General use

NESO Technology Advisory Council

TAC-21 5th December 2025

Meeting pack

NESO
National Energy System Operator

TAC-21 agenda – 5th December 2025

Item	Start	Finish	Time	Item	Presenter	Notes
1	9:00	09:05	5	**Welcome & Apologies**	Eric Brown	
2	09:05	09:10	5	**Minutes of last meeting and matters arising**	Eric Brown	
3	09:10	09:20	10	**Feedback from the last meeting**	Cameron Shade	
4	9:20	10:05	45	**ENCC/DSO communication**	Joe Coles	
5	10:05	10:50	45	**SSEP / RESP data approach**	Daniel Delgado	
	10:50	11:05	15	**BREAK**		
6	11:05	11:50	45	**Sector Digitalisation**	Sasha Shipulina	
7	11:50	12:00	10	**Open Balancing Platform Update**	Brendan Lyons	
8	12:00	12:10	10	**Subgroups update**	Joe Stepney	
9	12:10	12:20	10	**Next meeting**	Eric Brown	Next meeting: Friday 6th March 2025
10	12:20	12:30	10	**AOB**	Eric Brown	

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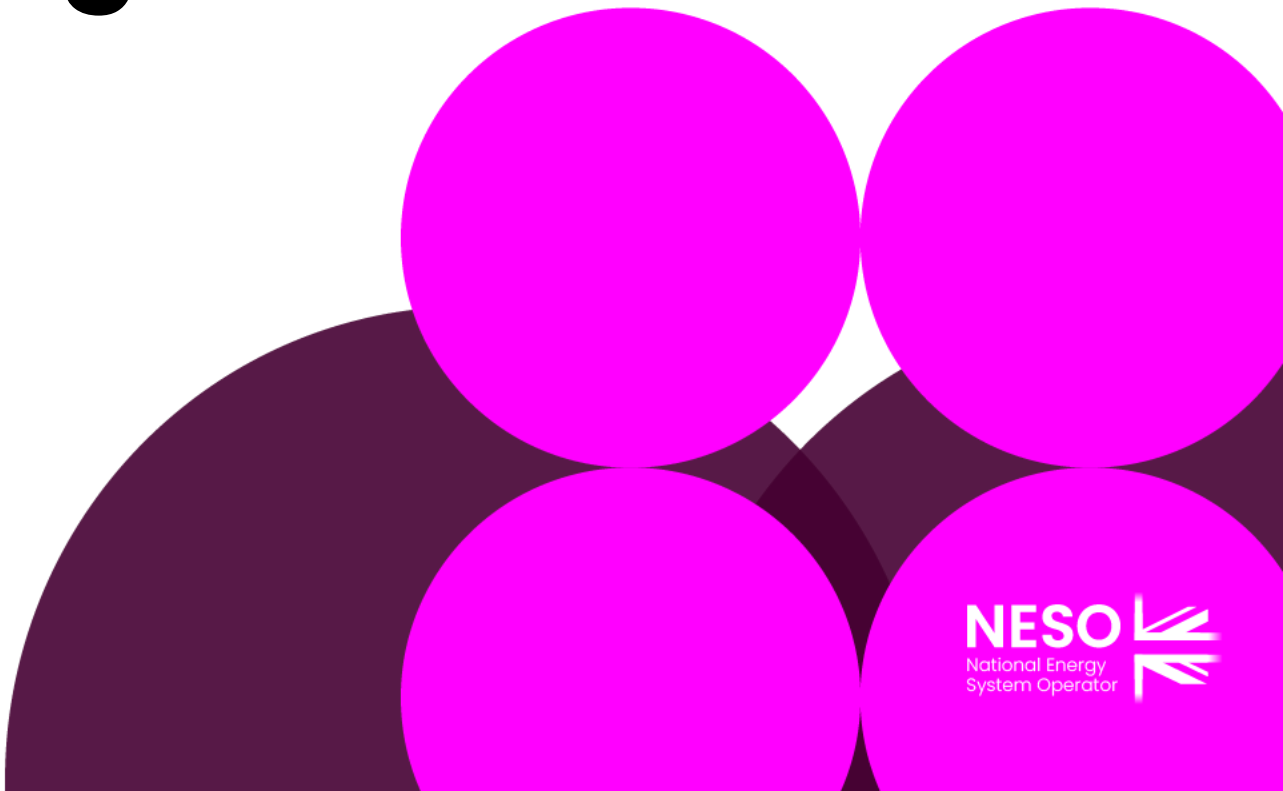
Welcome and apologies

Item 1

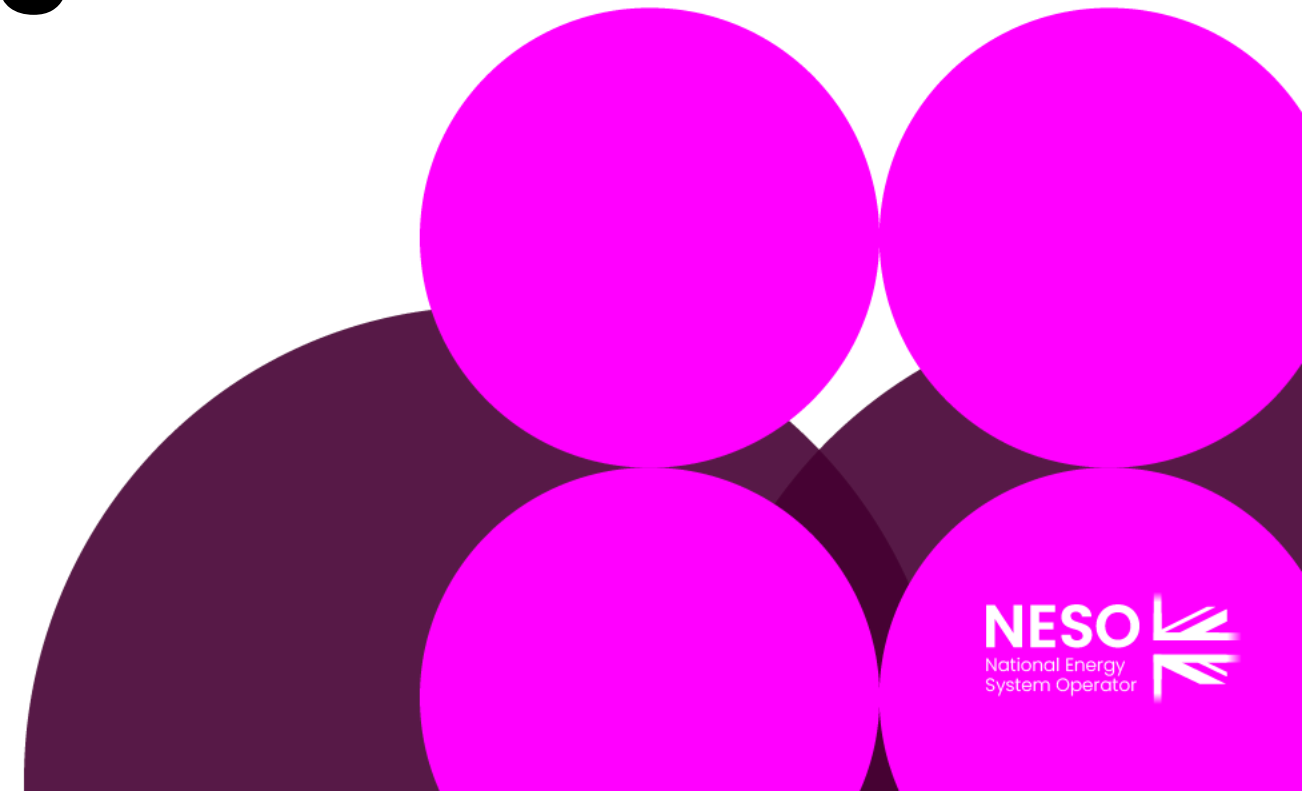
Eric Brown



Minutes of last meeting and matters arising

Item 2

Eric Brown



Minutes of last meeting and matters arising

- Minutes of TAC-21 have been published on the NESO website.
- The material from the meeting has also been published.
- This section will be used to discuss any matters arising.

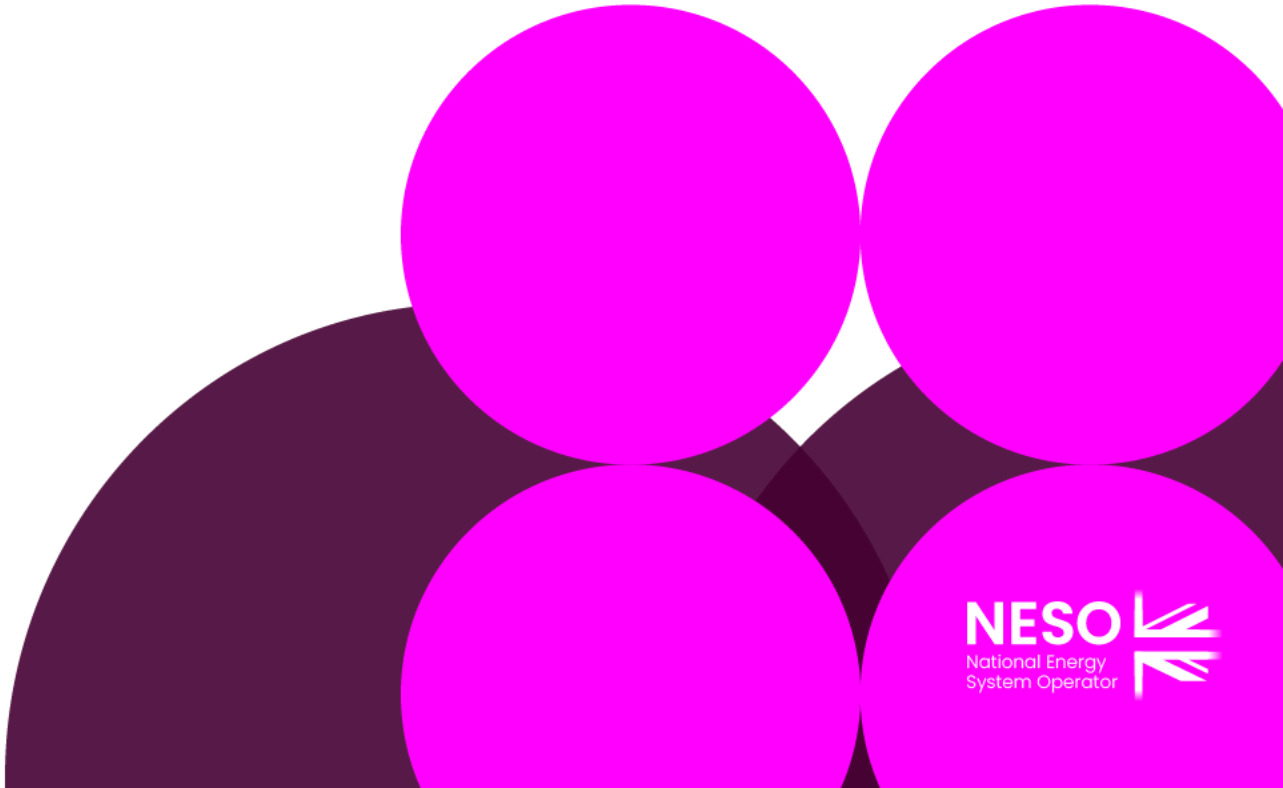
Actions

ID	Action Description	Owner
A06	Work with SP and FD to organise a session with another sector.	Chair
A25	Check if there is anything shareable between NESO and DESNZ head of data regarding the volume of data initiatives and concerns about duplication of effort	SR
A27	Setup a discussion on DNO's lack of visibility on voltage information and acting on 'what if' scenarios	JS
A28	Confirm viability and potential implementation timescales for secure SharePoint based Extranet for TAC usage.	JS
A29	Future TAC agenda item to include a Data Engineering & AI topic, covering culture/tech stack/data quality impact on AI adoption.	SR/EB

Feedback from the last meeting

Item 3

Cameron Shade



Feedback from the last meeting

Roadmap for DSAP	Action Taken Since
• TAC noted the energy sector is inconsistent in digital maturity. • TAC highlighted disparity creates challenges for AI adoption and requires effort to standardise. • TAC expressed the importance of building trust in AI systems.	• Joe is directly talking to industry participants on an individual basis to gain feedback and understand of their views and problems. • AI roadmap is progressing aiming to build trust while addressing key industry issues.

