Public

Forecasting Stakeholder Focus Group

21st October 2025
11:00 – 12:30

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National Energy System Operator

Forecasting Stakeholder Focus Group Agenda

Time	Agenda Item	Item Details	Presenters
11:00 – 11:05	Welcome & Scene Setting	• Purpose of the session • How to participate during the session	John Walsh, Forecasting Manager
11:05 – 11:25	The Current State of Energy Forecasting & System Development	• Forecasting at NESO – What, how, why • Forecasting challenges • Forecasting developments: • Platform for Energy Forecasting (PEF) developments to date & planned activity	John Walsh Alex Willetts, Product Owner
11:25 – 11:45	You Said, We Did – Development of our Forecasting Strategy	• Show & tell of how stakeholder (external & internal) feedback was incorporated into the forecasting strategy currently under development	Jethro Browell, Senior Analyst
11:45 – 12:00	Live Participant Feedback	• Interactive Mural Board for participants to feedback on objectives & what they heard in the session	Jethro Browell
12:00 – 12:10	Next Steps	• Where do we go after today	Jethro Browell
12:10 – 12:25	Q&A	• Ask your questions to our SMEs	All presenters
12:25 – 12:30	Closing Remarks	• Future Engagement Opportunities • Keeping in contact	John Walsh
12:30	**Meeting Close**		

Purpose of Today's Session

General

Provide an update to stakeholders on the development of forecasting at NESO

Forecasting Strategy

Update on how feedback from previous workshops has been incorporated into the NESO Forecasting Strategy

Share the main objectives out in the Forecasting Strategy

Provide an opportunity for further feedback before the full draft is published for consultation

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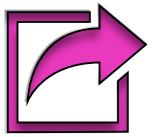
Audience Participation

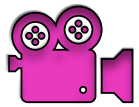
There is time allocated to Q&A **towards the end of the session** - we will take all questions during this part of the agenda to ensure we get through all pre-prepared content.

Please post any questions you have for our speakers in the Microsoft Teams chat ensuring to list both your **full name and organisation –** this will enable us to follow up with you after the webinar if necessary. During the Q&A section, you can also use the 'raise hand' function and come off mute to ask your question.



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.

If you have any further questions after the Focus Group, please get in contact with us at **box.balancingprogramme@neso.energy**



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

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The Current State of Energy Forecasting & System Development

John Walsh, Forecasting Manager

Alex Willetts, Product Owner

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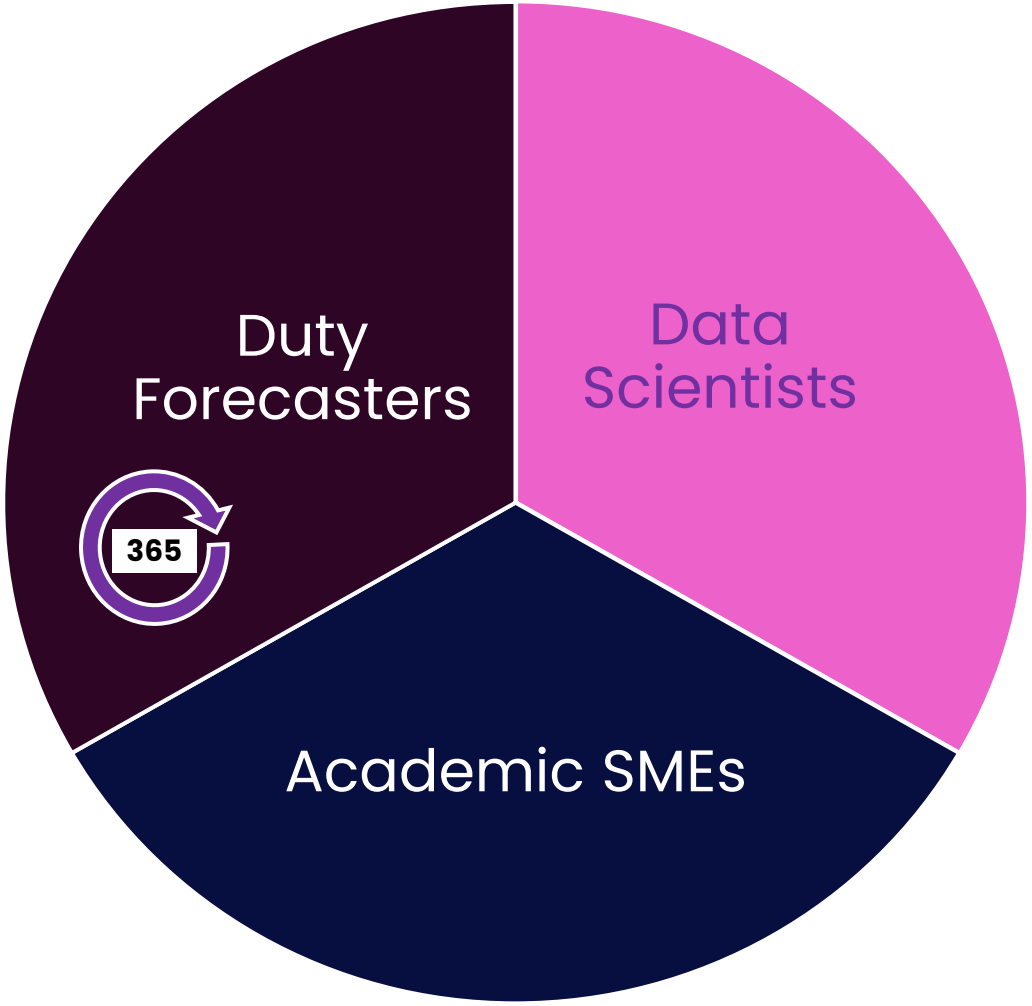
The Energy Forecasting team



