Public

Balancing Programme Webinar

September 2025

NESO
National Energy System Operator

Webinar Agenda

#BPSepWeb25

Time	Agenda Item	NESO Presenters	Details
11:00 – 11:05	Welcome & Setting the Scene	**Brendan Lyons,** Balancing Programme Director	• Balancing transformation overview
11:05 – 11:55	Balancing Systems Update	**Bernie Dolan**, Principal Product Manager **Chi-Ho Lam,** Lead Product Manager **Nisha Bhamidimarri**, Senior Delivery Manager **Leon Walker,** Governance and Insights Manager	• Delivery progress since June 2025 • Utilisation statistics – small BMUs & batteries • FY 25/26 roadmap update • NESO business planning process & draft OBP roadmap for FY 26/27 & 27/28 • Digital enabler update: EDL/EDT transition plan & NBM integrations • GC0166 proof of concept testing
11:55 – 12:05	Forecasting Systems Update	**Richard Sykes**, Product Manager	• Delivery progress since June 2025 • FY 25/26 Roadmap update
12:05 – 12:25	Q&A	**Beth Wilks**, Strategy & Engagement Manager	• Hosted via Slido
12:25 – 12:30	Next Steps	**Beth Wilks**	• Engagement timeline • November in-person event sign-up
12:30	Close	**Brendan Lyons**	

Audience Participation

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There is time allocated to Q&A **towards the end of the session** - we will take all questions during this part of the agenda to ensure we get through all pre-prepared content.

Please post any questions you have for our speakers in **SLIDO** using **#BPSepWeb25** ensuring to list both your **full name and organisation** - this will enable us to follow up with you after the webinar if necessary. Type the above code into the Slido app or via Slido.com or scan the QR code.

Out of scope questions will be forwarded on to the appropriate NESO team or expert for a direct response. We may ask you to contact us by email to ensure we have the correct contact details for the response.

SLIDO will close at the end of today's webinar. If you have any further questions after the webinar, please get in contact with us at **box.balancingprogramme@neso.energy**

Today's webinar will be **recorded and published online** after the session, along with the slide pack.

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Balancing Programme: Setting the scene

Brendan Lyons, Balancing Programme Director

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System Transformation – Where are we?

Previous landscape

System

Energy Forecasting System (EFS)

Electricity Balancing System (EBS)

Balancing Mechanism (BM)

- SPICE (scheduling)
- SORT (dispatch)
- Vergil (dispatch)
- Demand Predictor
- Clogs (back-up system)

Ancillary Services Dispatch Platform (ASDP)

- Non-BM Response & Reserve services
- MW dispatch

September 2025

System

EFS

Platform for Energy Forecasting (PEF)

BM

- Scheduling
- National Optimisation
- Electronic Dispatch & Logging (EDL) / Electronic Data Transfer (EDT)

Open Balancing Platform (OBP Lite)

- Bulk dispatch
- Interface to Single Markets Platform, Integrated Energy Management System, & Data Analytics Platform (DAP)
- Balancing Reserve
- BM Quick Reserve
- Manual instructions
- Constraint management
- Real Time Predictions phase 1

ASDP - Non-BM Response & Reserve services / MW dispatch

March 2026

System

PEF

BM

15% of SORT functionality
60% of SPICE functionality

Fully Resilient OBP

85% of SORT functionality
40% of SPICE functionality

Including:

- Constraint Optimisation
- National Optimisation
- EDL/EDT Mastering
- BM & Non-BM response & reserve services
- PEF integration
- Network Services
- Enhanced Response & Inertia
- New storage parameters
- Real Time Predictions phase 2

March 2027

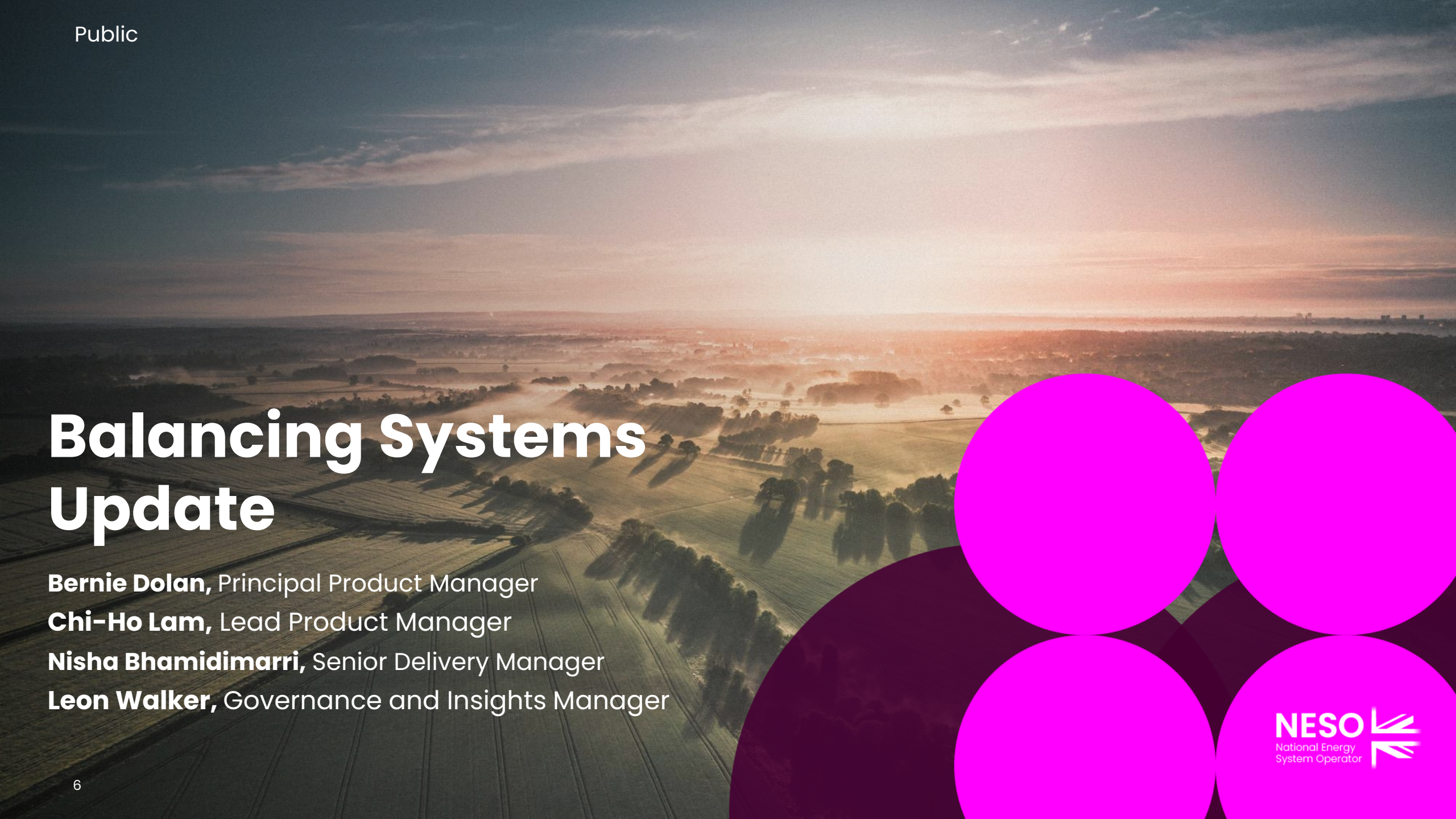
System

PEF

Fully Resilient OBP

- Modern, resilient, adaptable and scalable system fit for the future
- No differentiation between BM and non-BM units
- Improved situational awareness
- More economic dispatch
- Lower consumer costs
- Reduced CO2 emissions
- Significantly reduced system & market downtime

If you missed our June event, catch-up **here** to listen to more detail about where we are in our balancing & forecasting transformation journey.