NESO 1 and 2 year BP	Action Taken Since
• TAC discussed the importance of cross-cutting roles and market participants in strategic development. Understanding impact on external stakeholders needs to be understood and implemented coordination across all parts of NESO	• Similar to the DSAP update we continued to work with bodies such as the TAC to consult and improve our business plan which was published recently.

Day 2 change journey	Action Taken Since
• TAC discussed challenges of implementing major system changes alongside business operations. • TAC highlighted the need for aggressive issue resolution and continuous feedback.	• The roadmap is monitored against major programmes with any planned changes handled through formal governance and early user communication. • Implemented dedicated migration support team to support users after post go-live for issue capture, resolution, tracking and hot fixes. Highly successful so far.

Innovation showcase	Action Taken Since
• TAC discussed the need to consider cross-vector integration, the impact of future asset upgrades (carbon capture) and the importance of ensuring investments align with future system needs.	• NESO is working with Ofgem, IUK, and DESNZ to improve co-ordination on innovation including representation on the Innovation Taskforce and Clean Energy Superpower Mission Research and Innovation Board (CEM-RIB)

ENCC/DSO communication

Item 4

Joe Coles

Topics to discuss…

- Current ENCC – DSO comms
- Future plans to develop this across:
    - Data – TIDE programme
    - Tools – OBP
    - Process/ procedure – Primacy
    - And people – Future Control Strategy

ENCC – DSO Comms
Current state of play

- Existing communication between the ENCC & DNOs/ DSOs is currently focussed on traditional outage co-ordination discussions as well as a limited number of market products starting to provide more access to distributed energy resources (DERs).

DER Market solutions used in ENCC

2 primary mechanisms designed & operated specifically for accessing Distributed Energy Resources (DERs) in day-ahead & Control Room timescales:

MW Dispatch is used to access embedded generation to support the management of constraints in the South-West (NGED) & South-East of England (UKPN).

- DER data submitted to NESOs Single Markets Platform (SMP) & fed into balancing tools.
- Relies on data submissions compiled in a *Risk of Conflict* report. This data is consolidated by NESO for integration with OBP to enable efficient bulk dispatch. *However, some disagreement as to how this data is provided, as well as ongoing concerns around negative impact to DNO networks*
- DERs made available based on DNO outages/ other restrictions – *Challenges around incorporating information on ANM schemes & GSP technical limits.*
- Minimal direct comms required when data submissions working as designed. However, due to requirement for cessation instructions, there is a risk of significant additional workload if key systems fail.
- No current plans to roll out beyond these 2 regions.

Local Constraint Market (LCM), auction platform (Piclo) to access flexibility from SSEN, & SPEN embedded generation to help manage the B6 & B4 constraints.

- Volumes have stalled due to embedded wind incentives & concerns from DNOs regarding instructing high demand volumes. This can be helped by sharing data regarding max demand volumes & local outages that can be fed directly into the platform
- LCM capability extended to Jan '27, future TBC alongside future of expanded DFS (bi-directional & locational).

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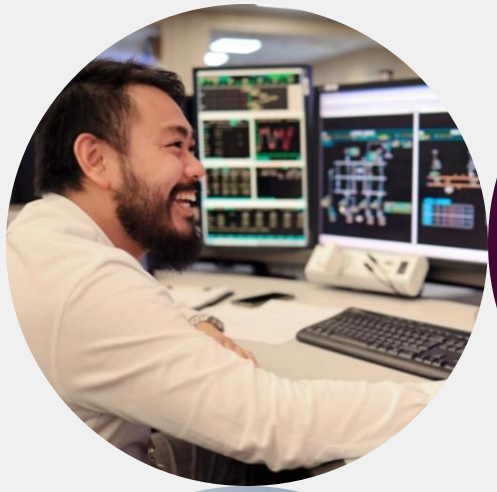
Existing DNO – ENCC comms

ENCC communicates with DNO Control Room's on a regular basis to discuss & co-ordinate outages due to knock on impacts to each others' networks.

Generally good working relationship between relevant established control rooms.

However, sometimes struggle to get engagement overnight due to conflicting priorities re: outages.

This is mainly due to conflicting processes due to volume of outages on Distribution compared to Transmission networks.



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Future developments

Tools – OBP

Process/ Procedure – Primacy

People – Future Control Strategy

Tools – Open Balancing Platform

DER integration has been fundamentally incorporated into development of OBP through a **flexible, connection-agnostic design.**

Whether a unit is a BMU or non-BM they are treated the same. In this way, OBPs design has enabled the successful roll-out of the Single Markets Platform (SMP) making the process of registration more efficient.

Future plans to enable sub-MW aggregated units, following planned trials via new REVEAL sandbox platform.

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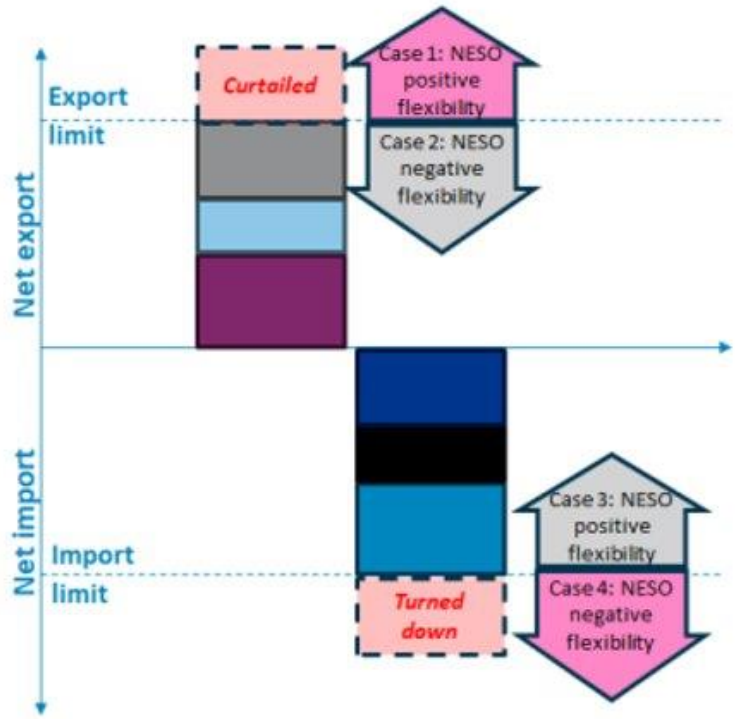
What is primacy?

Primacy rules set out how NESO and DNOs manage conflicting requirements and actions
They provide for which SO's service or requirements takes *primacy* over the other



We have set out our intent to implement primacy rules in the BM and our ancillary services

DSO primacy should apply where NESO action flexes *into* a DNO constraint, i.e. exacerbates it

- If NESO instruction would require DNO to take protective action, NESO should not instruct asset
- (DNO's network takes primacy over NESO action)

NESO primacy should apply where NESO action flexes *away from* a DNO constraint, i.e. alleviates it

- Where NESO instruction creates headroom on a DNO network, DNO is not to unwind preceding actions it had taken to manage constraints.
- (NESO's balancing action takes primacy over DNO's network action)

Implementing primacy

There are a range of options for introducing primacy capabilities, eg:

1. Visibility
2. Exclusion
3. Curtailment
4. Capacity allocation

There are permutations of the above options, such as when rules apply, e.g. we may exclude assets at bidding, clearing, or dispatch stage.

Regulatory and industry context

Per incoming Market Facilitator (MF) arrangements, NESO will be required comply with the MF's flex market rules around NESO-DSO service alignment and coordination.

Elexon, in its MF role, intends to develop rules around DNO-NESO conflict data exchange and DSO primacy in 2026.

NESO primacy is deferred on the basis of complexity in retrofitting ANM systems.

Progress

	MW Dispatch	DFS	Response and Reserve	BM
Visibility	NESO-DSO data exchange in place	Solution design underway for NESO-DSO data exchange. Data Sharing Agreement reviewed by DNOs and is being finalised.		N/A
Rules in effect	Rules embedded to exclude assets from dispatch queue if instructed by DNO	Consultation live on excluding assets from DFS participation reflecting DSO indication of conflicts	N/A	N/A

Done

- MW Dispatch has, since launch, embedded DSO primacy capabilities

Doing

- We are building visibility capability across our ancillary services, and proposing an asset exclusion rule for DFS

Next

- We are aiming to kick off a CBA to investigate the net value of introducing DSO primacy rules into our core ancillary services, and relative value of different means of doing so. We will use this to inform the Market Facilitator's Primacy Rule

Challenges

Risk	Description	*Mitigation*
Limited evidence of scope and scale of conflicts	Without better understanding how often – now, and in the future – NESO flexibility actions comprise DNO network security or are unwound by DNO action, it is difficult to justify investment.	*We have scoped some analysis to cost taking no action and model how it may change under different DNO capacity and curtailment scenarios.*
Elexon and DNO coordination	Delivering primacy requires building capacity across six DNOs of varying relevant capability and navigating novel accountabilities for service design under new Market Facilitator arrangements.	*Take a lead on service design assessment and proposals (rather than react to MF's proposals). Identify where MF's responsibilities can drive DNO capability development and standardisation.*
DNO's variable conflict forecast capability	Excluding participation in NESO services due to poor quality constraint forecasts undermines efficient procurement	*Short term: maintain high threshold for excluding assets based on DNO data.* *Medium term: Support, via Market Facilitator, standards and rules around forecast accuracy*

People overview

The ***Future Control Strategy*** workstream has been assessing the **future people capabilities required in the ENCC** as a result of changes over the next 5 years. This has resulted in a number of recommendations which are currently being progressed (inc. some for which further exploration is required).

A recurring theme is the **growing volume, diversity & complexity of customer relationships** that need to be managed in order to deliver a clean power system by 2030.

In addition to the growing role of DSOs, we also have to consider CATOs, OFTOs, more interconnectors & the role of suppliers providing consumer flex.

In addition to capabilities focussing on data management & market analysis & integration, an **Operational Customer Co-Ordinator** role is being developed to assist with ensuring that regular comms between the ENCC & other operational partners are consistent & joined-up.

