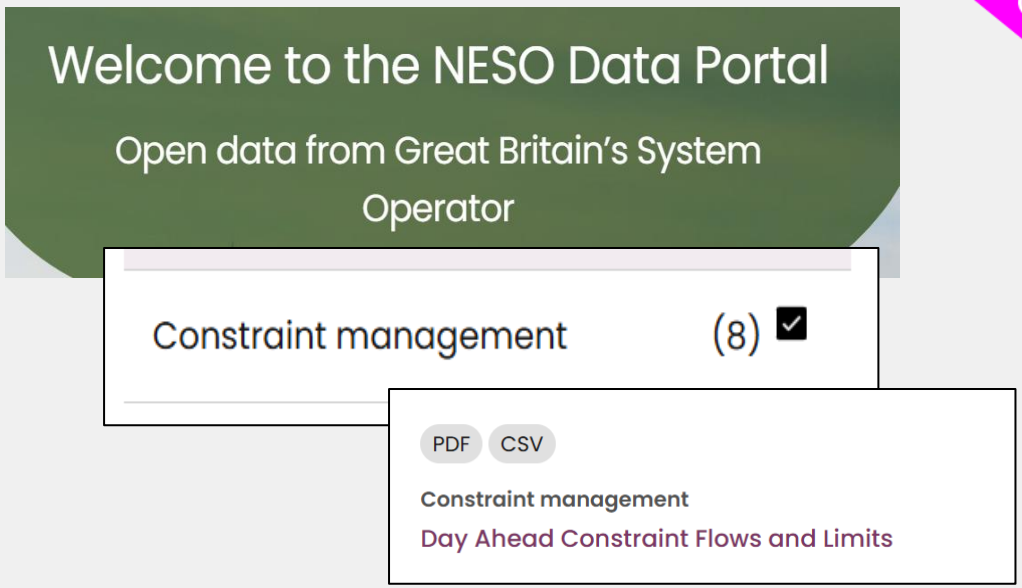
Constraint Forecasting

Involves predicting potential constraints on the electricity grid, such as transmission bottlenecks. These forecasts help system operators plan and manage the system more effectively, reducing the risk of constraints and ensuring reliable electricity supply.

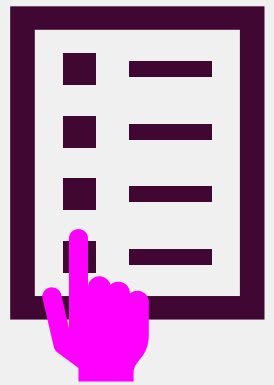


INDUSTRY SUGGESTION

Welcome to the NESO Data Portal | National Energy System Operator



LIVE POLL



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Whole System and Flex Overview

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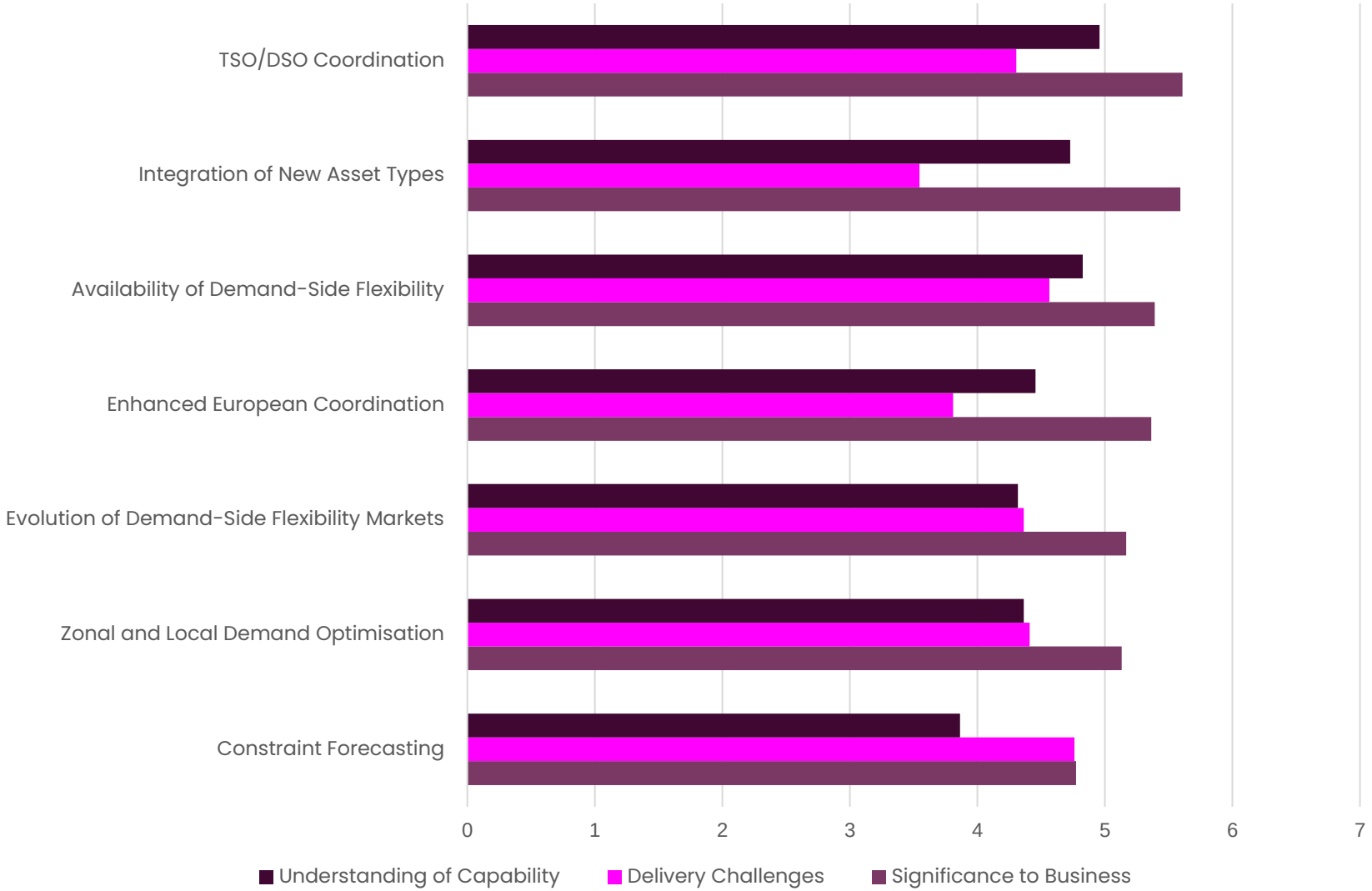
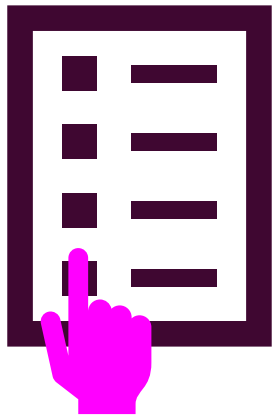