Energy Forecasting – current state

	Timescales	Frequency
National Demand (MW) **(As per Grid Code definition)**	• Within-day & Day Ahead • 2DA, 7DA & 13WA • 2WA-52WA	• 3 x daily • Daily • Quarterly or as per needs
Wind & Solar Power **Metered & Non-metered**	• Within day – 14 days ahead	• 24 x daily
GSP Demand	• Within day – 8 weeks ahead	• 6 x daily
Reactive power (MVAr)	• Within day – 13 days ahead • 2DA – 13 Weeks ahead	• Daily • Daily
Innovation Projects	• Project dependant	• Weekly
Customer Support (Publish new data and respond to queries from Data Portal, Extranet and BMRS)	• Data dependant	• Daily
Transmission Losses	• Retrospective	• Monthly • Yearly

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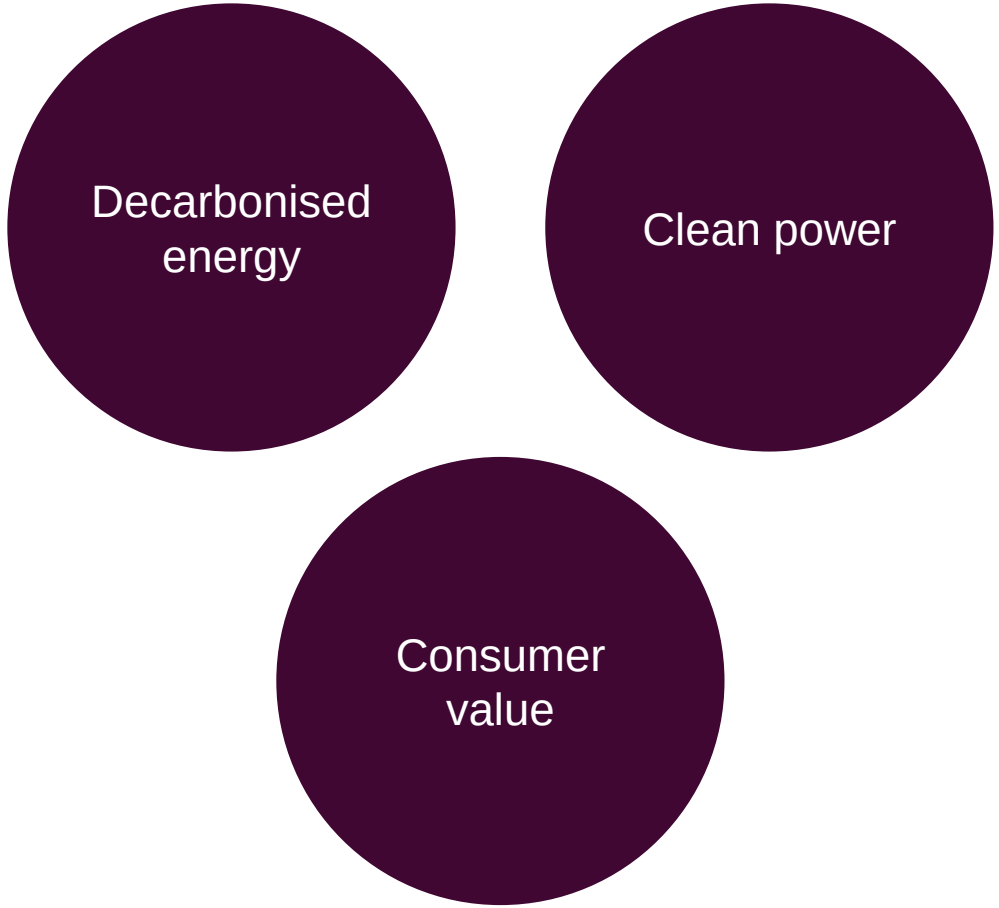
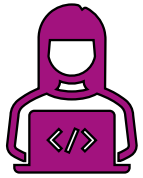
Forecasting challenges