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Help us understand our blind spots

Thank you

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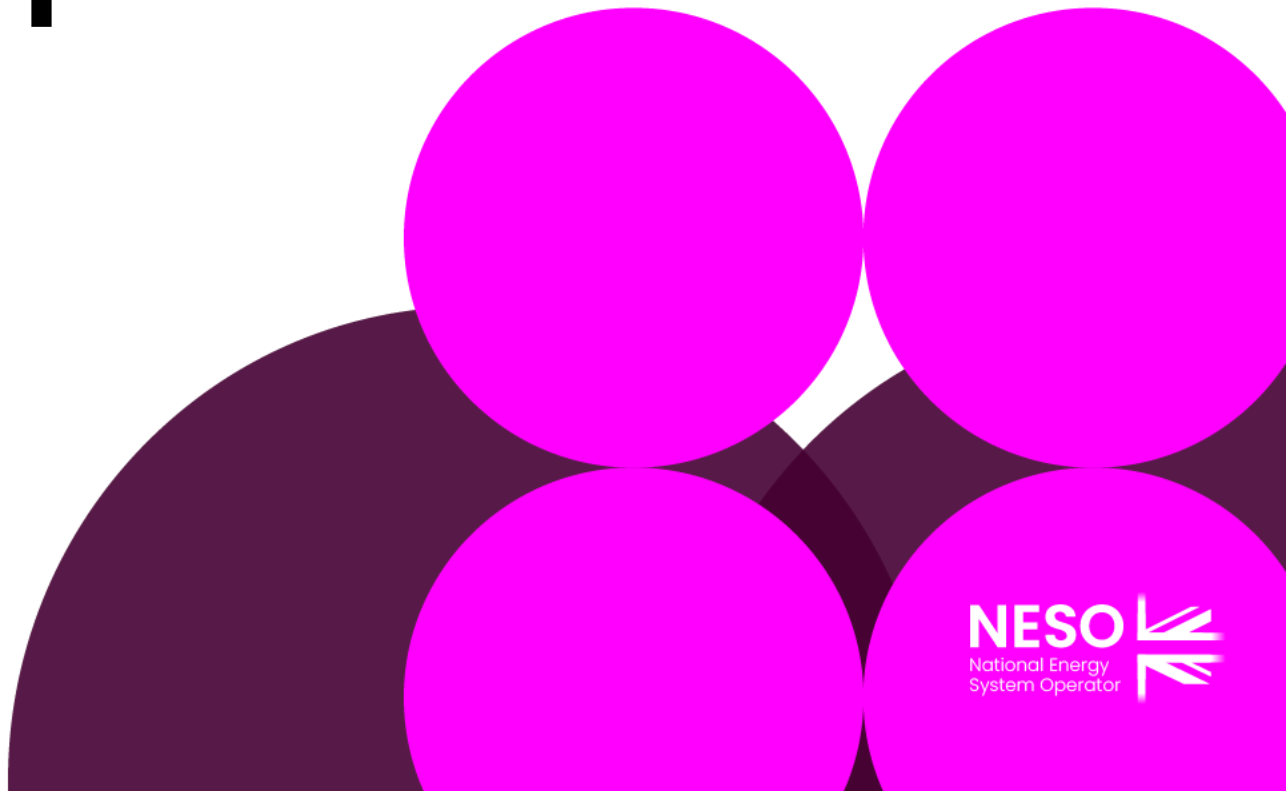
SSEP / RESP data approach

Item 5

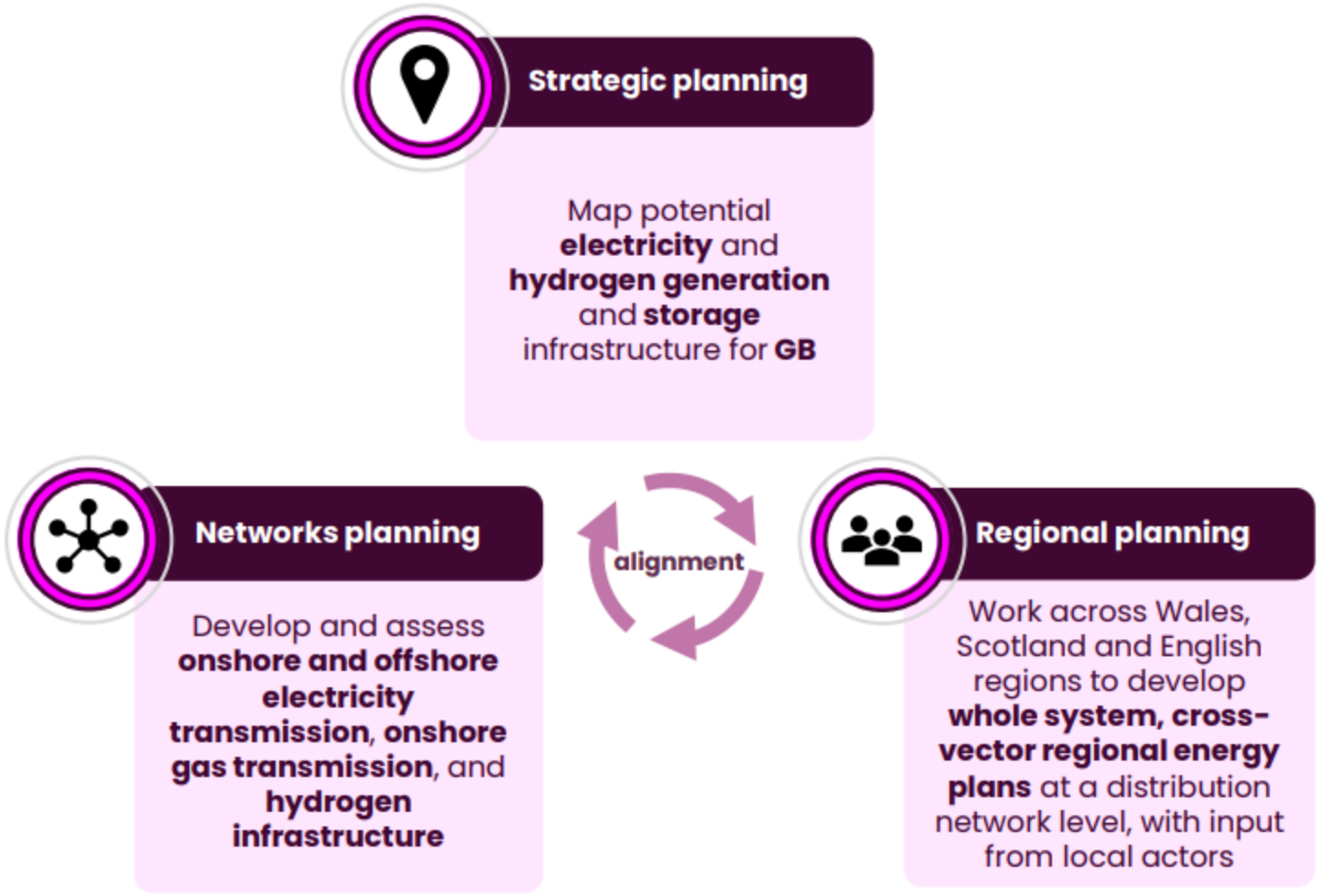
Daniel Delgado

Topics to discuss…

- SEP context & status
- RESP and SSEP data alignment
- How are we handling data in SEP
- RESP/SSEP approach to data scrutiny
- Publishing mechanisms



Strategic energy planning (SEP)



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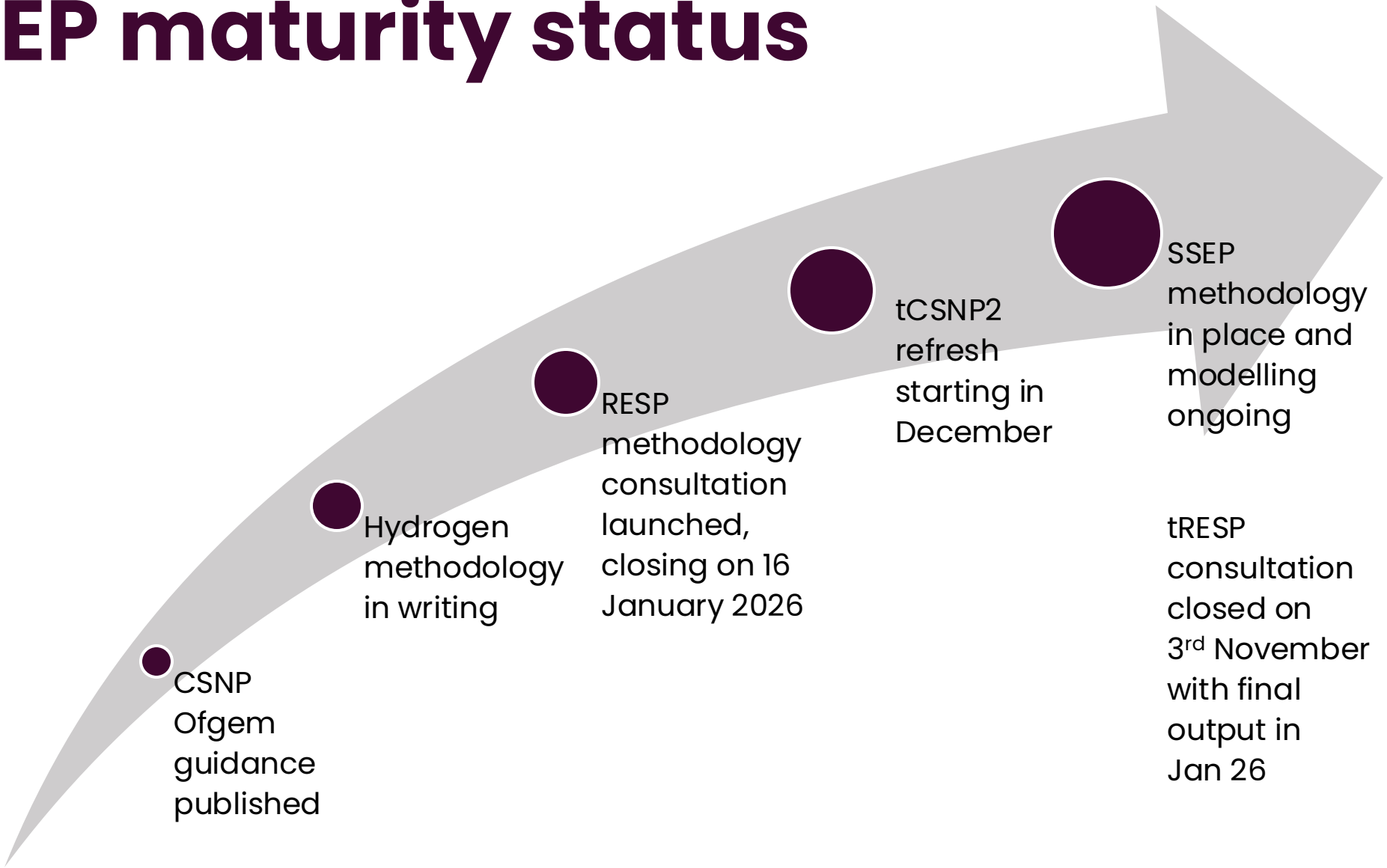
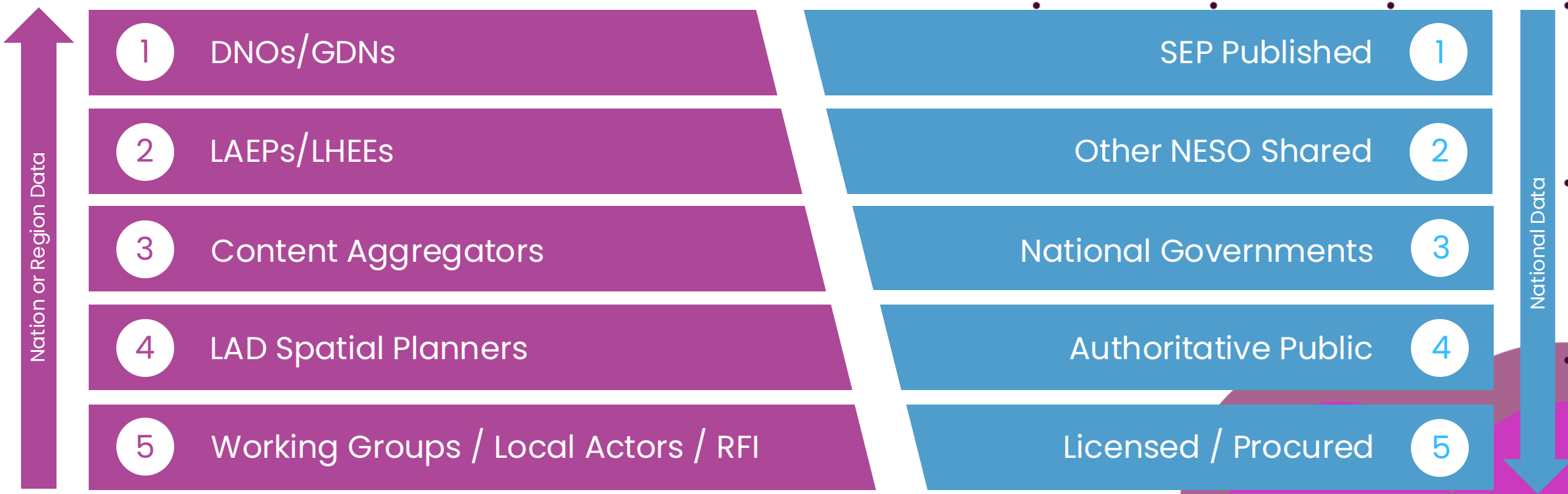
SEP maturity status