Balancing Systems Update

Bernie Dolan, Principal Product Manager
Chi-Ho Lam, Lead Product Manager
Nisha Bhamidimarri, Senior Delivery Manager
Leon Walker, Governance and Insights Manager

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Open Balancing Platform (OBP) Key Delivery to Date

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12 Dec 2023
Business Go-Live
Target Dispatch via Bulk Dispatch Optimisation (BDO) - Control Room use OBP to issue first instructions

8 Dec 2023
Technical Go-Live
OBP receiving live market data updates for two zones Small BMUs and Battery

Jan 2024
Battery Dispatch Re-enabled
Fixes to protect against high-prices implemented

Feb 2024
Front End Updates
Major changes to FE following ENCC feedback

Mar 2024
30 Minute Rule
New battery capacity rule added in less than 2 weeks

Apr 2024
Fast Dispatch
Optimisation times reduced from 60 seconds to 10 seconds

Aug 2024
ABCD Rule
Further improvements to voided instructions <1%

Jun 2024
Voided Instruction Improvements
Number of voided instructions drops < 3% in Smalls <1% in battery

May 2024
More Data
Profiles added for Wind & Interconnectors Access to data on constraints & national demand

Sep 2024
Integrated Energy Management System (IEMS) Interface
OBP receiving live metering data monitoring unit behaviour

Sep 2024
Single Markets Platform (SMP) Interface
OBP receiving data from auction platform

Oct 2024
Multi Window UI
Front end architecture upgraded to allow more visualisation

Jan 2025
Data Analytics Platform (DAP) Interface
Integration to DAP - a new platform providing NESO with advanced analytic tools to monitor actions taken in the control room

Dec 2024
Quick Reserve
Phase 1 of the new Quick Reserve (QR) service (Business Go Live) - Further commercial opportunities for assets

June 2025
- **Constraint Management**
  Manual dispatch of system tagged assets behind a constraint using a price stack
- **Interface to Ancillary Settlement for NBM & Non-BM APIs**
  Key enabler in the migration of NBM units onto OBP
- **Manual Instructions**
  Allows functionality from legacy systems to be moved to OBP
- **Real Time Predictor**
  More accurate demand profiles feeding the new National Dispatch Optimiser

September 2025
- **NBM QR Phase 2**
- **Improvements in the Small BMU zone**
- **Emergency Instructions**
- **RTP Phase 1 Development**

Continued delivery on BM systems – SORT, SPICE, & VERGIL – to realise tactical benefits, until an enduring solution is available in OBP. Deliverables have included activity aimed at improving economic dispatch & transparency e.g., dispatch efficiency monitor

Key Areas of Progress Since June 2025

Open Balancing Platform:

- **Go-Live of NBM QR Phase 2**

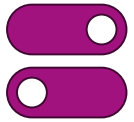
Deliverable: Significant architectural release, enabling the Business Go Live for NBM Quick Reserve. This new service is part of the suite of services being introduced by NESO to improve system security – QR is responsible for reacting to pre-fault disturbances. It is the first service delivered solely on OBP.

Benefit: Potential to deliver consumer savings in the region of £29-£32 million each year.

What does this mean for you?: Further commercial opportunities for assets with the correct parameters.

Open Balancing Platform:

- **Emergency Instructions**



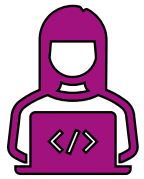
Deliverable: Ability to manage Emergency Instructions from OBP for the first time, enabling Control Room users to issue Start and Cease instruction to units. Provides the foundation capability for other ancillary service instructions.

Benefit: Key step in enabling OBP to effectively support system security, moving critical functionality away from legacy systems, supporting longer term retirement plans.

What does this mean for you?: Provides the foundation for future co-optimisation of ancillary services resulting in greater dispatch efficiency.

Open Balancing Platform:

- **Improvements in the Small BMU zone**



Deliverable: Enhancements to the Bulk Dispatch Optimisation (BDO) logic to better support units within the Small BMU zone.

Benefit: Reduction of partial loading of units, reduction in skip rate for units with long Minimum Zero Time / Minimum Non-Zero Time (MZT/MNZT) BMUs and faster optimisation times in the Small Zone.

What does this mean for you?: Improved economic dispatch; for further details on the improvements, catch up on our latest Optimisation Focus Group here.

Real Time Predictor (RTP):

- **RTP Phase 1 Development**

Deliverable: Key enhancements in the real-time predictor algorithm & user interface inc. faster computation of predictions & extended historical data feeds.

Benefit: Improved model accuracy inc. for complex and volatile demand profiles in real time. Supports the development of RTP phase 2, which will enable more accurate balancing actions resulting in lower balancing costs.

What does this mean for you?: More efficient dispatch and lower balancing costs.

NESO Business Planning Process & Draft OBP Roadmap for FY 26/27 & 27/28

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Business Planning Timelines

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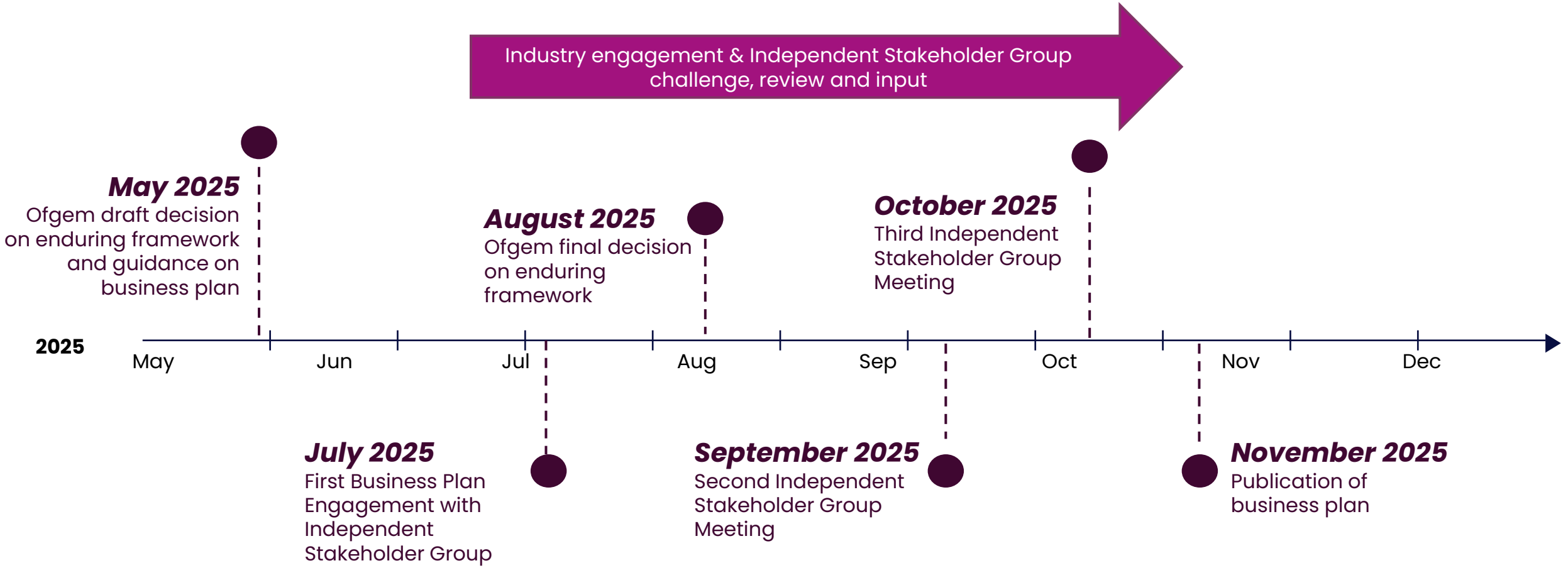
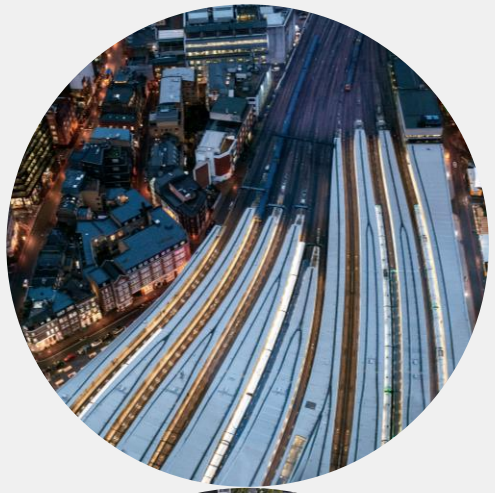