- Consumer behaviour - Consumers reacting to retail tariffs or other transient commercial influences.
- National Demand influences – Distributed Energy Resources that are not operationally visible.
- Transmission Demand influences – market activity that is not readily visible.
- Solar Forecasting – Irradiance is widely accepted as being an inferior weather entity.
- Wind Forecasting - Most large wind errors are sourced from only ~2% of the entire wind fleet (BMUs) – all offshore.
- The existing forecasting-performance metrics are heavily exposed to the weather data quality; some of the forecasted period is approaching 40hrs lead time.



What is PEF?



The Platform for Energy Forecasting (PEF) houses the forecasting capability used by the Energy Forecasting team.

Produces forecasts for:

- Wind and Solar generation
- National Demand
- Grid Supply Point (GSP) MW and MVAr

Consumers of forecasts:

- Control room teams and systems
- System Operations teams
- External consumers via Data Portal and Elexon

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

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

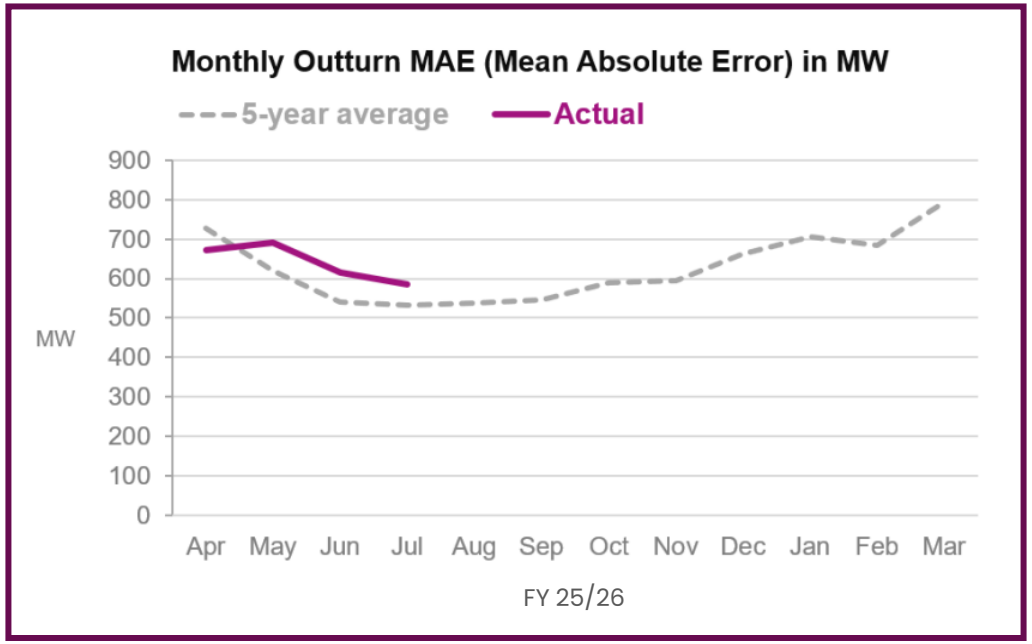
July 2025
Validated Embedded Solar model
Improved accuracy of embedded solar forecasts