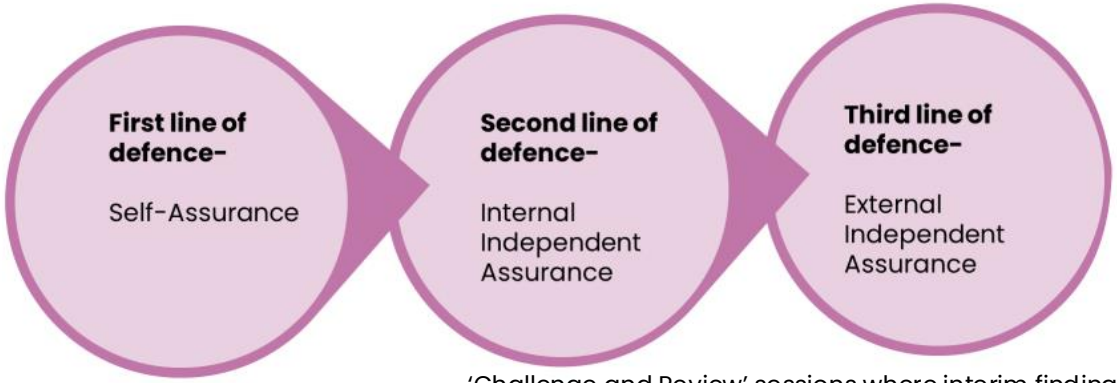
RESP and SSEP data alignment



How are we handling data in SEP

SSEP data straddles between publicly available data and commercially confidential information. Many of its data is provided directly by DESNZ. SSEP Data List.xlsx

As such, its assurance mechanisms got setup in the following way:



External independent provider performs an assurance role on SSEP processes and the resulting analysis.

Maintenance of key documents such as Data and Assumptions Lists, and records of all modelling and testing activity

'Challenge and Review' sessions where interim findings and the methods used are presented to a selected group of peers (with appropriate skills and experience) from across NESO to provide feedback and challenge.

Oversight and review of methods, assumptions and modelling design decisions through the Analytical Working Group (AWG) and Analytical Evidence Advisory Group (AEAG), with representation from the UK, Scottish and Welsh governments and Ofgem.

Integrated technical assurance whereby external independent review is performed, using NESO prepared test criteria, of the end-to-end SSEP pathway development process.

How are we handling data in SEP

RESP data will be built from local actor inputs and data aggregators.

NESO will establish a rigorous, yet pragmatic, framework for assessing data credibility, aligned with Aqua Book principles for Analytical Quality Assurance (AQA).

This will be based on two dimensions:

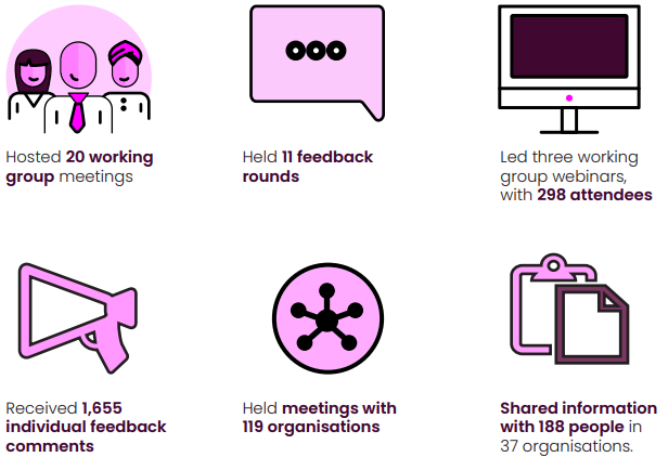
1. **Data quality**: The inherent quality of the data (accuracy, completeness, timeliness, validity, and relevance).

2. **Data criticality**: How materially the data influences modelling or decision-making with these assessment outcomes and decisions relating to them being recorded for transparency.

RESP/SSEP approach to data scrutiny

Spatial evaluation feedback summary

Engagement with SSEP expert working groups and key stakeholders has been ongoing during the development and finalisation of the SEF, beginning in May 2024 and continuing through 2025.



Environment

- GB land and marine environment experts
- Formed in May 2024

Land use planning

- Government and public organisation experts with planning knowledge and land use data
- Formed in May 2024

Marine use planning

- Government and public organisation experts with planning knowledge and marine use data
- Formed in May 2024

Industry

- Energy experts - network operators, trade bodies, suppliers and academics
- Formed in November 2024

Their input:

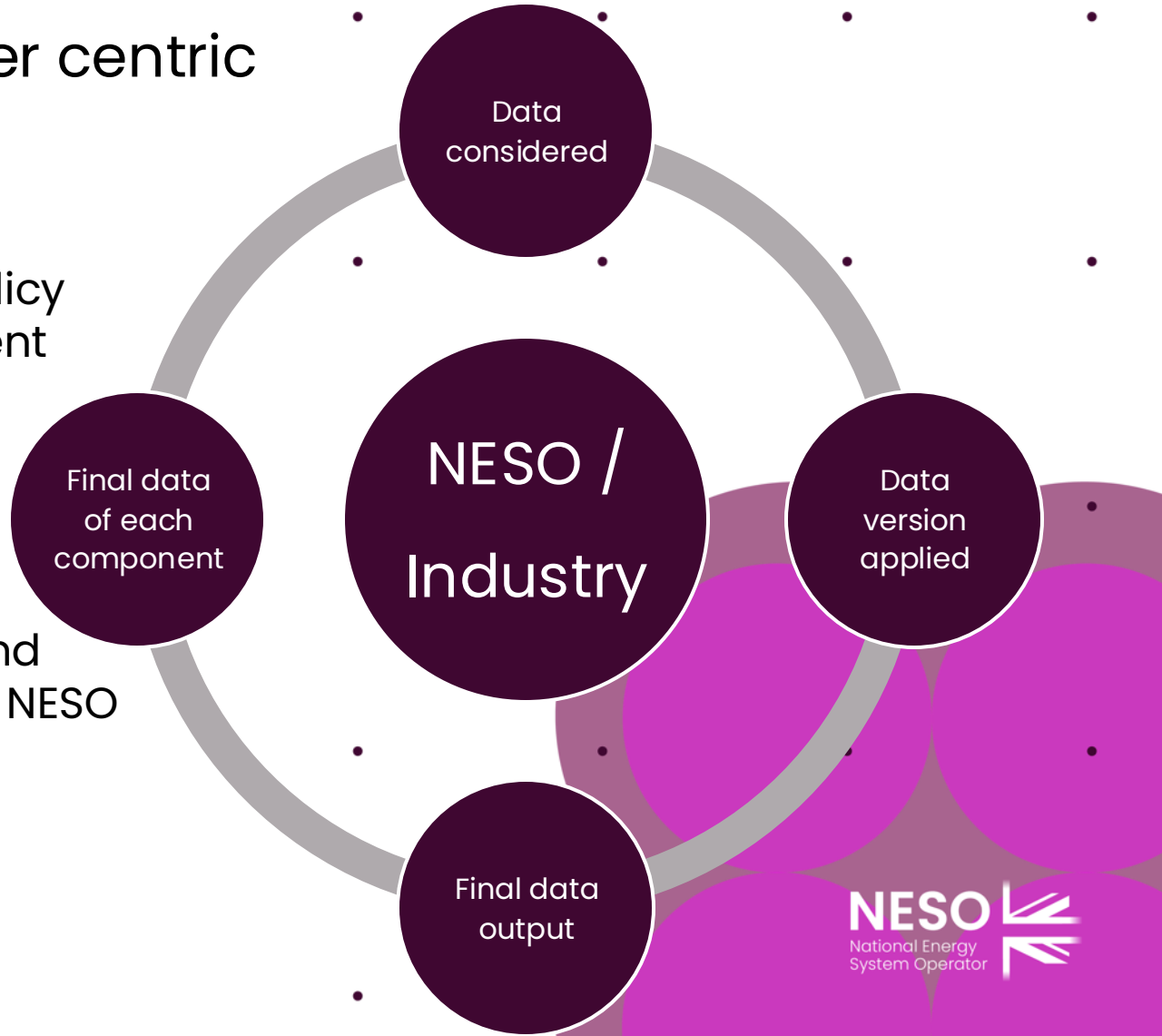
- Influenced how we score the impact of spatial constraints and opportunities
- Helped identify areas that are not possible for future development
- Provided detailed data sets which were used as the foundation for our evaluation

RESP/SSEP approach to data scrutiny

Regulatory guidance and customer centric approach to data selection

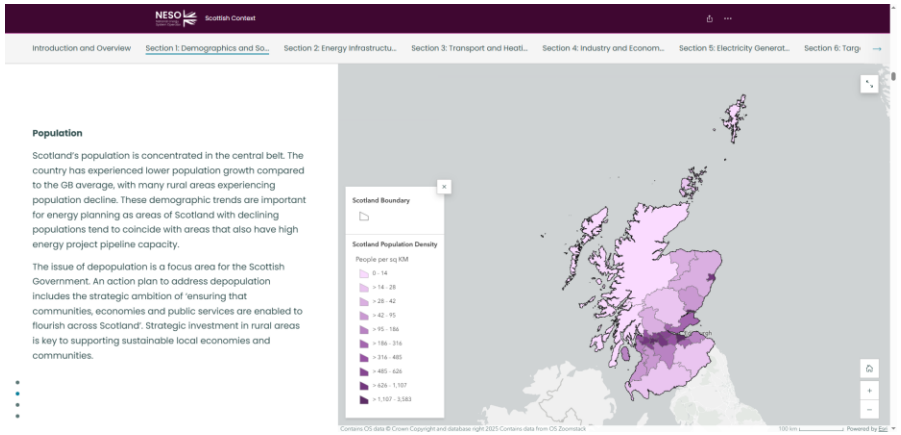
RESP working groups, as set out in Ofgem's Policy Decision, will provide input to RESP development and formally advise the Strategic Boards.

They will review the completeness of inputs and highlight issues or additional information that NESO should consider.