NESO-1 Business Plan April 2026 – March 2028

Performance Objective Webinars

- Two-year plan from April 2026-March 2028
- First post RIIO-2 business plan
- Performance Objectives in development and will build upon those set out in BP3.

For a first look at our draft Performance Objectives for NESO-1, please catch-up on our business plan development webinar from 11 September 2025, available on our *website*.

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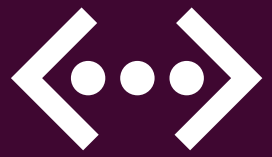
Digital Enabler Update – NBM Migration to OBP



Chi-Ho Lam

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NBM Migration to OBP Recap - Web Services & SIG

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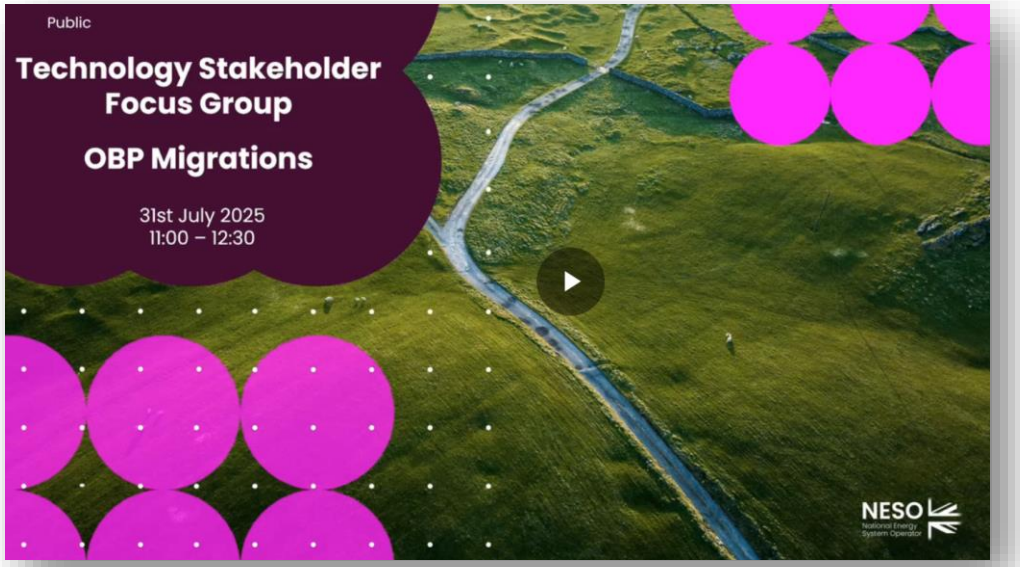
NBM services are currently supported on the Ancillary Services Dispatch Platform (ASDP) and need to be **migrated to OBP**, as we look to retire ASDP in the future.

We have delivered a series of Technology Focus Groups throughout 2024 & 2025 covering this migration. Catch up below on our most recent forum from July 2025; access the slides here.



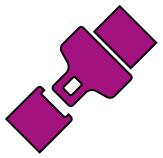
NBM providers integrating with OBP, will do so via the new NESO Secure Internet Gateway (SIG).

The existing ASDP NBM API has been updated (v4) for NESO branding for OBP, otherwise the API is **structurally unchanged** to minimise impact to market participants.

- Existing providers with STOR (Short Term Operating Reserve) and Fast Reserve services on ASDP **do not need to make any changes whilst on ASDP.**
- Providers implementing the new Reserve Services, Quick and Slow Reserve **will need to implement the new version** (as well as the new Reserve Service Terms and Business Logic) when they integrate with OBP.
- Providers that deliver dynamic response products with NBM registered units (existing and new) **will be required to integrate with OBP** - more information provided on the following slides.

NESO Secure Internet Gateway

NESO has implemented a **new Secure Internet Gateway (SIG)** to support communication with Market Participants with OBP over the Internet



The SIG is a robust solution designed to protect NESO Critical National Infrastructure (CNI) Balancing Systems, assuring the security of internet traffic by providing comprehensive visibility into the content of incoming requests

This is further enhanced through **strict IP whitelisting**, allowing interaction only from approved sources

Communication with OBP for NBM Services will need to be via the SIG

Providers will need to **exchange connection details and credentials** with NESO, and will need to set up in our respective gateway and network controls

For NESO, this can take up to 4 weeks, however, this can be completed in advance of any integration and market participant testing

Once set up for the first service, it will not need to be performed again, unless integration details change.

For example, if providers have been integrated with the new NESO SIG as part of onboarding for NBM Quick Reserve, they will not need to do this step again for NBM Dynamic Response and Slow Reserve.

