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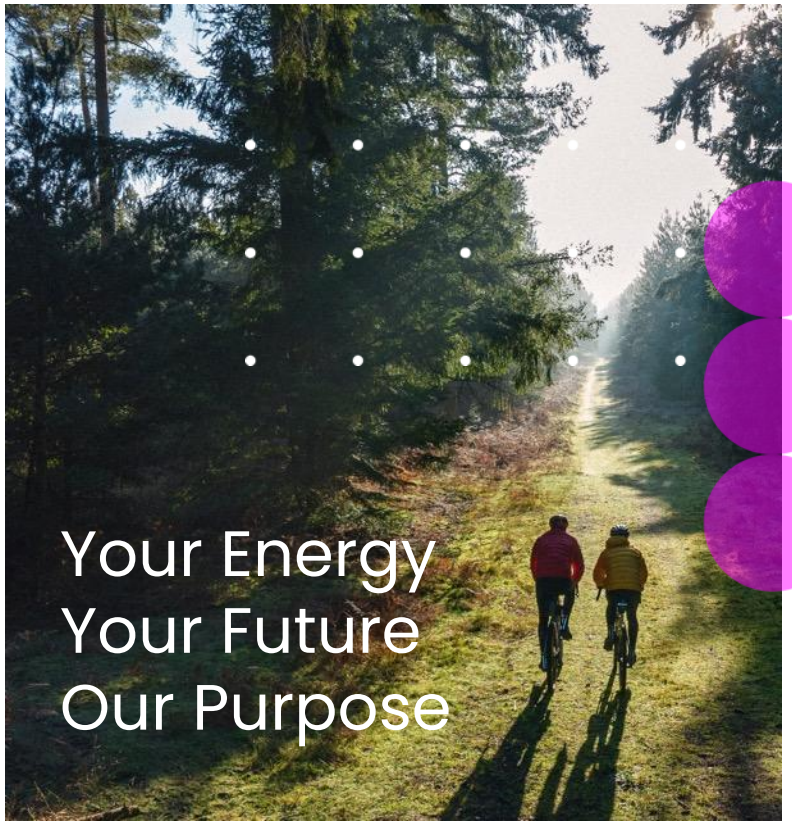
NESO Markets, Balancing and Dispatch: A Summer Update

NESO
National Energy System Operator

Objectives of the Day

- Hear latest NESO updates
- Discuss how Electricity Markets are changing and the evolution of Balancing Systems, and how NESO is ensuring transparency in dispatch
- Meet and engage with each other on latest industry topics
- Ask and answer questions
- Collaborative discussion – get involved!



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Event Topics

Agenda Item	Description
Transforming Markets, Systems & Transparency	• Strategic updates from across NESO • Markets, Systems, and Dispatch Transparency progress update & value delivered to date • Future deliverables out to March 2028 (NESO 1)
A Day in the Life of a Control Room Engineer	Ever wondered what a day in the life of a Control Room Engineer is really like? In this session, you'll gain insight into who does what in the Control Room and how decisions flow from longer-term scheduling through to real-time dispatch. We'll explore the system conditions that drive operational choices such as constraints, margins, and service interactions and, through a real-world scenario, bring to life the complexities of managing the GB system.
The Future of NESO Market Products & Services	A recap on recent changes in NESO balancing services with an opportunity to provide feedback or ask questions in the room. A look ahead at upcoming major changes including the aligned evolution of Dynamic Response and Reserve with Locational Procurement and Stacking as well as the long-term future of both mandatory and commercial Frequency Response services.
What's Next for Flexibility?	A session exploring NESO's vision for demand-side flexibility—covering how DSF works today and how key programmes such as EDSF and Routes to Market are coming together to remove barriers, improve market access, and enable flexibility to deliver whole-system value—alongside an overview of the key activities enhancing Control Room capability to maximise these benefits in the coming years. The session will also include an interactive element to gather feedback on routes to market barriers, helping ensure the programme remains aligned and shaped by industry input.
Open Balancing Platform in Action – What's new & what's the impact?	Ever wondered how your units are seen and dispatched in real time - and what's changed with the transition to the Open Balancing Platform (OBP) - our enduring balancing system? This interactive demo session gives a practical view of how units are managed and dispatched in OBP. You'll see new functionality in action, including deliverables to combine BM and Non-BM units into one system, market service-aware price stacking, and use of market services including Slow Reserve, and MW dispatch.
Dispatch Efficiency Beyond Energy	This session will explore how dispatch efficiency varies across different asset types, the key factors that influence it, and how our approach is evolving beyond energy-tagged instructions. We'll provide a practical overview of system constraints — including what they are, how they're managed in the control room, and the impact they have on dispatch outcomes. Building on this, we'll share how we are improving transparency, including new approaches to measuring skips behind thermal constraints. You'll also hear about the work underway to improve consumer benefit for dispatch of units behind thermal constraints, including initial options we are we considering for storage behind a constraint. We'll look ahead to changes in the skip rate methodology, factoring influencers such as GC0166 and Quick & Slow Reserve changes. Your feedback in helping shape our approach will be key.