June 2025
Publishing Peak Demand by Restoration Region to Elexon

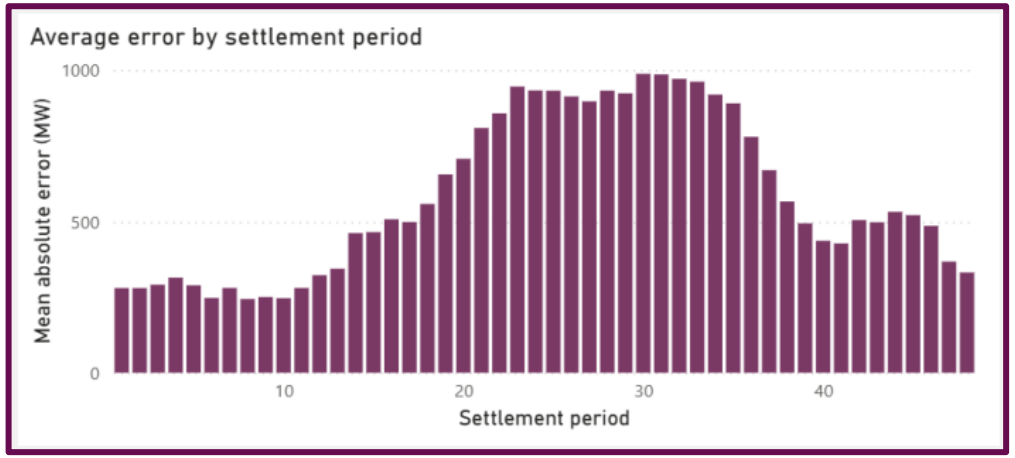
1B metric: Day-Ahead National Demand Forecasting Challenge

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

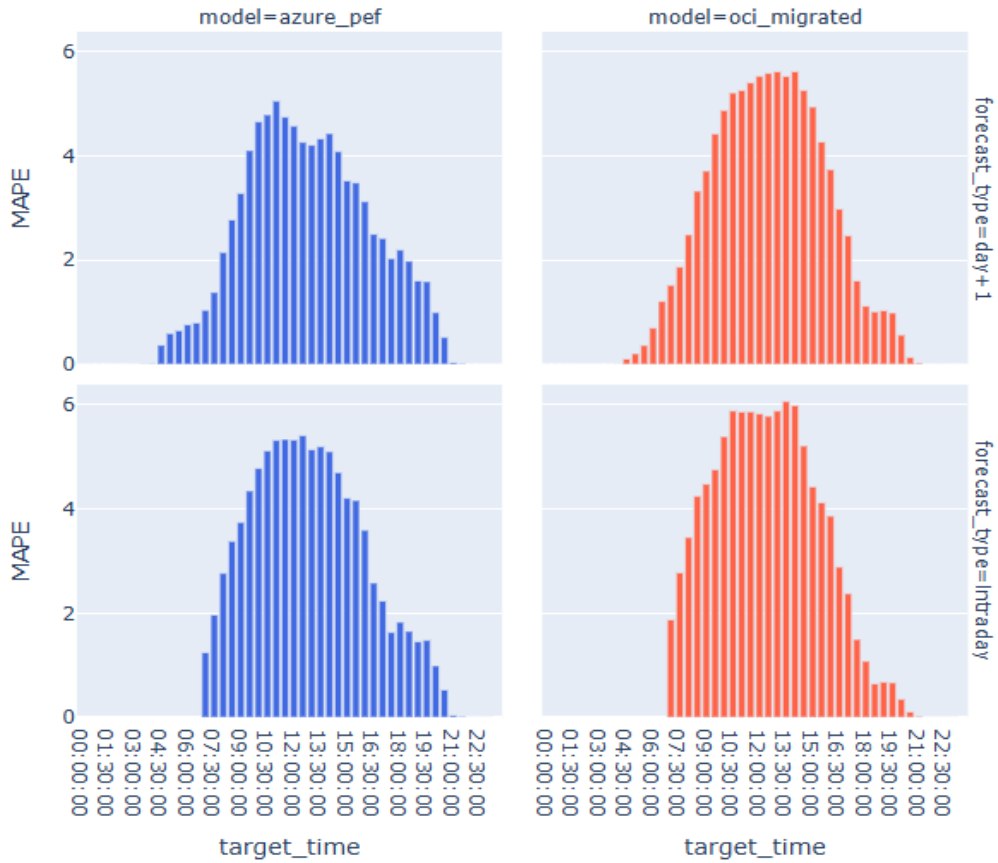
Immediate Activities Addressing 1B Performance

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



MAPE: Mean Absolute Percentage Error (Average size of error as % of installed capacity)

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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]

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

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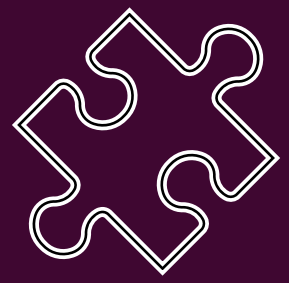

You Said, We Did – Development of our Forecasting Strategy

Jethro Browell, Senior Analyst

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How we got here . . .