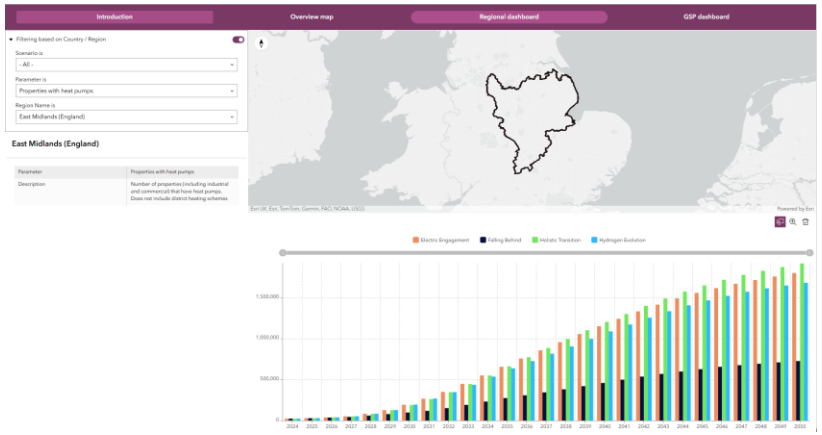
Publishing mechanisms

Interactive narratives



[tRESP consultation storymaps]

Webmaps and PowerBIs



[FES25 webmap]

[FES25 external powerBIs]

[Beyond-2030 webmap]

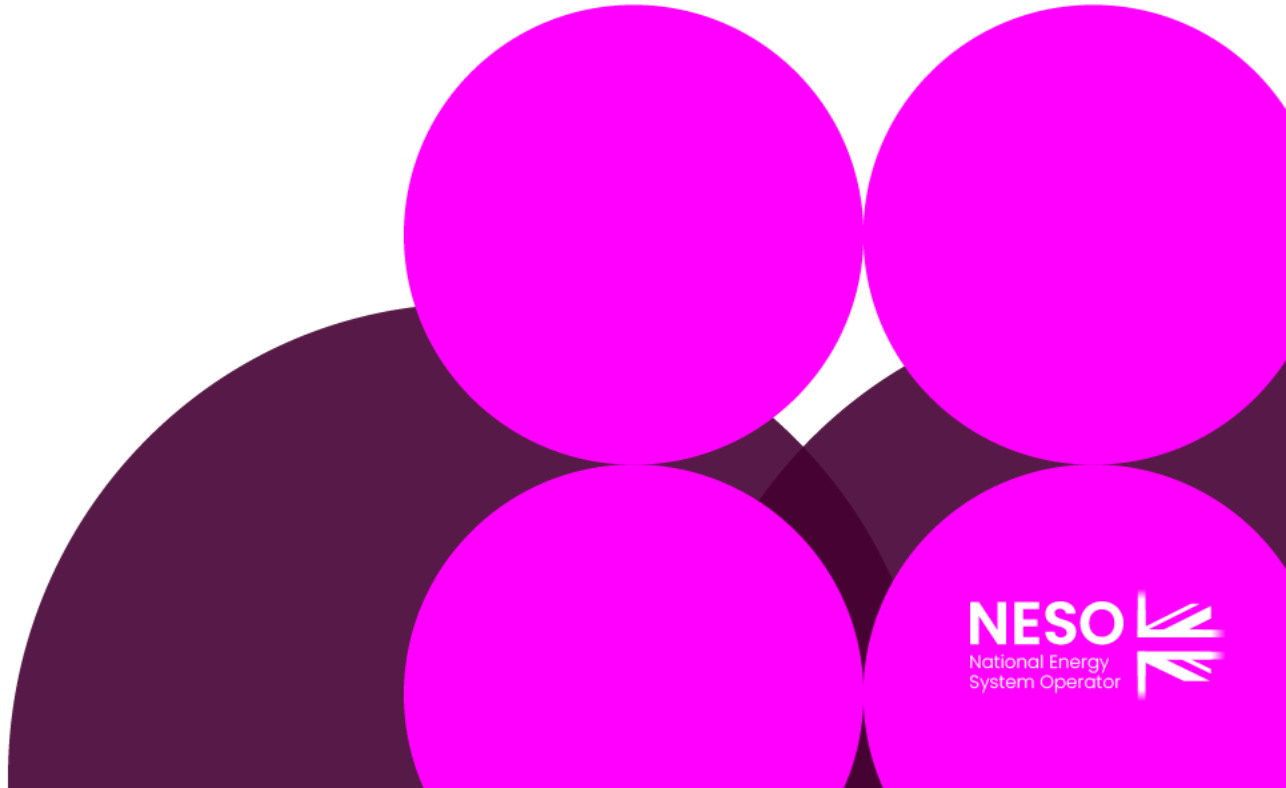
Machine readable files

[NESO data portal]

Data catalogues (in progress)
Data sharing infrastructure (in progress)

Break

11:00 – 11:10



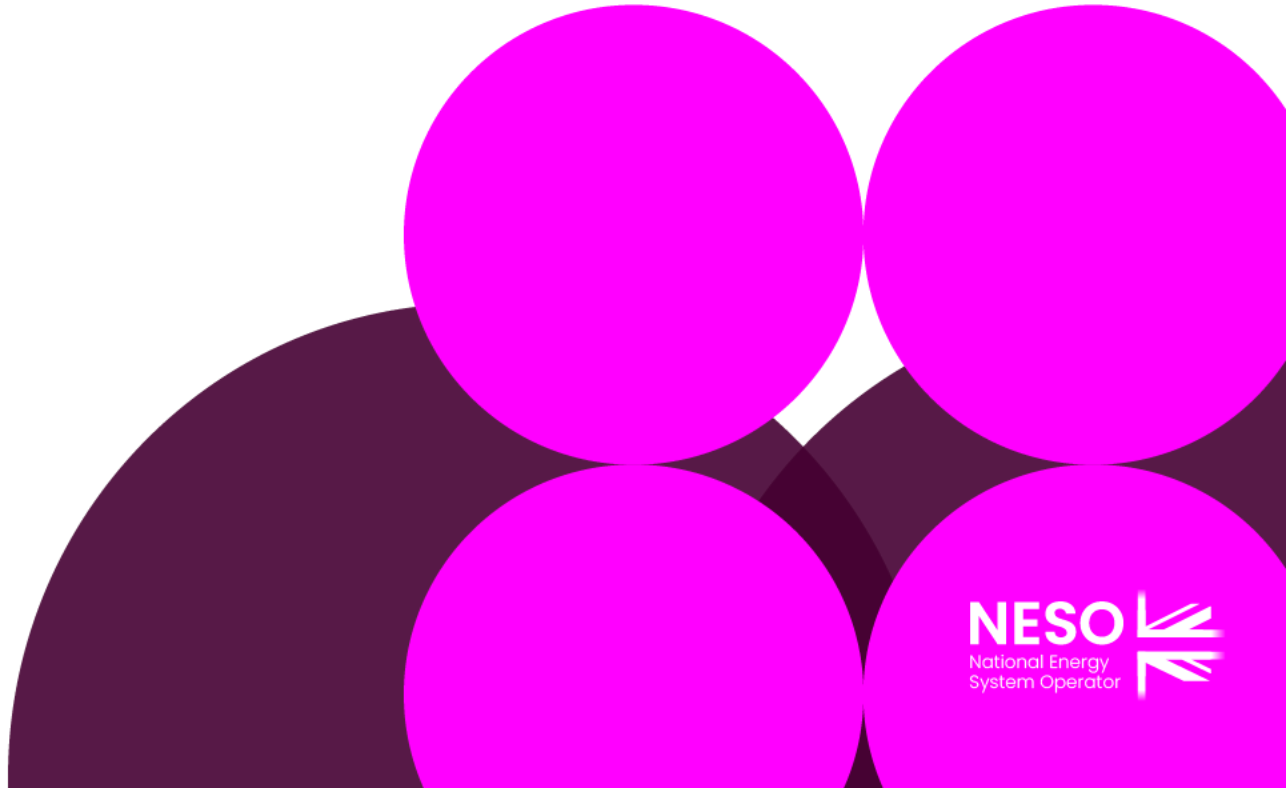
Sector Digitalisation

Item 6

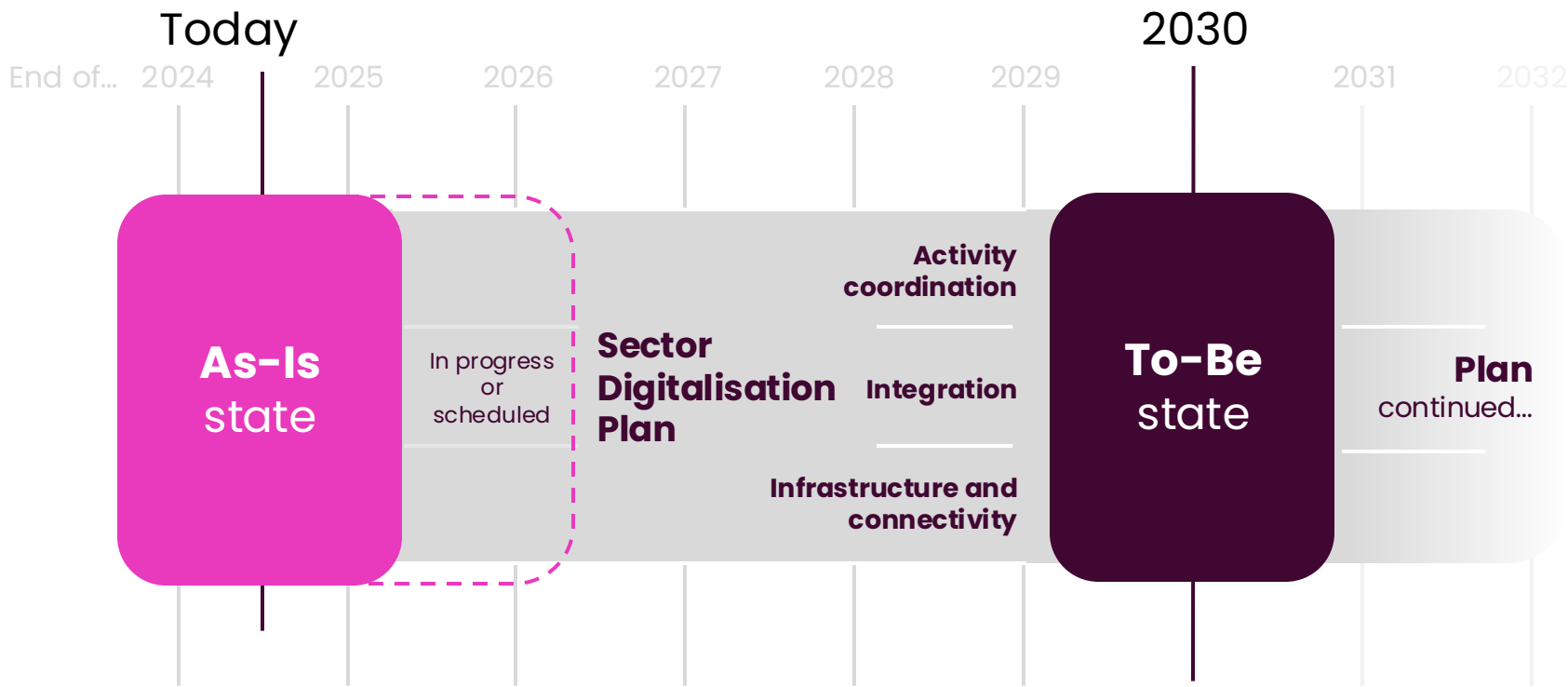
Sasha Shipulina

Topics to discuss:

- Objectives and structure
- Key actions and gaps
- Roadmap and conclusions



Why a sector digitalisation plan?



Summary

The challenge

The journey to a clean, resilient and affordable energy system by 2030 is both ambitious and urgent – and impossible without digitalisation.

Focus areas and outcomes

Consumer simplicity	
Consumer led flexibility	
Grid decarbonisation and security	
Networks, access and connections	
System operability	
Supply chain and workforce	

Outcomes to actions

Clean Power 2030 Outcomes

- **Customer simplicity**
- **Consumer led flexibility**
- **Grid decarbonisation and security**
- **Network expansion and connections**
- **System operability and resilience**
- **Investment and workforce mobilisation**

Ideate, test, and refine the actions, action owners and gaps

UK industry and expert input

Where is Digitalisation needed?

Who needs to do what, and by when?

Overview on one page

Digital require - ments

Actions

Current plan

International power system review

Principles

Gaps

What can we learn from progress elsewhere?

Which activities are relevant?