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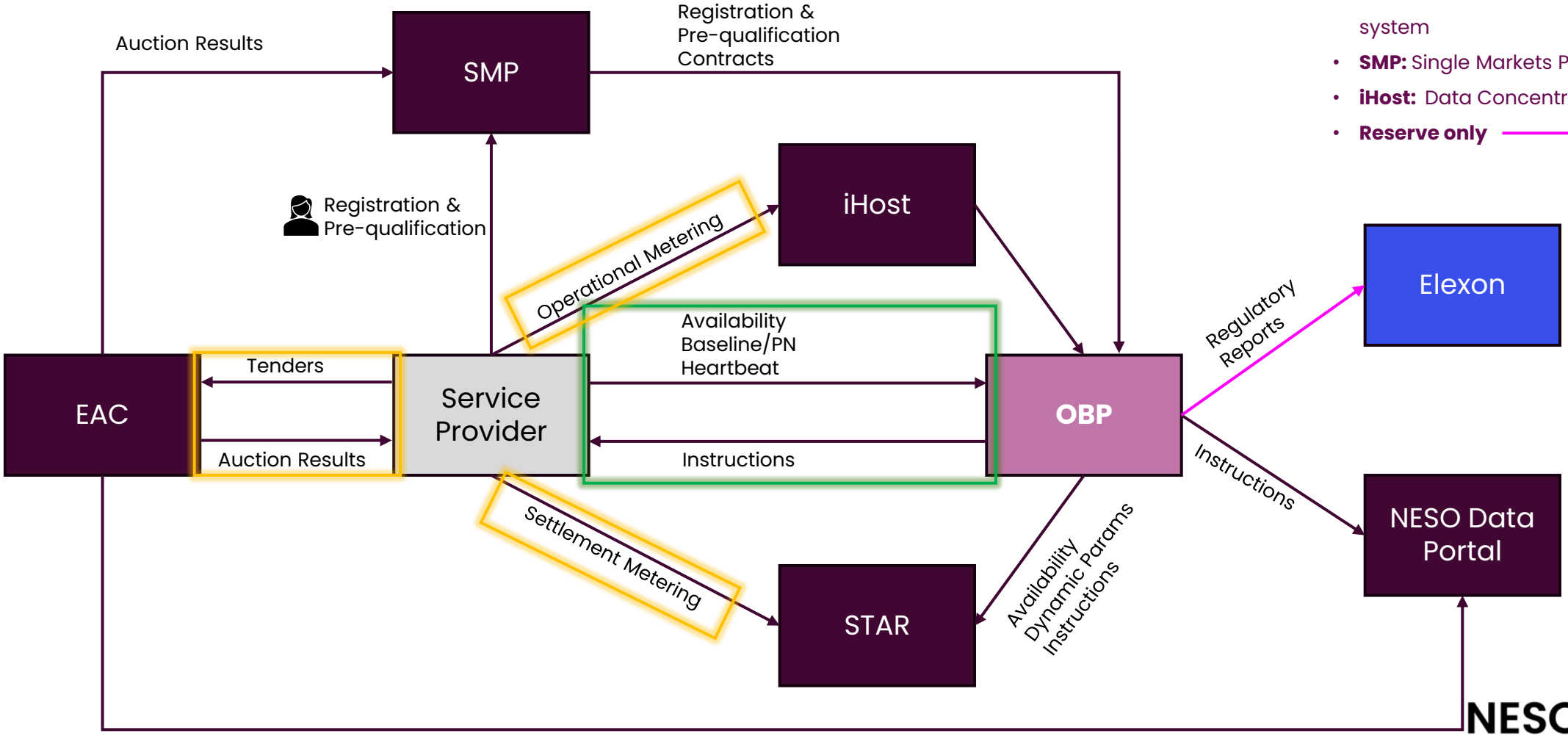
NBM – Operational Interfaces

OBP Integration (via SIG)

Non-OBP Integration

Abbreviations:

- **EAC:** Enduring Auction Capability
- **STAR:** Settlements and Revenue system
- **SMP:** Single Markets Platform
- **iHost:** Data Concentrator
- **Reserve only** →



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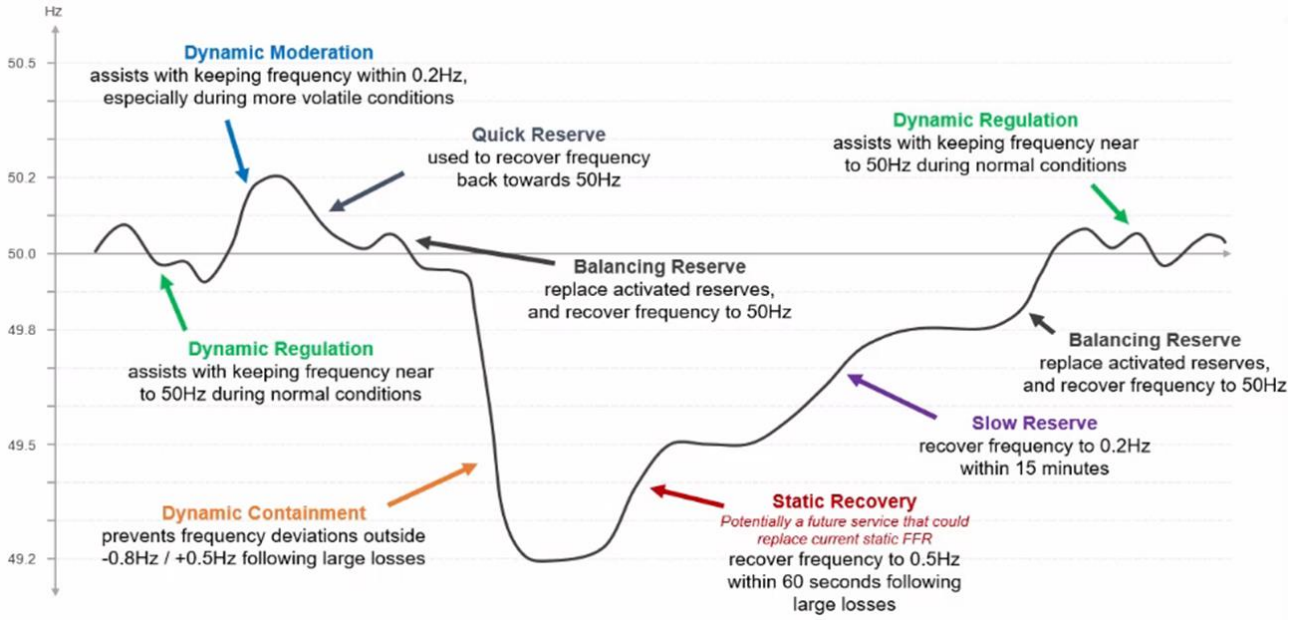
NBM Dynamic Response

Dynamic Containment (DC), Dynamic Moderation (DM) and Dynamic Regulation (DR) make up our suite of Dynamic Response Services. Together they work to control system frequency and keep it within our licence obligations of 50Hz plus or minus 1%.

- DM provides fast acting pre-fault delivery for particularly volatile periods
- DR is our staple slower pre-fault service
- DC is our post-fault service



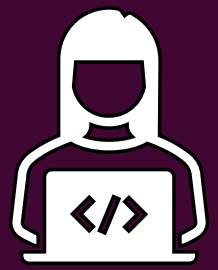
In standardising and harmonising NBM Services in OBP, **some changes have been necessitated for NBM Dynamic Response migration:**

- A **new branded URL** will be utilised for integration
- Baseline/PN & Heartbeat are Unit specific – and are **changed (standardised)** across all services
- Availability, Dispatch/Cease (Reserve) and Nomination (Disarm/Rearm for Dynamic Response) remain **unchanged as Service specific**
- Existing NBM Dynamic Response service providers on ASDP need to make changes to move to this version as well as adjust for unit error validation when they migrate to OBP

References – *NESO Dynamic Response Service website*:

- Dynamic Response **Service Terms, Service and Procurement Design**
- **Business Logic Document** – OBP Integration
- **IT Integration** – NBM Web Service (v4), Operational Metering, Performance Metering