Transforming Markets, Systems & Transparency

Rebecca Beresford, Director of Markets

Brendan Lyons, Balancing Programme Director

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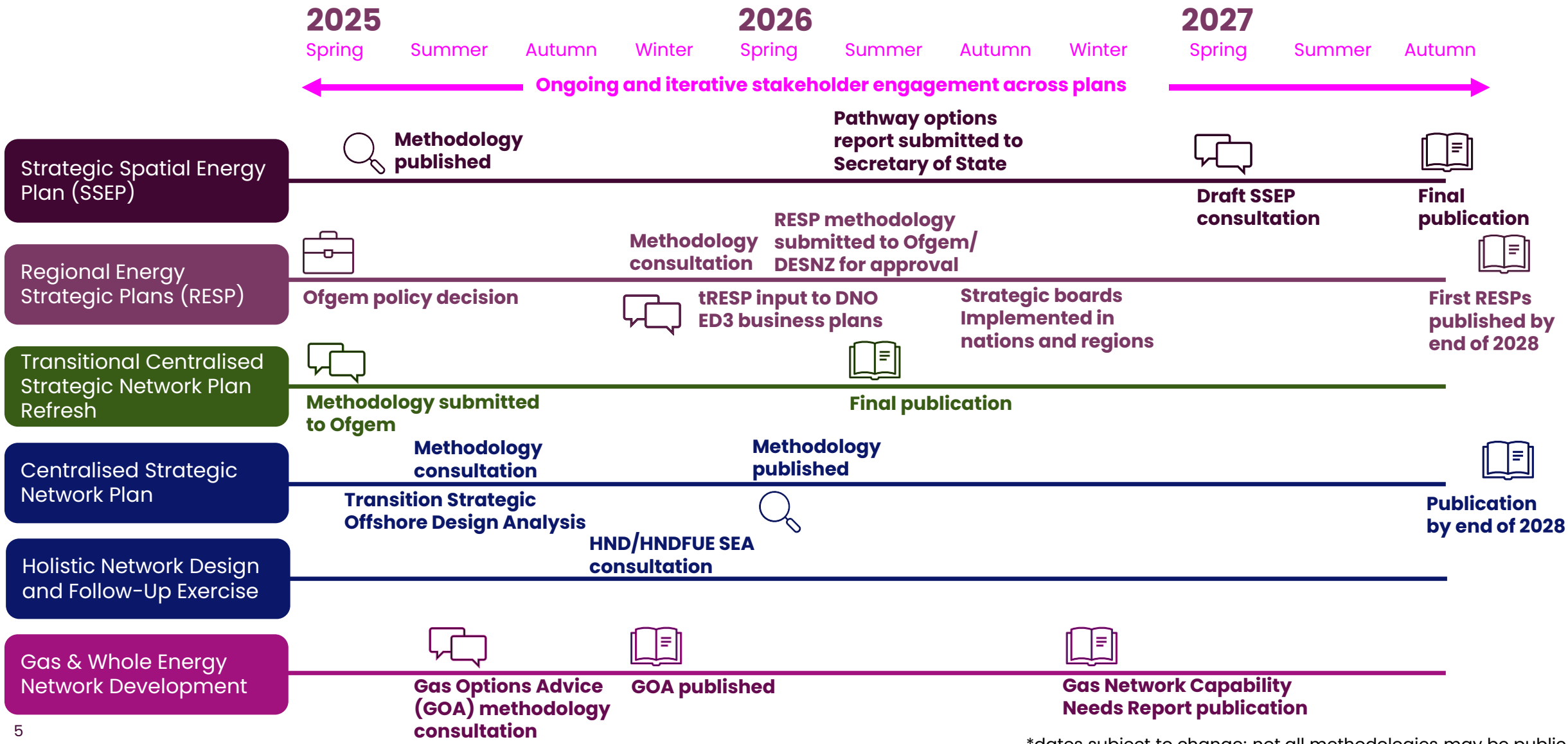
SEP High Level Milestones*