NESO BP3 (January 2025) included a commitment to produce and consult on a new Forecasting Strategy and publish a subsequent Delivery Plan

Multiple internal and external stakeholder workshops have run between May and October

Today we are feeding back on the how that engagement has influenced the draft strategy and invite final feedback from you

The draft strategy is currently going through NESO review prior to publication

Feedback Received from Stakeholders

External Stakeholders

You told us:

"NESO should publish much more forecast and related data"

There were many comments and requests along these lines. We have heard you, and your enthusiasm will help us advocate for the resource required to deliver this.

NESO Proposed Action:

NESO is committed to publishing forecast data via the Data Portal. The Forecasting Strategy includes a commitment to publish forecast data "to the greatest extent possible without compromising market integrity or system security". In some cases, this may be restricted to specific parties, such as DNOs, where there is an operational benefit.

We have ambition to publish: GSP demand and MVAr forecasts, probabilistic national wind, solar and demand forecasts. Carbon intensity actuals and forecasts are already published via the Carbon Intensity API and Data Portal.

Forecasts and related that are currently not published for commercial reasons include constraint forecasts, real-time unit-level metering and real-time power available.

Feedback Received from Stakeholders

External Stakeholders

You told us:

"Published data should be available via reliable, low latency channels"

NESO Proposed Action:

Existing solution for publishing operational data is via Elexon/BM as required by the BSC and/or Grid Code. Consulting on code modifications to expand forecast information published this way is an objective set in the Forecasting Strategy. You can influence this via the panels the administer changes to industry codes.

You told us:

"Forecasting low-carbon technology deployment (domestic solar, EVs, heat pumps, batteries) is important."

NESO Proposed Action:

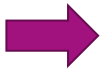
This is an important component of NESO's long-term forecasting and modelling but historically has not been a focus of weeks- to months-ahead forecasts. It is an objective of the Forecasting Strategy to improve forecasting of DER capacity to one-year ahead.

Feedback Received from Stakeholders

External Stakeholders

You told us:

"Actual and forecast demand data should account for dispatch of DER flexibility, e.g. demand data should be accompanied by volumes of demand-side flexibility that were dispatched by NESO or others."



NESO Proposed Action:

Developing demand forecasting capabilities that accounts for DER is a key objective of the Forecasting Strategy. Improving monitoring and reporting of DER flexibility dispatch (by NESO and others) will form an important part of this and covered by other NESO initiatives.

Forecasts of "flexibility envelopes" will be developed, but NESO must ultimately forecast what is measured, i.e. GSP (or Super Grid Transformer) active and reactive power, and National (Transmission System) Demand.

Feedback Received from Stakeholders

External Stakeholders

You told us:

"There are new requirements for emergency situations, e.g. RES forecast for restoration. What wind and solar units will start generating when re-connected?"

NESO Proposed Action:

The Forecasting Strategy includes plans for NESO to "work with TOs and DNOs to reviewing requirements for restoration and other emergency scenarios."

You told us:

"Release problem statements framing the trickier problems you are dealing with into an open process for innovators to respond to."

NESO Proposed Action:

Forecasting has been a staple of NESO's innovation portfolio over recent years. The Forecasting Strategy aims to continue this and will highlight areas where a need for innovation has been identified.

Feedback Received from Stakeholders

External Stakeholders

You told us:

"Let NESO's data scientists innovate quickly by freeing them (partially) from some of the constrains defined by IT. NESO should have the capability to on-board new data feeds and deploy new forecasting algorithms quickly."

NESO Proposed Action:

NESO's in-house cloud infrastructure, the Platform for Energy Forecasting, is being designed to enable this. The Forecasting Strategy includes an ambition to develop and maintain PEF internally, representing a change in strategy from previous forecasting software, the maintenance of which has been outsourced.