Digital Enabler Update – EDT/EDL Transition to OBP



Nisha Bhamidimarri

NESO
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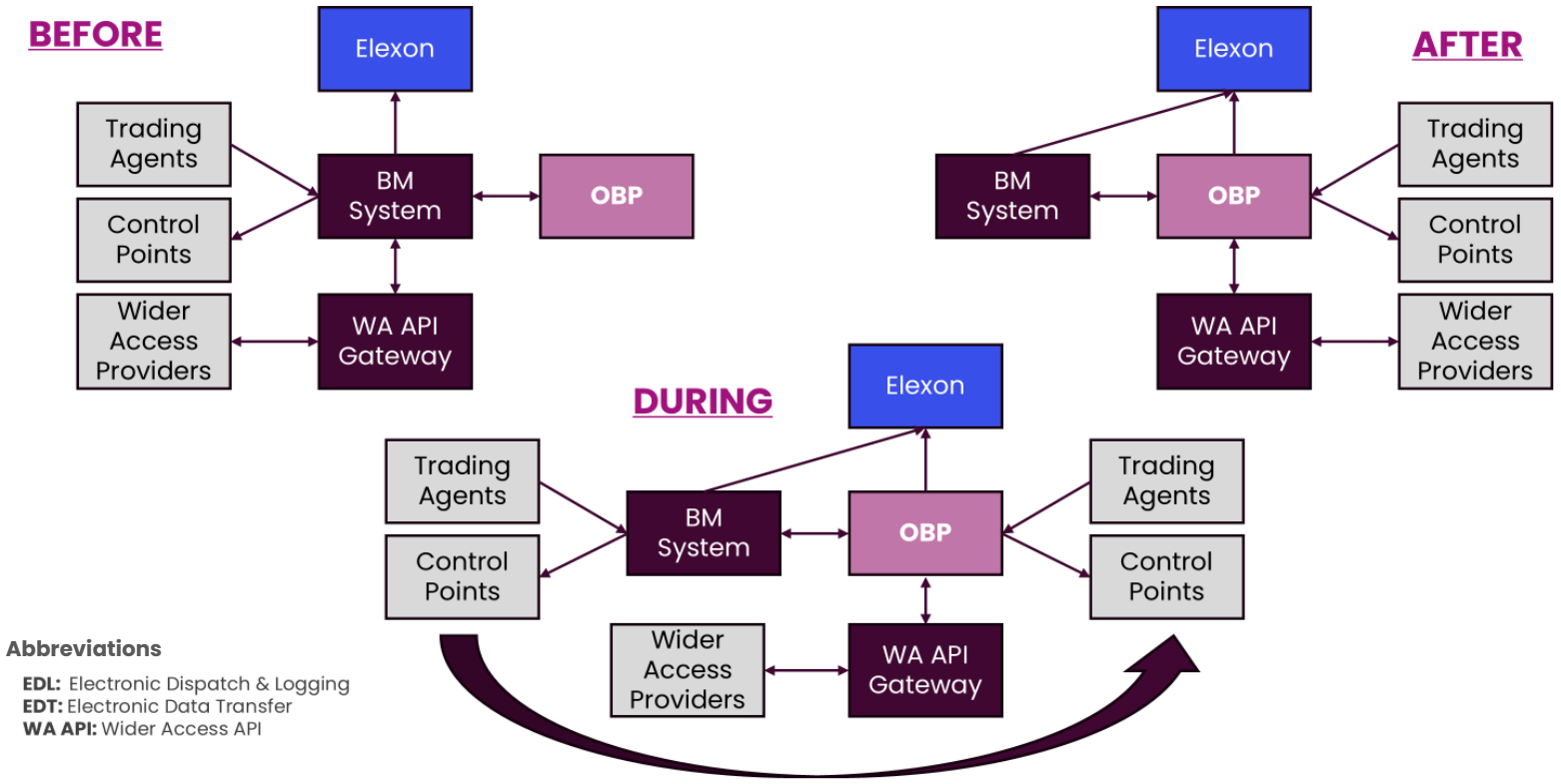
EDT/EDL Transition Update

NESO are updating their IT systems that enable BSC parties to send and receive Electronic Data Transfer (EDT) and Electronic Dispatch and Logging (EDL) data to/from NESO, as NESO transition BM system functionality onto the OBP.

As EDT and EDL are critical interfaces, NESO requires the support of Market Participants and Software Providers to ensure a smooth transition from the existing platform (BM systems) to the new platform (OBP).



Transition to take place within **6-week window between January 26 – March 26** to avoid registration delays & ensure continuity of operations.

EDT/EDL Transition

Start of Transition

BM Release to start transition

Planned Outage to market

Phased Approach

Each week we will transition TA & CP in tranches

Tuesdays and Thursdays

There will be a short outage for the TA & CP doing the transition

Transition Complete

All TA & CPs transitioned from BM to OBP for EDL/EDT communications.

OBP is designed and operated as a continuously available system therefore participants will benefit from reduced planned outages of EDT/EDL

Transition to take place within **6-week window between January 26 – March 26** to avoid registration delays & ensure continuity of operations.

New EDT/EDL connections or new BMUs will not be able to join the production systems during this period.

Impact on Software Vendors & Market Participants

EDT Changes:

- A new Fully Qualified Domain Name (FQDN)
- A different DNS server
- New IP addresses to be whitelisted
- A new security protocol for file transfer – FTPS; access to the BM test FTP server will continue to be provided until the end of the transition period
- Updated credentials for login to new system

EDL Changes:

- Connection established from a different IP address compared to BM
- Same pool of IP addresses as EDT - may be a different IP address
- Change in pattern of outage

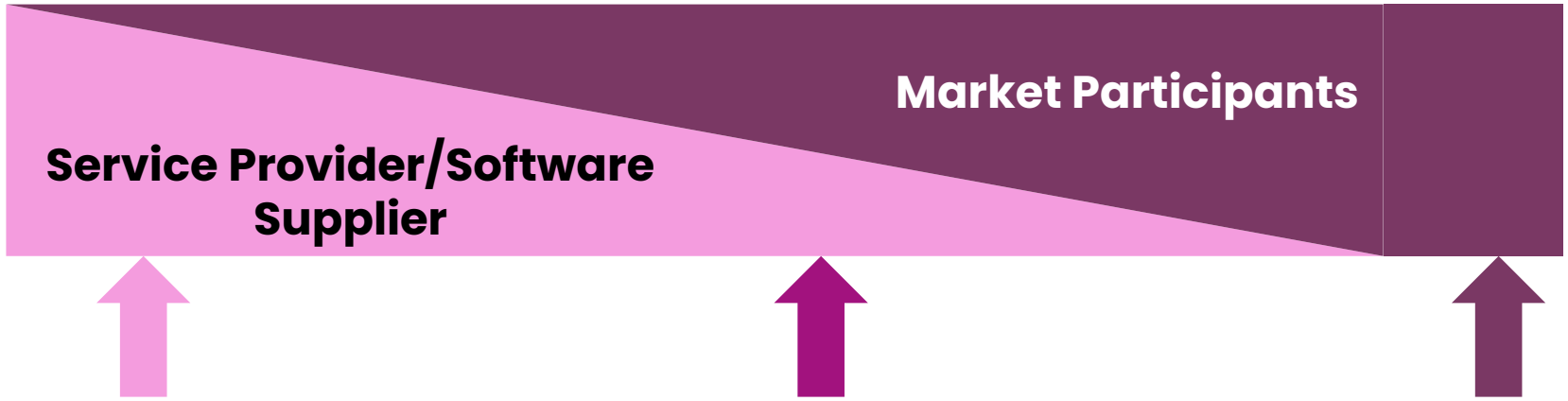
Guidance Document

- Details on transition phases
- Impact on Software Vendors and Market Participants
- Overview of Testing Requirements
- Access the Guide for Market Participants **here**

We issued an updated transition guidance document in July 2025 – this covered:

- Updated contact details & transition dates
- More information on EDT FTPS and file handling
- More information on transition restrictions

Type of Testing with NESO



Managed Service Provider
- Software testing (Type Testing inc. behavioural test)
- Connectivity Testing (NAT)
- E2E Business Process Testing for each BMU (BPIT)

Market Participant – Fully Hosted Solution
- BMU Data inc. behavioural test

All tests for each hosting provider for select participants

Software Service Provider
- Software Testing (Type testing inc. behavioural test)

Market Participant – On Premise Solution
- Connectivity Testing (NAT)
- E2E Business Process Testing for each BMU(BPIT)
- BMU Data inc. behavioural test

Type Test for each software NAT and BPIT for each provider

Market Participant – Created bespoke software solution
- Software Testing (Type Testing inc. behavioural test)
- Connectivity Testing (NAT)
- E2E Business Process Testing for each BMU (BPIT)

All tests for each provider

Public

GC0166 Proof of Concept Testing

Leon Walker

NESO
National Energy System Operator

GC0166 Grid Code Change – Background Context

What is the underlying problem this Grid Code change is looking to resolve?