★ Additional Suggestions for Whole System and Flex ★

Consider shorter settlement periods

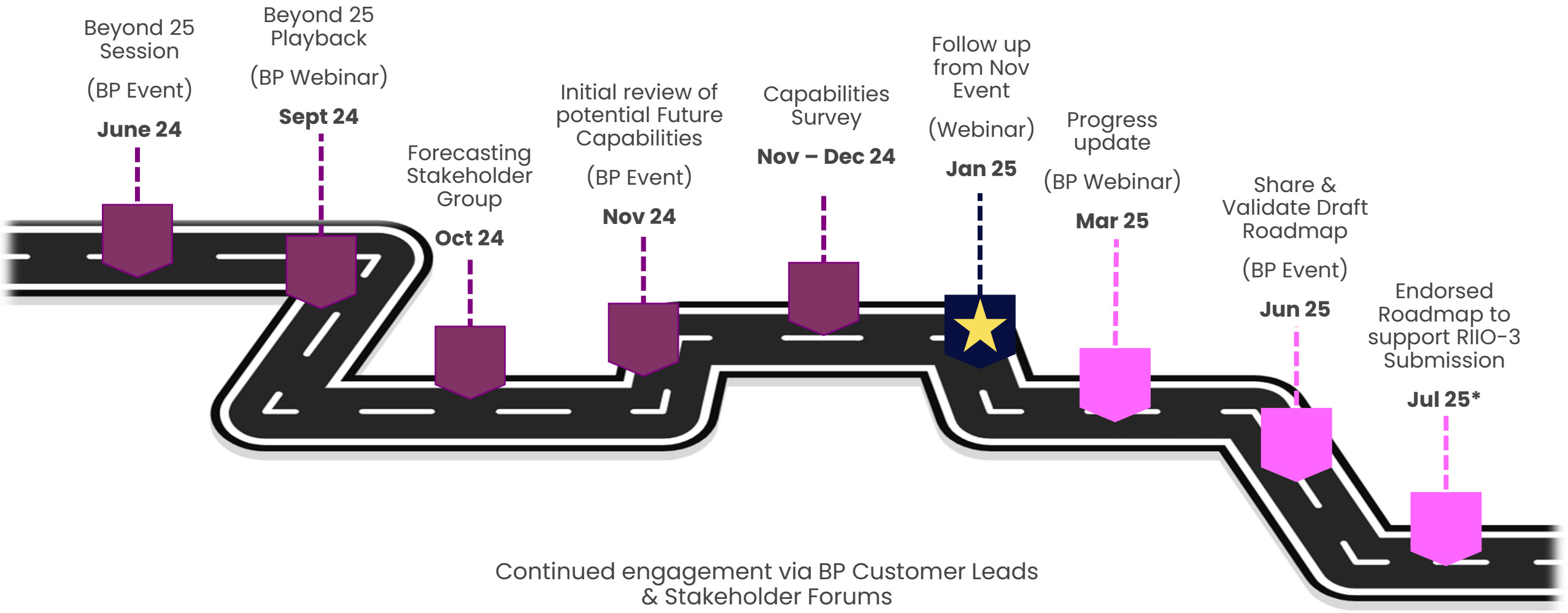
LIVE POLL



Timeline & Next Steps

Public

Continued Industry Engagement



*Timelines for the RIIO-3 Price Control Submission are yet to be confirmed

BP: Balancing Programme

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Next Steps

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Slides from today's session will be published on our website.

Subscribe to our new NESO newsletter here **-** please select **Future of Balancing Services inc. Balancing Programme** to keep up to date.

We welcome your feedback & questions – please get in contact with us at box.balancingprogramme@nationalenergyso.com.

Sign-up to our Stakeholder Focus Groups for Optimisation, Technology, & Forecasting - Balancing Programme Stakeholder Focus Groups.

If you are interested in a regular meeting with a representative from the Programme and would like more information, please get in contact using the email address above.

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Balancing Programme Beyond 2025 Webinar

30 Jan 2025

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