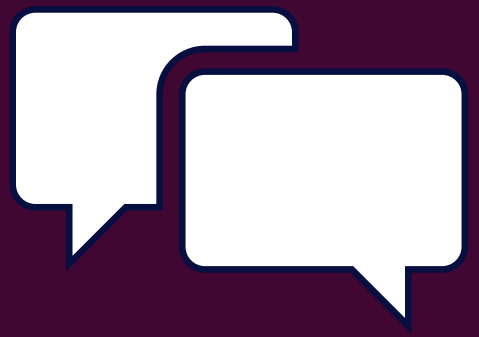
You told us:

"Establish an open platform for forecast information sharing allowing information to be pooled with the most accurate forecasters been rewarded. I.e. data/model market concepts."

NESO Proposed Action:

Data and model markets are identified in the Forecasting Strategy as a topic to explore though innovation mechanisms.

We also consulted internally & heard from NESO colleagues …



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Feedback Received from Stakeholders

Internal NESO Stakeholders

Our colleagues told us:

"Lots of alignment with ongoing initiatives regarding DER visibility, data exchange with DNOs, and associated code changes. Internal coordination between these activities and forecasting team will be required."

NESO Proposed Action:

Forecasting Strategy emphasises the need for coordination across NESO between forecasting and relevant initiatives that affect DER/CER visibility, data exchange, and metering.

Our colleagues told us:

"NESO should provide forecasts in new formats, including scenarios that represent potential weather and market-driven outcomes. Operational planners need to be able to plan for all credible worst cases, ENCC need to be able to be able to select a forecast trajectory that matches observed outturns."

NESO Proposed Action:

A key objective of the Forecasting Strategy is to provide forecast information in formats suitable for end-users, including uncertainty quantification. This will be underpinned by Ensemble Numerical Weather Prediction and probabilistic modelling.

Feedback Received from Stakeholders

Internal NESO Stakeholders

Our colleagues told us:

"Review of Average Cold Spell methodology, which is a component of peak demand and margin forecasts."

NESO Proposed Action:

The Strategy includes reviewing Average Cold Spell along with other references to forecasting in industry codes.

Our colleagues told us:

"GSP active and reactive power, and battery forecasts need to be priorities to support operational planning."

NESO Proposed Action:

Improving GSP active and reactive power forecasting is an immediate priority and objective in the Strategy

Out of Scope

Issues that will **not** be addressed by the Forecasting Strategy, but may benefit forecasting in the future

DER Beyond Forecasting

- Mechanisms and systems for scheduling/coordinating/communicating with domestic appliances and other behind the meter DER.
- Cyber risk of demand flex tech from US/China
- Mechanisms to avoid herding behaviours at the start/end of settlement periods
- "Bartering", collaborative control of DER/CER via DNOs to NESO

Data Quality

- Standardise/fix issues with naming conventions. Standardise across DNOs if all sharing similar data
- Improve quality of metering data