GC0166 addresses the problem that Electricity Storage Modules (of limited duration) operating in the Balancing Mechanism can only export or import until empty or full.

The current parameters defined in the Grid Code and the Balancing and Settlement Code -Maximum Delivery Period and Maximum Delivery Volume - do not cater for bi-directional units.

NESO currently uses an interim arrangement to get around this - the '30-minute rule' - which requires providers to submit MEL/MIL values which can be sustained for a 30-minute period (with one minute ramp either side). This however limits how NESO uses these assets and does not allow NESO to plan in longer timescales.

The GC0166 working group proposed **additional parameters** to support the Optimiser algorithm:

Maximum Delivery Offer (MDO) **Maximum Delivery Bid (MDB)** **Future State of Energy (FSoE)**

These will provide Control Room means to increase economic dispatch of Electricity Storage Modules and improve operational planning for longer term planning (up to 24 hours ahead)

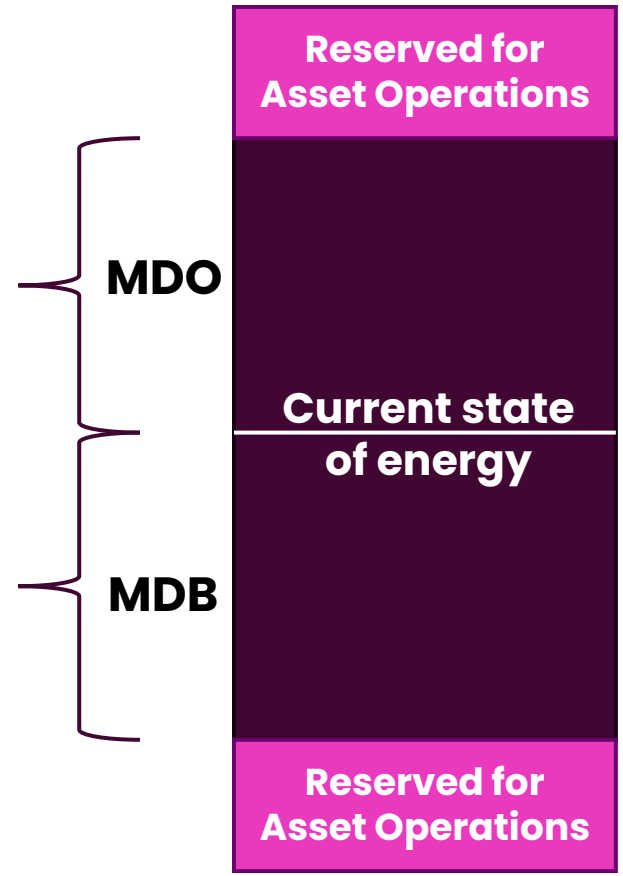
As well as introducing additional defined terms in the Balancing Code section of the Grid Code, there will also be changes to the Data Validation, Consistency and Defaulting Rules, and a requirement for Energy Storage Modules to provide a planning model which is more asset specific. More information is available here.

Explaining MDO, MDB, FSOE Parameters

Explanation of how the parameters as part of GC0166 will work:

Maximum Delivery Offer: The amount of energy (MWh) which is available for instructable offers in Balancing Mechanism

Maximum Delivery Bid: The amount of energy (MWh) which is available for instructable bids in Balancing Mechanism



Current state of energy of an asset will change e.g. dependent on energy bought/sold in wholesale market, delivery of bids and offers and provision of services

This will require **resubmission of MDO and MDB** to reflect recent activity

Future State of Energy is a **forward projection of energy stored** in module

GC0166 Proof of Concept Testing with Customers

What are we doing? We are conducting proof of concept (POC) testing to simulate GC0166 in action ahead of production to help us understand how the change will work in practise; insights gained from testing will help inform any necessary system adjustments.

How are we doing this?

- We are testing the full spectrum of likely active BMU participants
- We have engaged with customers to identify & nominate different categories of BMU:
  - Battery (>50MW, 10-50MW, <10MW, single /aggregated, demand)
  - Non battery (pumped storage)
- Customers will collect 'real time' data, for 2 operational days and submit offline to NESO.
  - GC0166 parameters: MDO/MDB MWh / FSOE %
  - Additional parameters: Upper & Lower limit SOE %, Real time SOE %, Export & import efficiency %, Cycle limit – daily or MWh
- We are working with circa. ten customers to set up the POC testing window.

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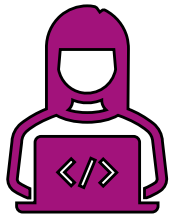
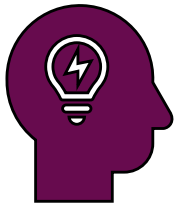
GC0166 Proof of Concept Testing Benefits

- Mutual benefit for both NESO and customers to “get our eye in” in on how GC0166 works in practise
- Insights from the POC will be shared with our wider customers





Projection of amount of data submissions

Additional modelling based on real data to build confidence in optimisation

Insights into how dispatch process enhanced by MDO/MDB

Initial insights into scheduling

Looking Forward:
Potential opportunity in early/mid 2026 to gather more data through the Reveal platform to support further analysis in scheduling timescales.

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Proof of Concept Timeline & Next Steps

Gride Code Development Forum (GCDF) meeting to explain Testing

2 July 25

Internal set up and customer comms

July 25

Issue specification to customers and confirm participation; 10 customers considering participation with multiple BMUs