Plan iterations to turn gaps to actions

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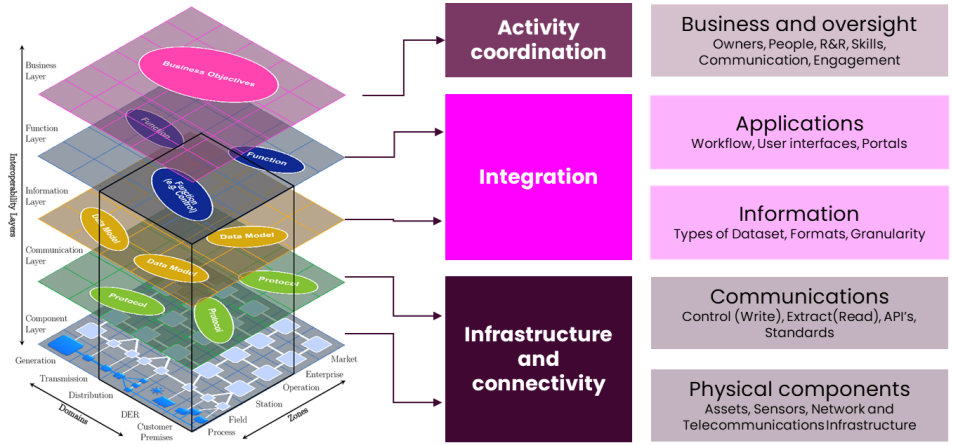
Plan structure



Infrastructure and connectivity

Achieving Clean Power 2030 requires reliable devices, accurate data about those devices, and the ability for that data to be shared effectively with the right people at the right time.

Integration

Information is only valuable if it is accessible. To enable secure and efficient access to data, the GB energy sector needs integration structures that facilitate data sharing, and in turn enable the use of data for clean power.

Activity coordination

Digitalisation enables better visibility and management of the entire energy network, from generation to distribution and consumption.

Gaps

Several gaps have been identified for each of the functional layers

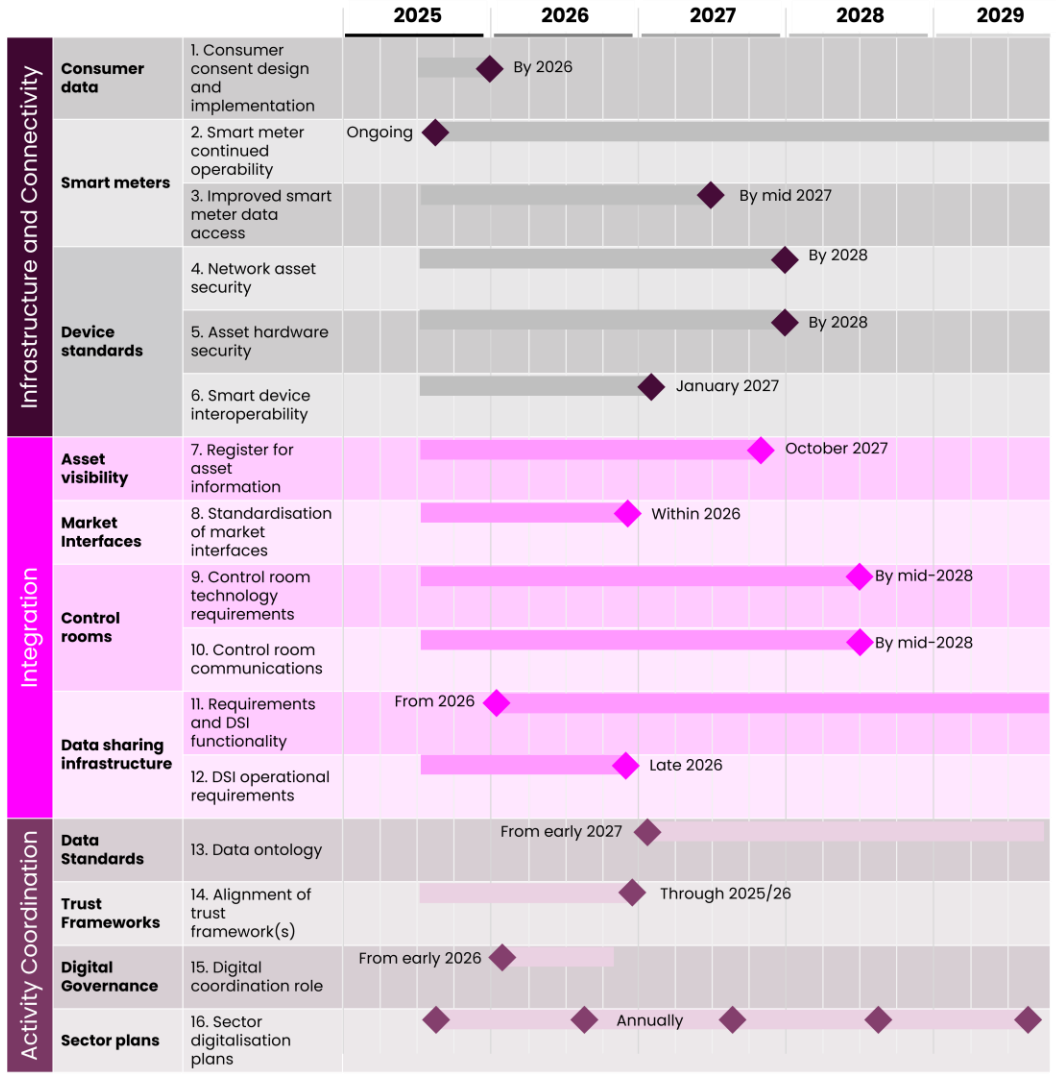
These represent key blockers to digitalisation progress across the sector

Gaps	
• Device firmware updates • Resilient telecoms • Cross sector telecoms strategy • Resilience requirements for critical digital energy assets • Transmission and 'supply side' data requirements • Industrial and Commercial Data Requirements • Smart Functionality for Smart Appliances and HEMS • Planning data standard	• Secondary Suppliers and Split Metering Requirements • Back office and Improving online Cust.Care • Network buildout process and tooling • Policy changes • Consumer Journey • Workforce Mobilisation • Risk register of digital infrastructure • Financing, cost-benefit and the value of data

Actions

Infrastructure and connectivity	Integration	Activity Coordination
Action 1: Consumer consent design and implementation	Action 7: Register for Asset Information	Action 13: Data ontology
Action 2: Continued operability	Action 8: Standardisation of market interfaces	Action 14: Alignment of trust framework(s)
Action 3: Improved smart meter data access	Action 9: Control room technology requirements	Action 15: Sector coordination role
Action 4: Network asset security	Action 10: Control room communications	Action 16: Sector Digitalisation plans
Action 5: Asset hardware security	Action 11: Requirements and DSI functionality	
Action 6: Smart device interoperability	Action 12: DSI operational requirements	

Roadmap


2025
2026
2027
2028
2029
Infrastructure and Connectivity
Consumer data
1. Consumer consent design and implementation
By 2026
Smart meters
2. Smart meter continued operability
Ongoing
3. Improved smart meter data access
By mid 2027
Device standards
4. Network asset security
By 2028
5. Asset hardware security
By 2028
6. Smart device interoperability
January 2027
Integration
Asset visibility
7. Register for asset information
October 2027
Market Interfaces
8. Standardisation of market interfaces
Within 2026
Control rooms
9. Control room technology requirements
By mid-2028
10. Control room communications
By mid-2028
Data sharing infrastructure
11. Requirements and DSI functionality
From 2026
12. DSI operational requirements
Late 2026
Activity Coordination
Data Standards
13. Data ontology
From early 2027
Trust Frameworks
14. Alignment of trust framework(s)
Through 2025/26
Digital Governance
15. Digital coordination role
From early 2026
Sector plans
16. Sector digitalisation plans
Annually

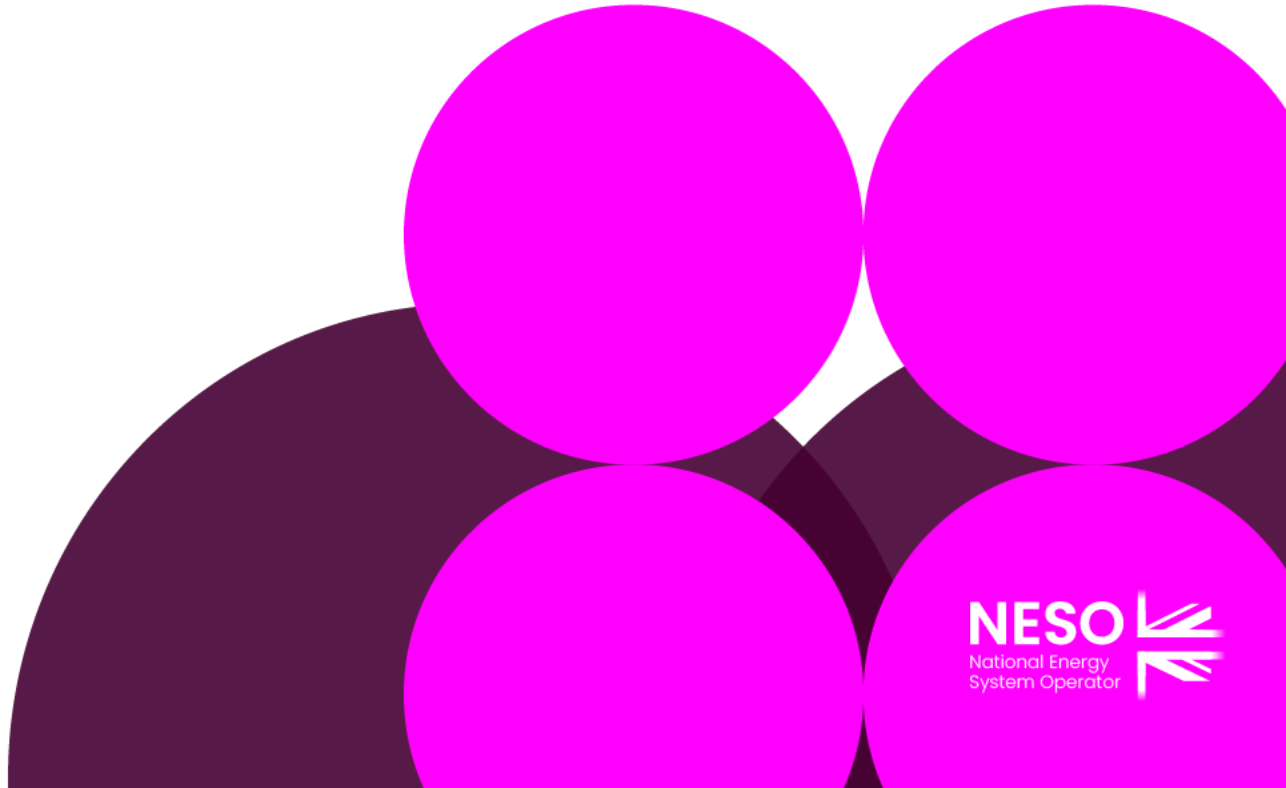
Conclusion

- **Integration and Coordination are critical:** Modernising the energy system depends on seamless data sharing, well-defined digital roles, and alignment across the sector. Coordinated plans and clear accountability will be vital to deliver change at pace.
- **Gaps exist in every focus area:** Each category, from cyber security to consumer engagement and workforce development, faces significant challenges. Closing these gaps through targeted action is essential for a flexible, resilient system.
- **A consumer-first approach to digital infrastructure is needed:** Smooth operation of the smart metering system, strong interoperability standards, clear data sharing obligations, and an easy, secure experience must be at the core of the sector's response, ensuring everyone can benefit
- **Data and cyber security must not be compromised:** Managing an expanding range of digital assets risks introducing new vulnerabilities , requiring enhanced protocols and strong industry collaboration to keep the system resilient.
- **Standardisation and shared data models are key:** A lack of common data and operational standards continues to slow progress. Tackling this will unlock interoperability and strengthen efficiency across the sector

Open Balancing Platform Update

Item 7

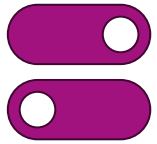
Brendan Lyons



Key Areas of Progress since September 2025

Open Balancing Platform:

- **Ancillary Service Instructions**



Deliverable: Addition of further ancillary service instruction types: Mandatory Frequency Response, Synchronous Compensation, Static Reactive Power, Low Frequency Relay & Fast Start.