Comments Relating to Locational Pricing

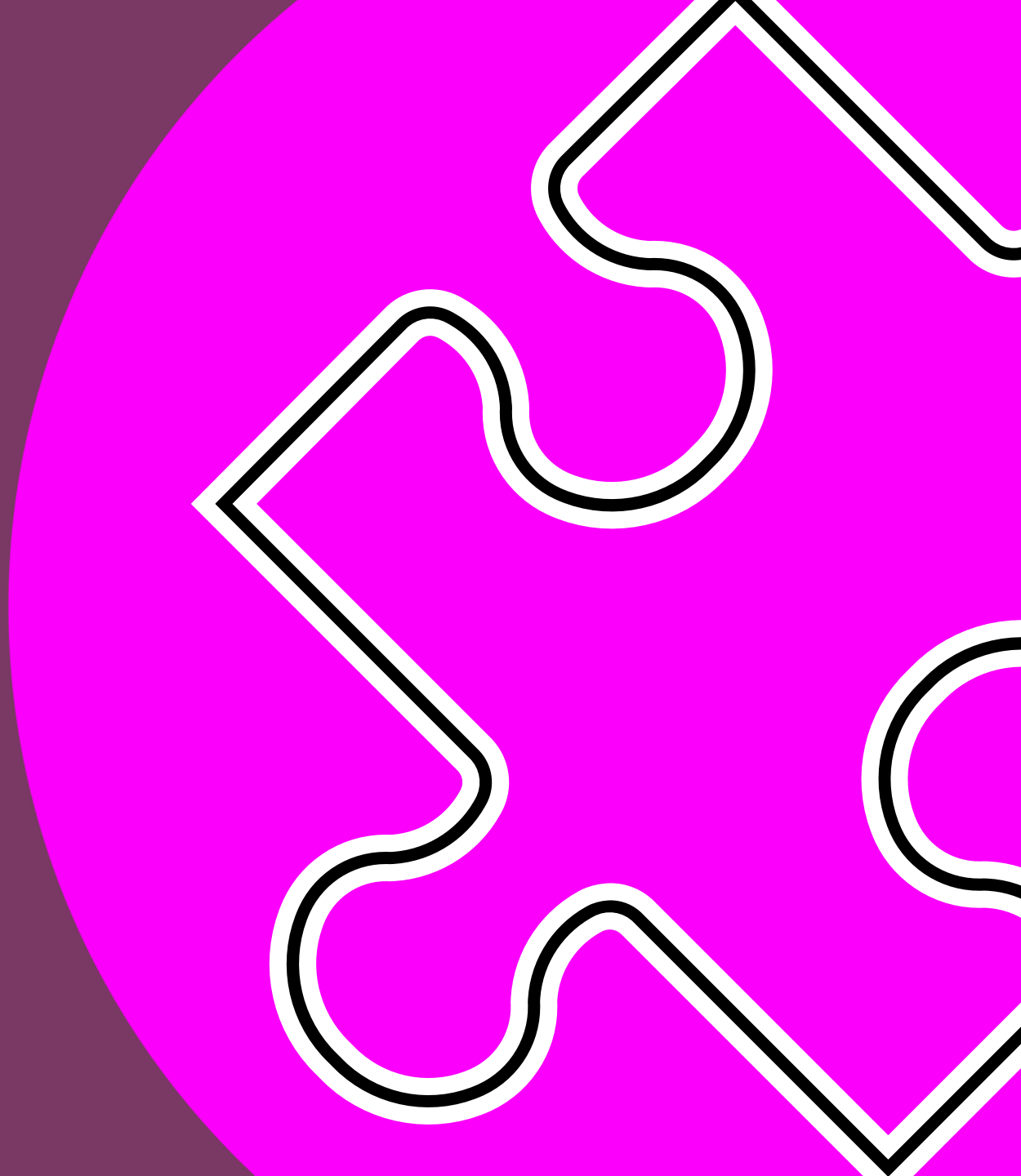
- *No longer relevant as decision has been made for GB to remain as a single price zone*

Data Sharing

- Flow of data between NESO and DNOs
- Standardise and publish DNO data
- Publish % of NESO data that is catalogued, triaged and published; NESO should make available a catalogue of internal datasets to enable stakeholders to submit requests where relevant.
- Near real-time sharing of smart meter data for improved load forecasting

Draft Forecasting Strategy

Objectives: Immediate and 2027-2030



Objectives

New forecasts will be shared “to the greatest extent possible without compromising market integrity or system security”

Immediate

- Deploy and enhance operational wind and solar power forecasts on the Platform for Energy Forecasting
- Develop new National Demand and GSP demand forecasting tools on the Platform for Energy Forecasting, including improved MVAr forecasts
- Complete a trial of at least one third-party forecast vendor to complement and benchmark in-house capability
- Successfully deliver ongoing innovation projects and implement outputs where sufficient value is demonstrated
- Develop a user interface to the Platform for Energy Forecasting (PEF) for operational forecasting

Objectives

2027-2030

Construct cloud-based infrastructure(s) to enable use of richer datasets and advanced modelling capability across timescales from intraday to year-ahead.

Harmonise forecasting processes across horizons from short-term to 52 weeks ahead to improve coherence between lead-times and down-stream processes.

Develop generation and demand forecasting capability that incorporates price-sensitive and flexible components.

Identify and address emergent end-user needs, and support integration of end-user developed applications.

Develop and deploy a suite of secondary forecasts, including margin and constraint forecasts, meeting end-user needs.

Update within-day forecasts as frequently as possible informed by real-time observations at the latest weather and market data.

Develop partnerships with multiple commercial energy forecast and weather forecast suppliers, and innovative partners.

Update industry codes and regulation to reflect modern forecasting requirements and practices.

Support planning and operability functions with estimation and analysis of future system predictability.

Interactive session

Key points to consider

Is there anything missing from these objectives?

Should any *Immediate* objectives be moved to *2027-2030*?

Should any *2027-2030* objectives be moved to *Immediate*?

