Balancing Programme Product Development Beyond 2025

Background:

As part of the November 2024 Balancing Programme Event, we hosted an interactive breakout session exploring potential balancing & forecasting capabilities beyond 2025.

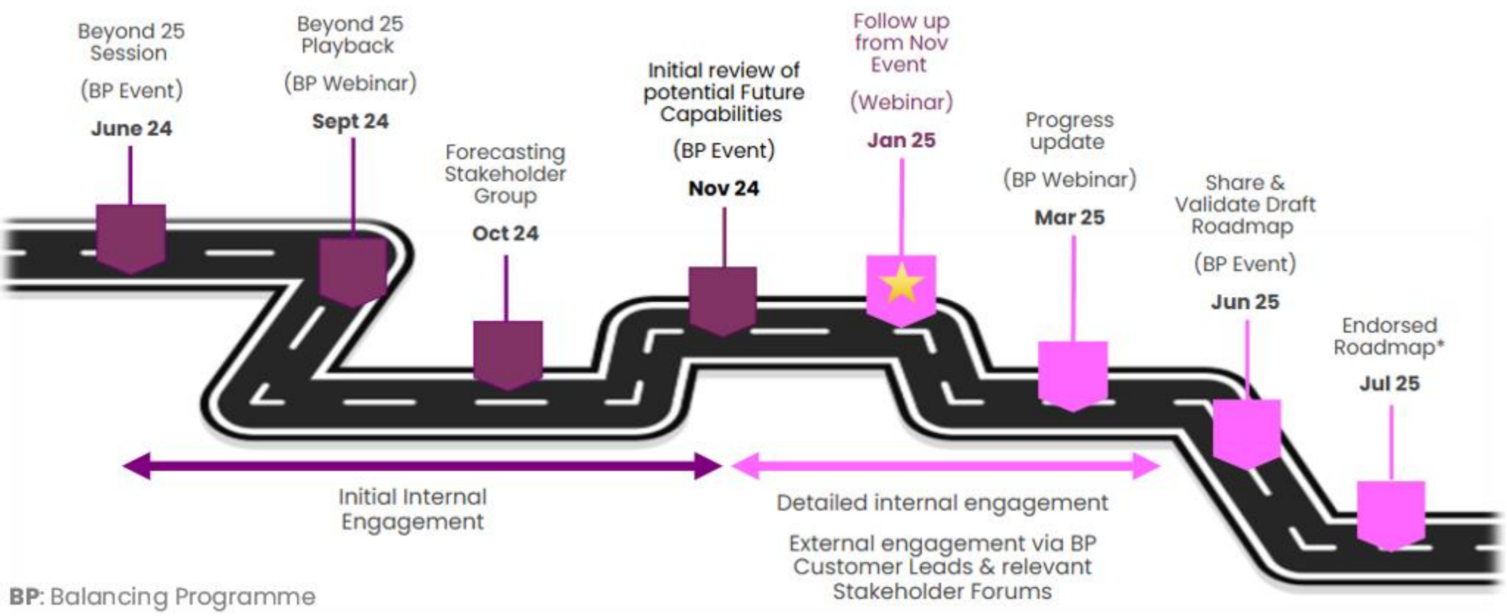
The session was aimed at ensuring the programme's roadmap aligns with customer expectations and priorities, whilst enabling a decarbonised energy system and delivering consumer value. The opportunity to feed into this was extended to 13 Dec for those unable to attend in person. Thank you to everyone who participated.

Survey Recap:

- **The capabilities** were divided into three areas: Enhanced Dispatch, Whole System and Flexibility, and Data and Transparency.

- **Scoring was based upon** the significance to business; delivery challenges and understanding of capability. Additional opportunities for comments were included.

- **Timeline:** The diagram below outlines the provisional delivery timeline for development of the Balancing Programme product roadmap for 2026 – 2031, and future engagement opportunities as part of this; please note that timelines for the next Price Control Submission are yet to be confirmed.