Benefit: Improves operational efficiency and resilience by migrating instruction workflows from legacy systems.

What does this mean for you?: Supports security of supply by enabling more reliable service execution.

Open Balancing Platform:

- **Bulk Dispatch from a Price Stack**

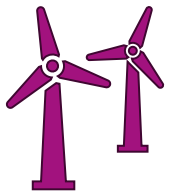
Deliverable: Provides an alternative method to bulk dispatch optimisation - dispatch engineers manually select multiple units from a price stack creating a bulk volume of energy in price merit order; instructions are then created in bulk and dispatched automatically.

Benefit: Better constraint management and lower consumer costs.

What does this mean for you? More efficient dispatch and reduction in skips, including those behind constraints.

Open Balancing Platform:

- **Wind Instructions**



Deliverable: Ability for control engineers to issue individual or bulk instructions to wind BMUs.

Benefit: Improves operational efficiency and resilience by migrating instruction workflows from legacy systems.

What does this mean for you?: Supports more economic dispatch and security of supply by enabling faster and more reliable service execution.

Open Balancing Platform:

- **Pumped Storage Monitoring**

Deliverable: New OBP displays supporting the visualisation of pumped storage states.

Benefit: Enables further pumped storage functionality from legacy systems to be moved to OBP.

What does this mean for you? Supports improved economic dispatch.

OBP Roadmap – Upcoming Delivery FY 25/26

PI 15 (Jan 25 - Apr 25)

OBP Capabilities:
1. Constraint Management
2. Manual BOAs

OBP Enablers:
1. Interface to Ancillary Settlement for NBM
2. Non-BM APIs

PI 16 (Apr 25 - Jul 25)

OBP Capabilities:
1. Non-BM Instruction Types

PI 17 (Jul 25 - Oct 25)

OBP Capabilities:
1. Non-BM Quick Reserve
2. Bulk Dispatch (price stack based)

PI 18 (Oct 25 - Jan26)

OBP Capabilities:
1. National Dispatch Optimisation
2. Pumped Storage BOAs
3. Constraints Pathfinder
4. Stability Pathfinder
5. Move Response (DC/DM/DR)

OBP Enablers:
1. OBP becomes Operationally Critical

PI 19 (Jan 26 - Apr 26)

Capabilities:
1. BM & Non-BM Slow Reserve
2. GC0166**
3. Move MW Dispatch
4. Optimisation within a Constraint

OBP Enablers:
1. EDT/EDL mastered from OBP
2. PEF Integration
3. CLOGS enhancement
4. Ready to decommission ASDP

Retire ASDP, VERGIL

Key:
- New
- Complete
- Moved
- **PI:** Programme Increment

Abbreviations: **DC:** Dynamic Containment **DM:** Dynamic Moderation **DR:** Dynamic Regulation **BOA:** Bid Offer Acceptance **DX**: Dynamic Response **VERGIL:** Versatile Graphical Instruction Logger **EDL:** Electronic Dispatch & Logging **EDT:** Electronic Data Transfer **ASDP:** Ancillary Services Dispatch Platform **CLOGS:** Contingency Logging System, **API**: Application programming interface, **NBM:** Non-BMU, **BMU:** Balancing Mechanism Unit

****Please note** – GC0166 was approved by Ofgem in October 2025 and has been committed to the delivery plan****

Changes to the Balancing Systems Release Plan

National Dispatch Optimisation: The delivery of OBP becoming Operationally Critical has been prioritised and will be released ahead of deploying further functionality. This enables us to accelerate delivery on to a single strategic platform with increased resilience. The National Dispatch Optimiser will be deployed in OBP in December, the first release after the go-live of OBP Strategic.

Pumped Storage BOAs: The delivery of OBP becoming Operationally Critical has been prioritised and will be released ahead of deploying further functionality. This enables us to accelerate delivery on to a single strategic platform with increased resilience. Pumped Storage BOAs will be deployed in OBP in December, the first release after the go-live of OBP Strategic.

GC0166: Grid Code change GC0166 introduces new parameters for storage devices. Following Ofgem approval in Oct 2025 we will implement the change on our strategic platform ahead of the transition of EDT/EDL.

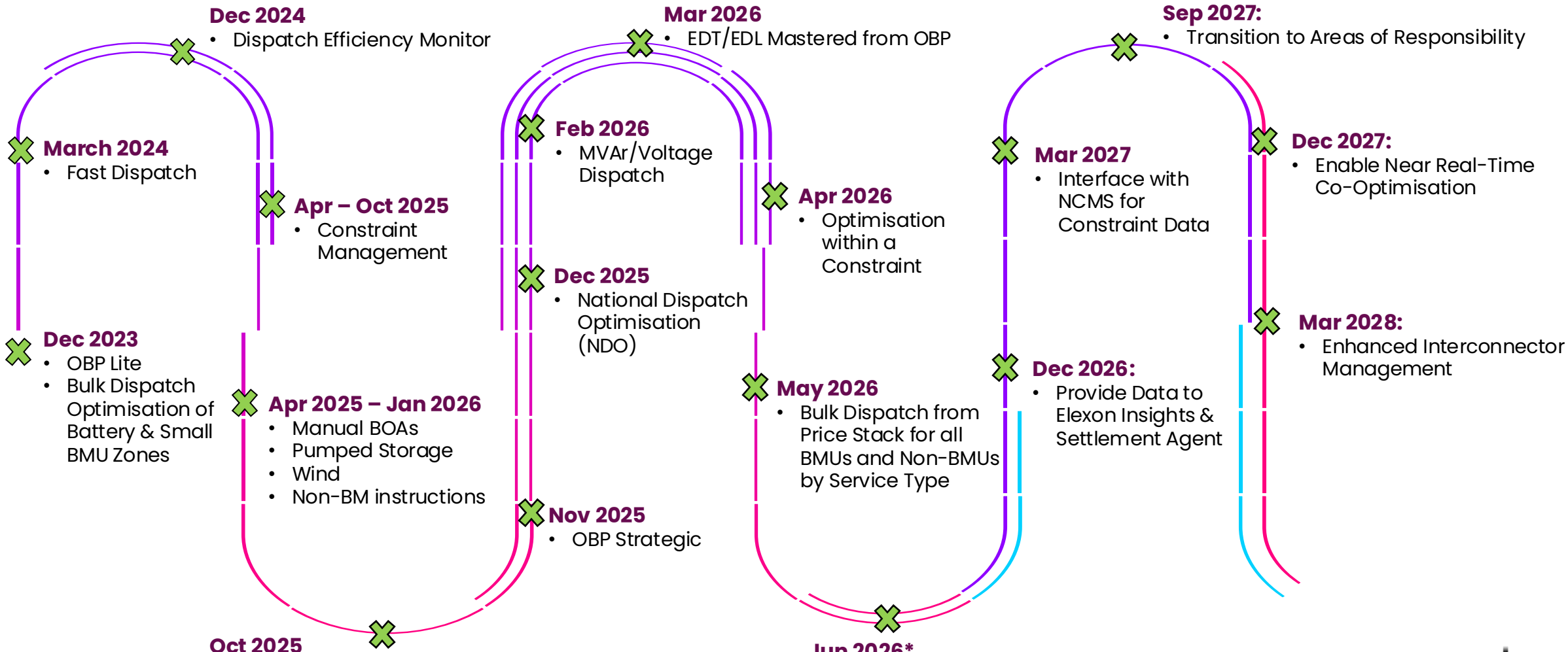
Move MW Dispatch: We have been co-ordinating our work plans with those of the DNOs. To get better alignment we are proposing to move MW Dispatch to the period Jan 2026 to April 2026.

Optimisation within a Constraint: To allow further Proof of Concept testing we will deliver this capability between Jan 2026 and April 2026. We have provided a new capability in October 2025 to allow bulk dispatch (price-stack based) which can be used behind constraints and in several zones.

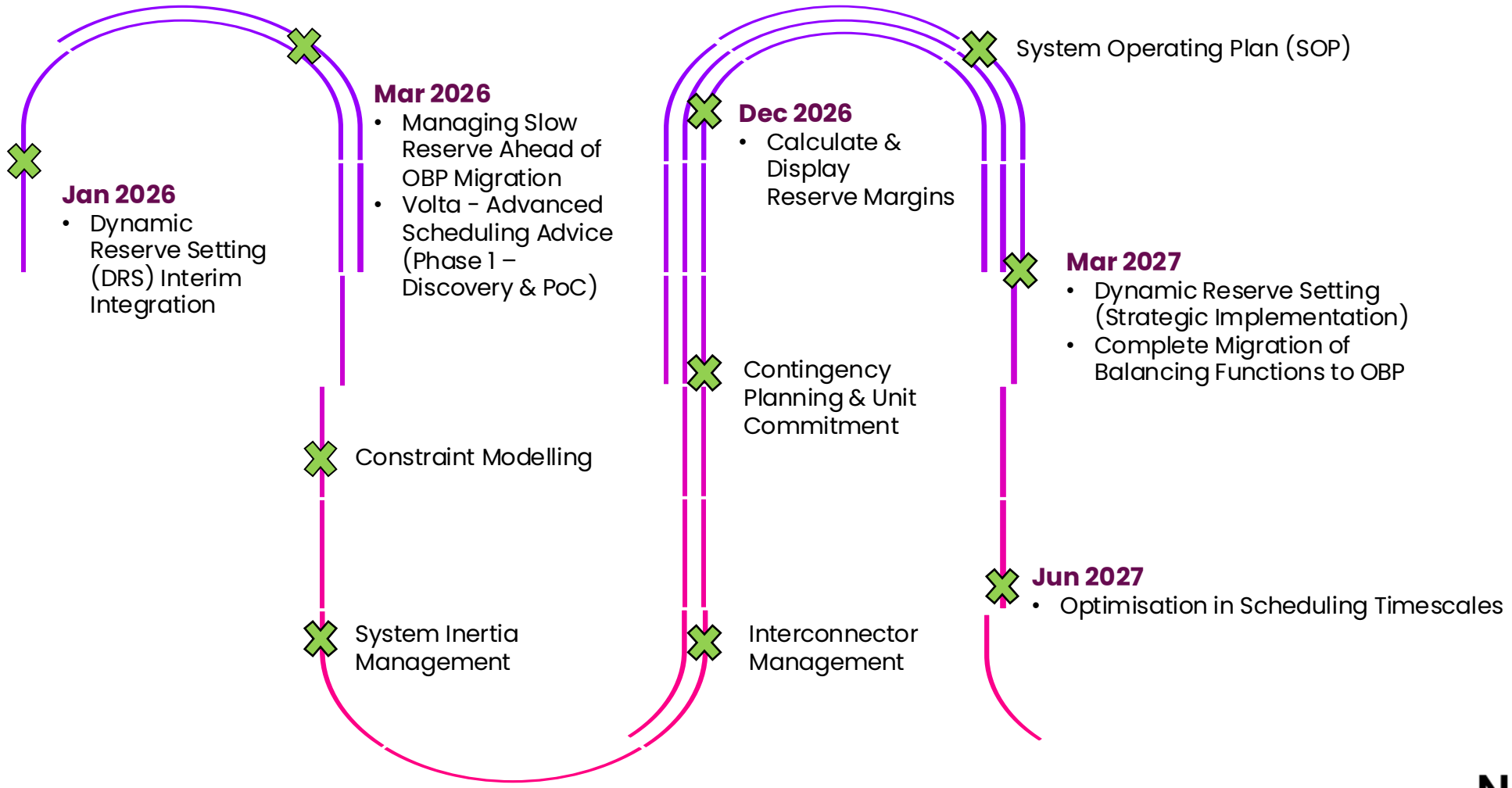
PEF Integration: OBP will integrate with PEF once PEF has completed its migration from the National Grid Azure Tenancy to the new NESO Azure tenancy. This is planned between Jan 2026 and April 2026.