*dates subject to change; not all methodologies may be public

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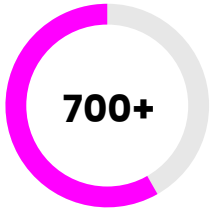
Connections Reform

Offers



Over half of connections offers for projects in <2030 pipeline have been issued by NESO and DNOs

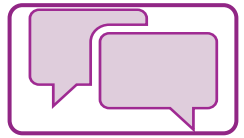
Key dates

- **Gate 2 Phase 1 transmission and large embedded offers**: between mid-May 2026 and mid-September 2026
- **Gate 2 Phase 1 distribution offers**: between early July 2026 and mid-November 2026
- **Gate 2 Phase 2 transmission and large embedded offers:** between early September 2026 and mid-January 2027
- **Gate 2 Phase 2 distribution offers:** between mid-October 2026 and mid-March 2027

NEW one-time mod app scoping exercise open till Friday 10th July
Scan for details

Next application window


Not set date yet, however, the Draft Methodologies have been issued to Ofgem for review


We expect response from Ofgem over the summer


Following the finalising of the Methodologies, new guidance on how to apply will be issued


The next window date will be announced in due course

Read the updated methodologies
Scan for the latest guidance and supporting documents.

RNP Balancing & Settlement Timeline

Industry engagement throughout

Call for Input

- Gather industry feedback and views on the balancing, settlement and dispatch reforms through the Call for Input
- Set up an Industry Expert Panel which will help shape the reforms and their implementation
- Engage with industry to build a shared understanding of the reforms and their impacts

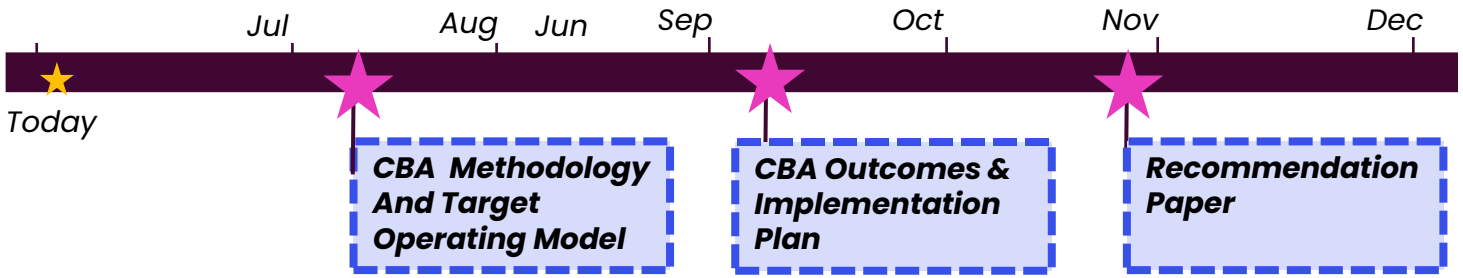
Assessment of reforms

- Review and incorporate Call for Input responses into our assessment
- Work with industry to undertake Cost-Benefit Analysis and an implementation assessment of the balancing reforms
- Determine case for dispatch reform and develop reform options for assessment

Recommendation

- Provide a recommendation to the RNP programme, considering the CBA, implementation assessment, and industry responses