Capability Descriptions

** Ideas suggested by Industry participants at June Balancing Programme event.*

*** To view NESO's Strategic Priorities please click here.*

Area	Capabilities	Brief Description	Outcomes	Aligns with *NESO Strategic Priorities**:*
Enhanced Dispatch	Co-optimisation (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.	More efficient dispatch, Lower balancing costs, Improved system reliability.	Consumer Value, Digital Mindset
	*Non-integer Bid Offer Acceptances (BOAs)**	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.	More precise dispatch, Reduced imbalances, Enhanced system efficiency.	Consumer Value, Digital Mindset, Clean Power
	*Increased Number of Bid Offer Pairs**	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.	Enhanced market liquidity, Increased flexibility, Improved market efficiency.	Consumer Value, Clean Power
	*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	Increased participation of small-scale resources, Enhanced grid flexibility,	Clean Power, Decarbonised Energy, Consumer Value

		provide grid services, enhancing flexibility and supporting the integration of distributed energy resources.	Better integration of distributed energy resources.	
	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.	Enhanced grid resilience, Reduced transmission losses, Better integration of renewables.	Clean Power, Decarbonised Energy, Consumer Value
	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.	Improved decision-making, Enhanced operational efficiency	Digital Mindset, Clean Power
	*Including Carbon in Balancing Mechanism (BM) Decisions**	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.	Reduced carbon emissions, Support for low-carbon transition, Alignment with environmental goals.	Decarbonised Energy, Clean Power,
Whole System and Flexibility	*Transmission System Operator (TSO) / Distribution System Operator (DSO) Coordination**	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.	Improved whole system efficiency, Enhanced reliability, Improved coordination	Clean Power, Decarbonised Energy, Consumer Value
	Integration of New Asset Types	Refers to the introduction and integration of new types of energy resources and technologies into the	Enhanced grid flexibility,	Clean Power, Decarbonised Energy

		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.	Improved resilience, Support for low-carbon transition.	
	*Evolution of Demand-Side Flexibility Markets**	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.	Enhanced grid stability, Reduced consumer costs, Better integration of renewables.	Clean Power, Decarbonised Energy, Consumer Value
	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.	System resilience, reduced costs, enhanced system efficiency.	Clean Power, Decarbonised Energy, Consumer Value
	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.	Optimised cross-border flows, Improved system reliability and security.	Clean Power, Decarbonised Energy, Consumer Value.
	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.	Improved network efficiency.	Clean Power, Decarbonised Energy, Consumer Value
	*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	Reduced congestion, improved system planning, enhanced reliability.	Clean Power, Decarbonised Energy, Consumer Value.

		the risk of constraints and ensuring reliable electricity supply.		
Data and Transparency	*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.	Improved transparency, Better integration of DERs, Enhanced grid management.	Digital Mindset, Consumer Value, Clean Power.
	Data Exchange e.g., Industry Standard Application Program Interface (APIs)	Enables seamless communication between different IT systems and platforms. APIs allow for the real-time exchange of data between system operator, market participants, and other stakeholders.	Enhanced data sharing, Improved system coordination, Increased efficiency.	Digital Mindset, Consumer Value, Clean Power
	Network Model Exchange (Common Information Model - CIM)	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.	Improved interoperability, Enhanced data quality, More efficient grid management.	Digital Mindset, Consumer Value, Clean Power.
	*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.	Enhanced transparency, Better integration of non-BM resources, Improved grid management.	Digital Mindset, Consumer Value, Clean Power.
	*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	Improved transparency, Enhanced accountability,	Digital Mindset, Consumer Value, Clean Power.

		and accurate information on decisions.	Enhanced decision-making.	
	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.	Enhanced dispatch efficiency, Improved transparency, Enhanced system performance.	Digital Mindset, Consumer Value, Clean Power.
	*Inertia Forecasts**	Involve 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.	Improved grid stability, Enhanced system reliability.	Clean Power, Decarbonised Energy, Consumer Value.