Aug-Sep 25

Run POC data receipt with selected customers

Oct-Dec 25

Test modelling and repeat data request if needed

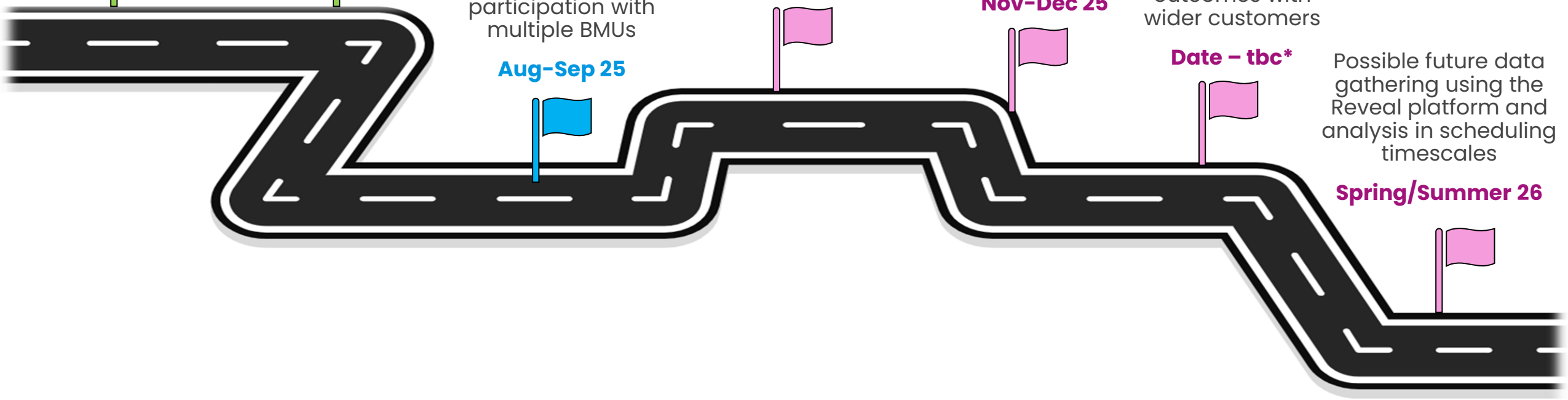
Nov-Dec 25

Sharing outcomes with wider customers

Date – tbc*

Possible future data gathering using the Reveal platform and analysis in scheduling timescales

Spring/Summer 26



** Timescale for sharing of insights based on readiness of participants to deliver Proof of Concept and subsequent length of PoC*

Key Takeaways: GC0166 & Proof of Concept Testing

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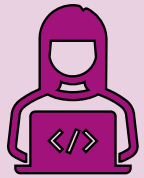
GC0166 Modification status: Awaiting Decision

Expected approval from Ofgem of GC0166 and agreement on implementation in October 2025.

Data flows triggered by BSC Change P499 (June 2026)



GC0166 implementation on OBP is dependent on the outcome of the Grid Code Modification process but is expected January – April 2026.

Data streaming from customers within 12 months following formal approval by Ofgem.

In addition to participants who have already shown interest in the PoC there is limited time for remaining customers to get involved.

Please contact us by 30.09.2025 to express your interest - *box.balancingprogramme@neso.energy*

Further details are available in the Grid Code Working Group documents -

GC0166: Introducing new Balancing Mechanism Parameters for Limited Duration Assets | National Energy System Operator

Forecasting Systems Update

Rich Sykes, Product Manager

NESO
National Energy System Operator

A Recent History of the Platform for Energy Forecasting (PEF)

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Sept 2024
New Platform Technical Go-Live

Nov 2024
New Wind product Go-Live
Immediate improvement in wind accuracy and 1C metric

Jan 2025
Replaced wind visualisations
Reduced need for legacy wind visualisation tools

March 2025
Solar and GSP models migrated to Azure
All short term forecasting in Azure

Feb 2025
New National Demand model
New ML National Demand incorporated

March 2025
MVP Solar BMU model
Providing visibility of the growing number of Solar BMUs

April 2025
Initial Embedded Solar forecasting visualisation
Reduced need for legacy solar visualisation tools

July 2025
Validated Embedded Solar model
Improved accuracy of embedded solar forecasts

June 2025
Publishing Peak Demand by Restoration Region to Elexon

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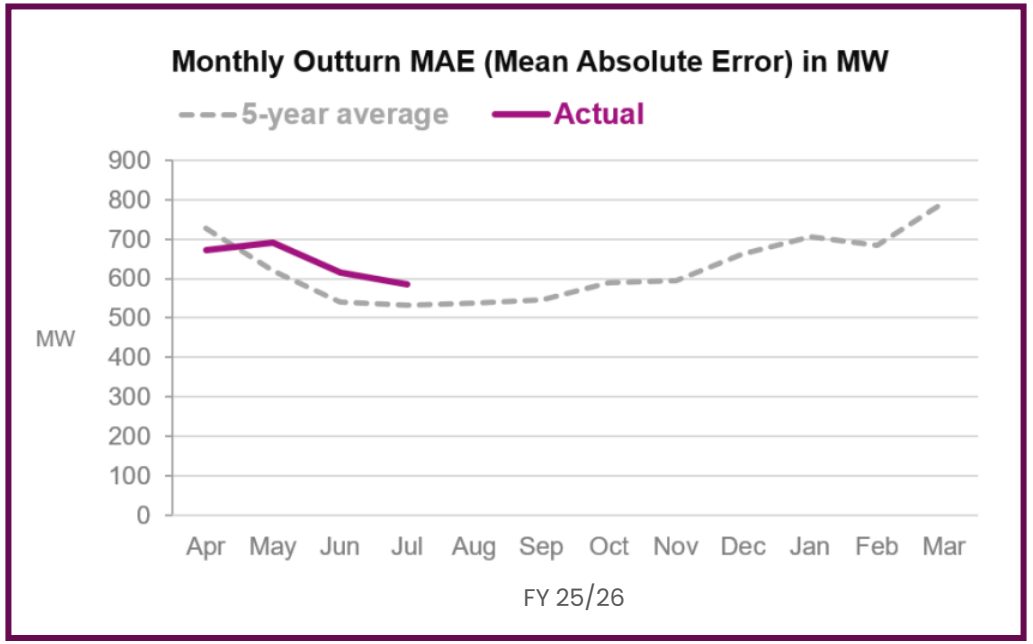
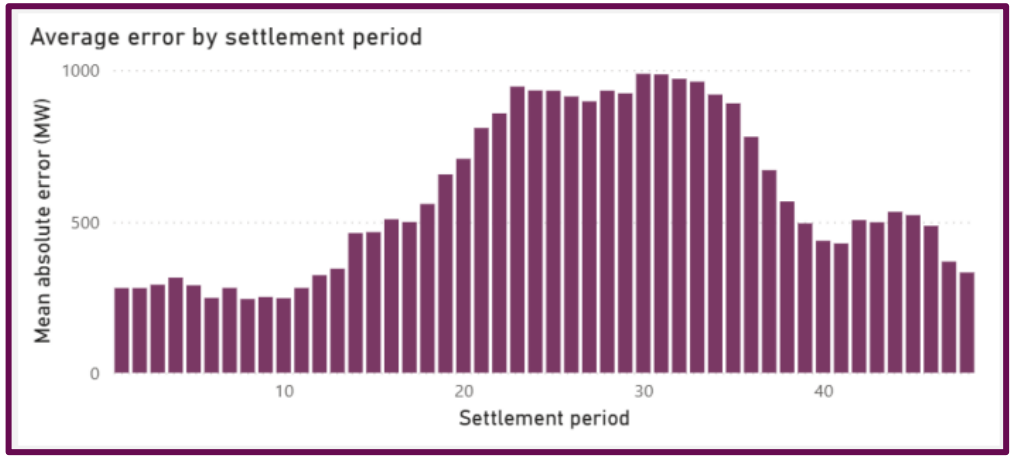
1B metric: Day-Ahead National Demand Forecasting Challenge

1B day-ahead national demand forecasting impacts:

- **Variability of the national demand forecasting challenge**
  - Current demand forecasting tooling
  - Market and consumer behaviours
- **More renewables**
  - Solar inaccuracies, record high of 14GW solar recorded in July