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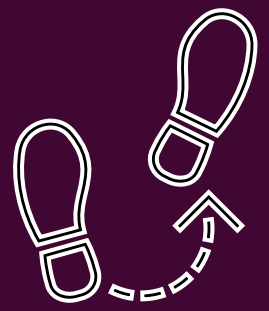

Next Steps

Jethro Browell, Senior Analyst

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Next Steps . . .

NESO to publish Forecasting Strategy

We'll notify this group!

Stakeholders, please respond to public consultation (two-to-three-week window)

Final version published shortly after consultation closes

Delivery Plan to be published by February 2026

Q&A

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Closing Remarks

John Walsh, Forecasting Manager

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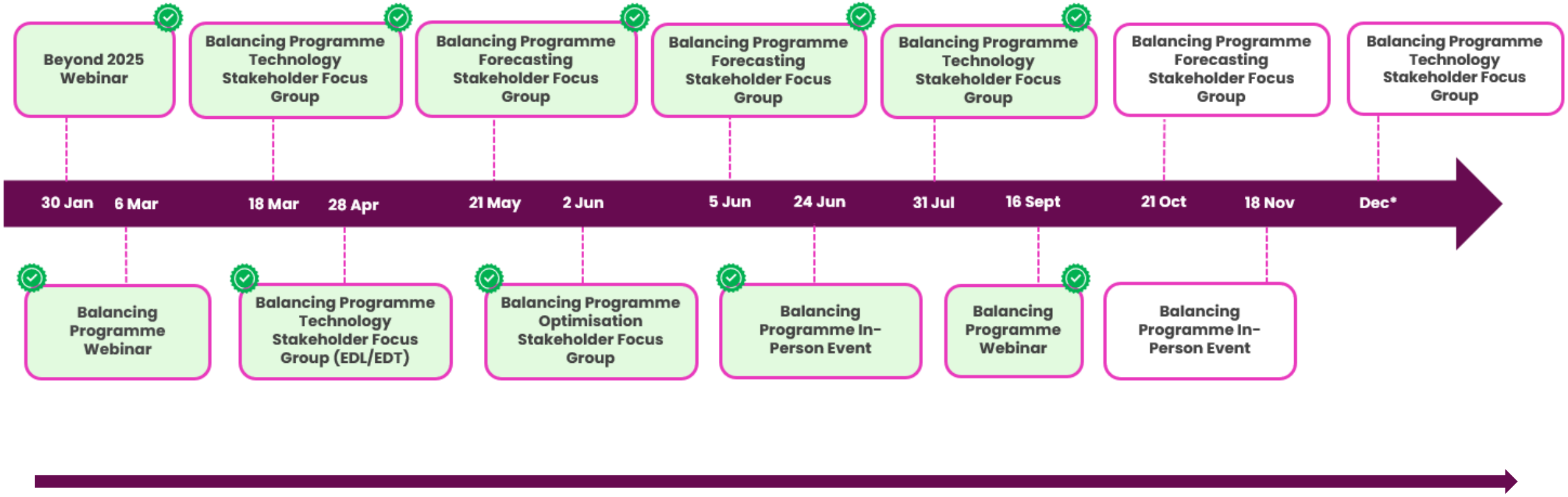
2025 External Engagement Timeline



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.

Balancing Programme November 2025 Event

Date: 18.11.2025

Time: 9:00 – 17:00

Location: Clermont Hotel, Charing Cross, London.

Join our in-person Balancing Programme event where you will hear the latest on our Balancing and Forecasting capabilities planned for delivery into the Control Room. The day will feature a demo of the latest Open Balancing Platform functionality, alongside sessions on dispatch transparency, innovation in the balancing and forecasting space, market services, and back by popular demand, a 'day in the life of control room engineer'. Further information on our balancing & forecasting capabilities planned for delivery into the Control Room in FY 26/27 & 27/28 will also be shared.

A more detailed agenda will be shared closer to the webinar.

If you missed our September webinar, you can catch up **here** and download the slide content **here.**

To sign up to the event, click **here** or scan the QR code; this event typically fills up quickly, so please do register early to secure your place.

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Closing Remarks . . .

We welcome your feedback & questions – please get in contact with us at **box.balancingprogramme@neso.energy**

The recording & slides from today's session will be published on our website and shared with stakeholders signed up to this Forecasting Focus Group.

Sign-up to our other Stakeholder Focus Groups for Optimisation & Technology to receive invites to these sessions - **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.

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

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