Contingency Logging System (CLOGs) Enhancement: Following feedback from the Control Room we will provide an enhancement to CLOGs to enable it to work with OBP and BM systems simultaneously. This mitigates any operational risk to the unlikely event of an unplanned failure of the OBP system. This will be delivered ahead of the EDL/EDT transition between Jan 2026 and April 2026.

2023 – 2028 Dispatch Capability Journey

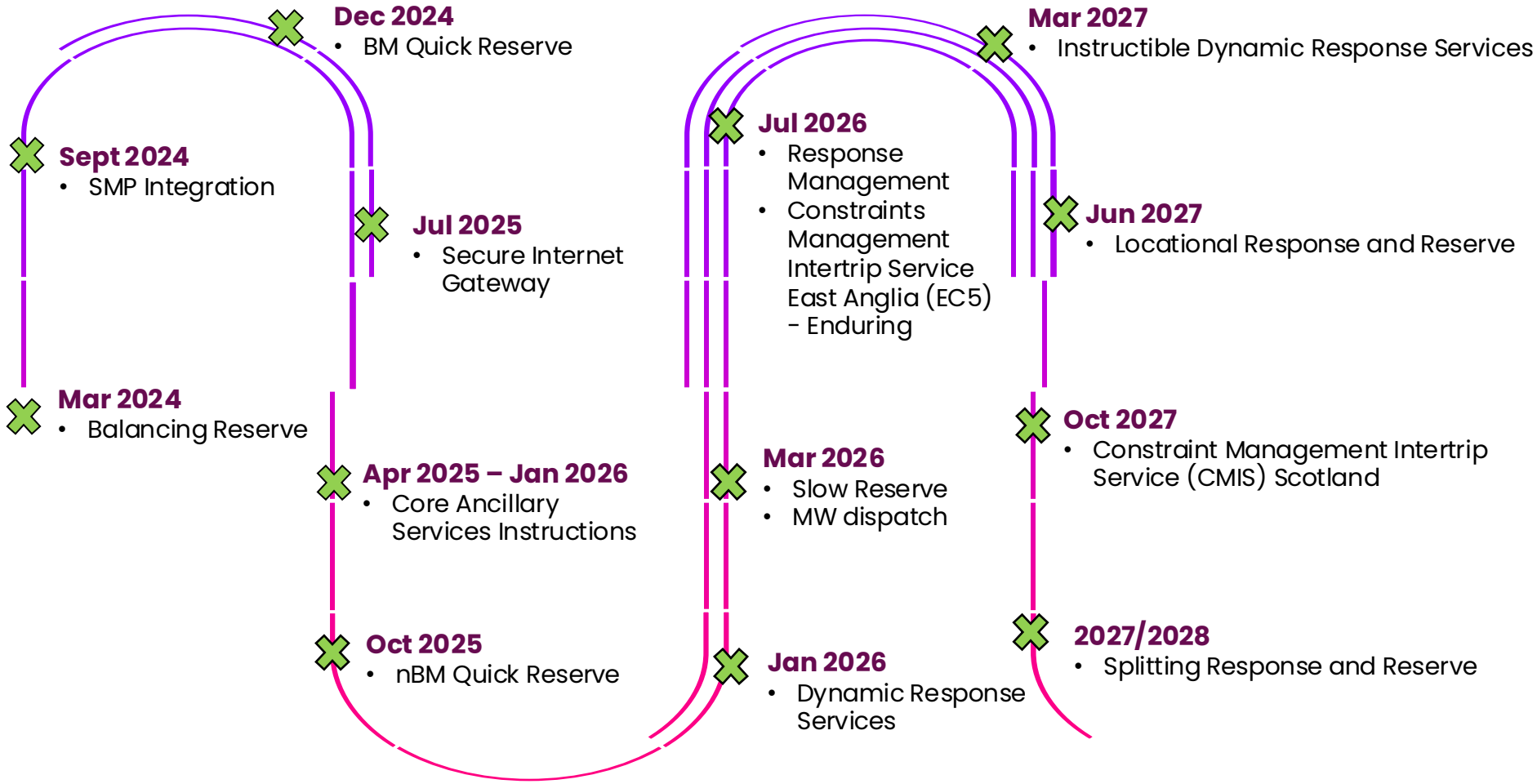


2023 – 2028 Scheduling Capability Journey



NESO
National Energy System Operator

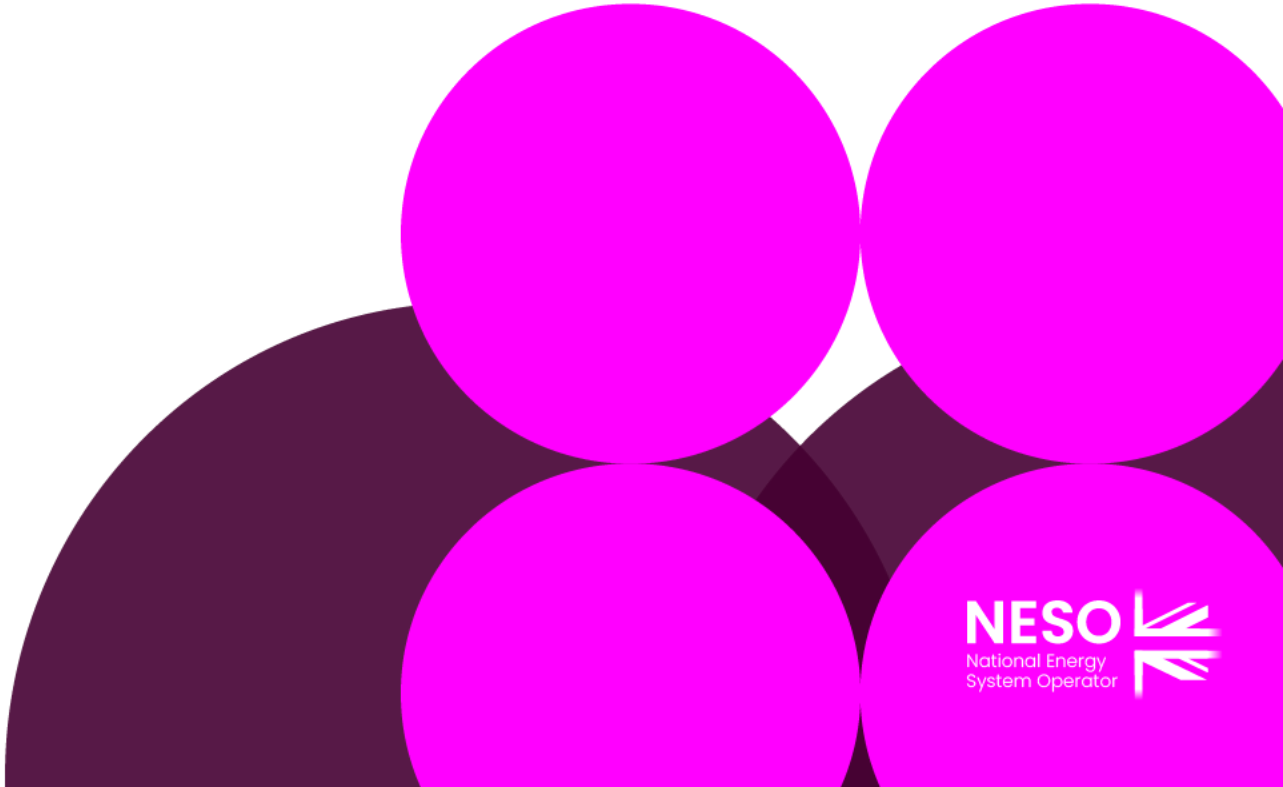
2023 – 2028 Ancillary Services Capability Journey



Subgroups update

Item 8

Joseph Stepney



Subgroups update

Digital and Data Strategy held 10th October

- Data Strategy
- NESO Digitalisation Strategy Action Plan

- Next meeting 9th January 2026.

Control Room of the Future held 23rd May

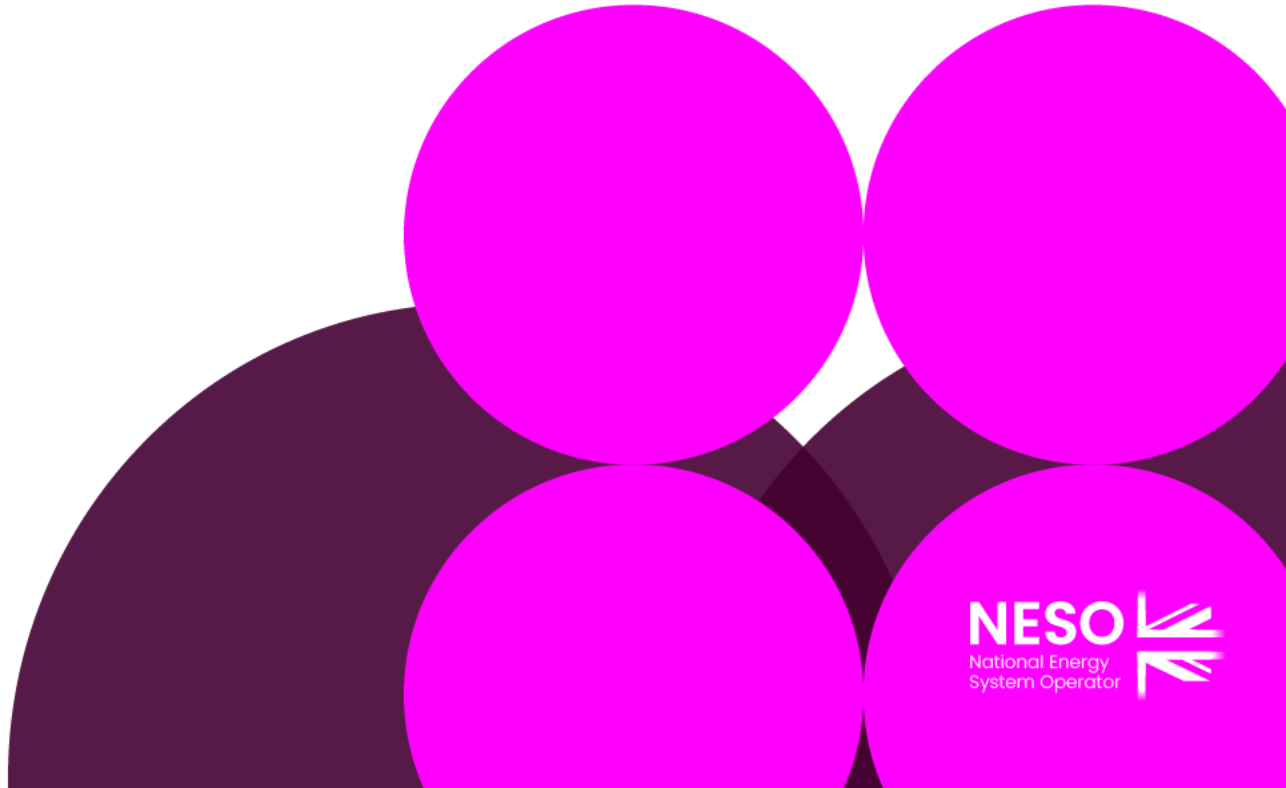
- No meetings since but there will be one

Planned for before the TAC in March

Next meeting

Item 9

Eric Brown



Next meeting

Meetings are every quarter for a half-day on the first Friday morning of the month, 9am-12.30pm.

- 6th March 2026

AOB

Item 11

Eric Brown