Source: Monthly incentives report July 2025



Source: Monthly incentives report July 2025

Immediate Activities Addressing 1B Performance

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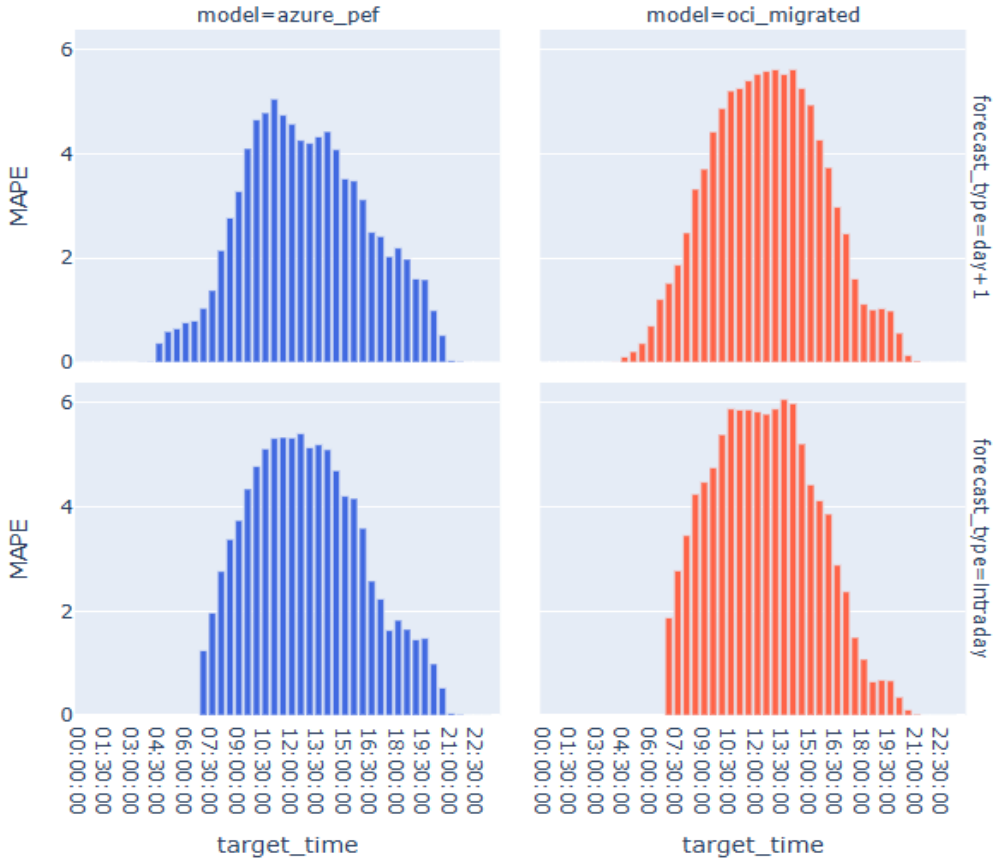
Solar forecasting delivery

- New solar model forecasting BMU and embedded generation
- New model outperforms legacy models (Azure PEF vs OCI migrated)
- Models built for iterative improvements

Demand forecasting decoupled from legacy tools

- Incorporating the new solar model outputs into the demand forecasting tools
- Incorporating embedded wind data directly from PEF



Platform for Energy Forecasting (PEF) Roadmap

Q1 FY 25/26 (Apr 25-Jun 25)

Key Capabilities:
- ✓ Visuals and tools for the control room
- ✓ Solar BMU model and visualisations
- ✓ Regional demand forecasts shared with Elexon as part of Electricity System Restoration Standards (ESRS)
- ✓ Integrate Solar Nowcasting [1]
- ✓ Renewable forecast control room situational awareness
- ✓ Advanced Analytics data integration

Q2 FY 25/26 (Jul 25-Sep 25)

Key Capabilities:
- ✓ Improved embedded Solar forecasts [1]

Key Enablers:
- Offline Prototype National Demand Forecasting Capability [1]
- ✓ Renewable generation forecasts decoupled from EFS [1]

Q3 FY 25/26 (Oct 25-Dec 25)

Key Capabilities:
- Initial release of National Demand Forecasting Capability [1]

Key Enablers:
- GSP model audit [2]
- PEF migrated to NESO Azure tenancy
- Integration with Planning tools for improved studies [2]

Continuous model improvement

Q4 FY 25/26 (Jan 26-March 26)

Key Capabilities:
- PEF produces long term forecasts (demand) [2]
- Improved Reactive Power Forecasting Capability
- Enduring National Demand Forecasting Capability
- New post event analytics forecasting tools
- Incorporating additional datasets including market and consumer data

- [1] 1B improvements
- [2] Work enabling EFS retirement,
- Complete

Q&A

Please post any questions you have for our speakers in **SLIDO** using **#BPSepWeb25** ensuring to list both your **full name and organisation**

Type the above code into the Slido app or via Slido.com, or scan the QR code

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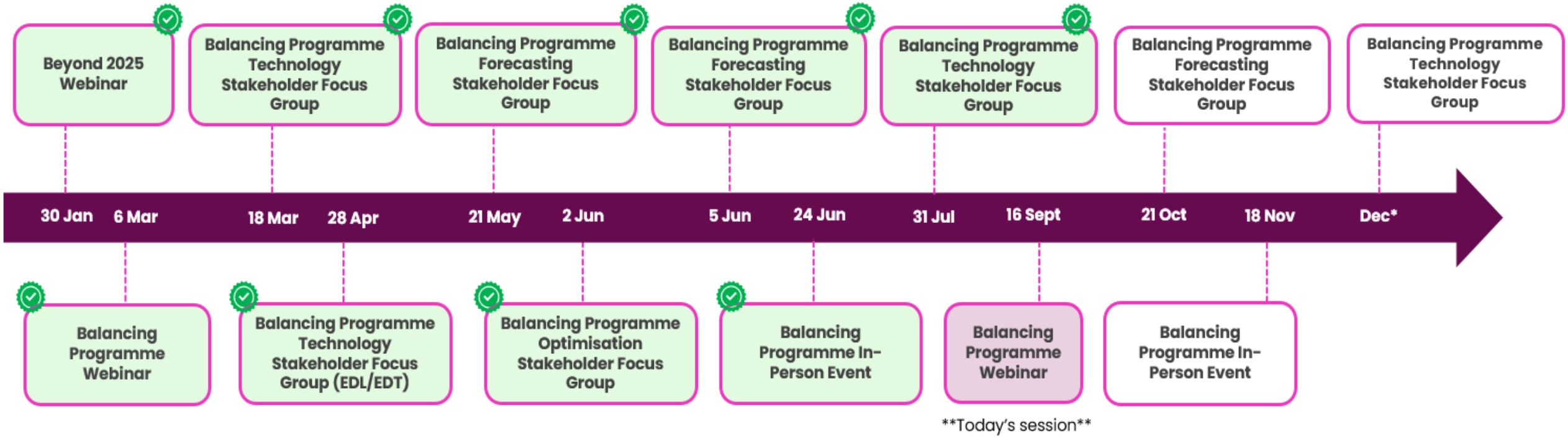
2025 External Engagement Timeline



Balancing Programme **relationship management meetings** throughout 2025 & **external NESO newsletter - 'Energising Progress' -** with Balancing Programme content issued regularly, providing updates between online & in-person events.

Keeping in Contact

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@neso.energy**.

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 Balancing Programme and would like more information, please get in contact using the email address above.

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September 2025

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