We are here

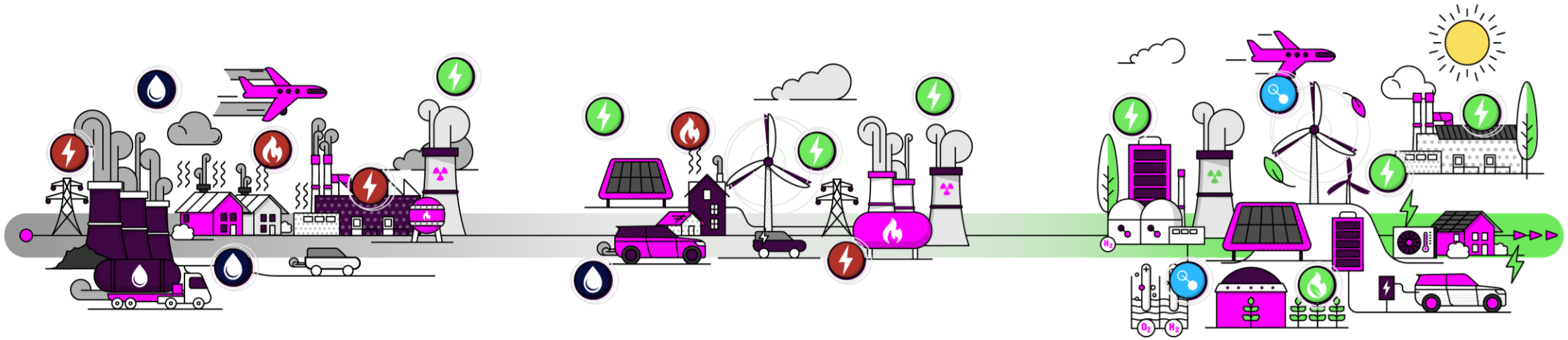


Key activities June - July

- Expert Panel sessions
- Data gathering for the CBA and detailed stakeholder validation
- CfI feedback report
- Balancing, settlement and dispatch Industry webinar (early July)

Focus of Today

Transforming Markets, Systems & Transparency



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Clear Revenue Opportunities through Balancing and Ancillary Market Design

SLOW RESERVE GO-LIVE ON OBP

Slow Reserve launched in April 2026, replacing Short Term Operating Reserve.

What does it do? Designed to restore energy imbalances after faults and bring frequency back within limits within 15 minutes.

Benefits:
The Slow Reserve service design:

- Delivers improved accessibility for smaller, flexible units e.g., ≥1MW.
- Introduces non-zero baseline enabling units to have greater flexibility in their operations with the potential to seek other commercial opportunities.
- Drives improved system security during recovery periods.

Deliver a Secure, Resilient & Operable Energy System

Pave the Way to Sustainable Energy

GRID CODE GC0166 IMPLEMENTATION

Significant progress to implement GC0166 on Control Room balancing systems.

What does it do? GC0166 Introduces new parameters for limited duration assets:

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

These parameters are aimed at informing NESO about available MWh volume for BOA instructions (inside the BM window) & scheduling plans (outside BM window).

Benefits:
New parameters introduced respond to customer feedback by supporting more effective utilisation of limited duration assets in dispatch & scheduling timescales.

Drive Consumer Value

Pave the Way to Sustainable Energy

DEMAND FLEXIBILITY SERVICE

Further enhancements introduced to the Demand Flexibility Service (DFS).

What does it do? DFS enables homes and businesses to participate in the electricity market and be rewarded for shifting demand. Enhancements to the service in April 2026 introduced:

- Bi-directional flexibility
- Zonal procurement
- Lower entry threshold of 0.1MW

Benefits:
DFS service enhancements:

- Deliver improved accessibility for smaller, flexible assets.
- Align procurement to local need to help manage network constraints.

Drive Consumer Value

Pave the Way to Sustainable Energy

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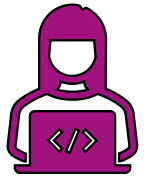
Fair Access through Transparency & Transformation of our Systems & Processes

SYSTEM IMPROVEMENTS

Non-BM services migrated to the Open Balancing Platform (OBP) & Slow Reserve enabled on OBP in April 2026.



What does it do? Brings BM & Non-BM units together onto a single platform; enabled retirement of Ancillary Services Dispatch Platform (ASDP).

Benefits:

BM & Non-BM units on a single platform:

- Supports improved economic dispatch and security of supply through faster, more reliable service execution.
- Creates an integrated, and future-ready balancing system, paving the way for future activity to co-optimise BM & Non-BM units.

Drive Consumer Value

Deliver a Secure, Resilient & Operable Energy System

BULK DISPATCH ENHANCEMENTS

Implementation of service aware price stacks and optimisation enhancements.

What does it do? The Open Balancing Platform (OBP) now supports multi-dispatch from a price stack for all BM & Non-BM units, by service type. Further improvements made to OBP optimisation tools to support effective Control Room use.

Benefits:

Functionality / improvements support:

- Faster, more consistent operational decisions across BM & Non-BM units, through improved usability of tools & better situational awareness.
- Improved security of supply and economic dispatch.

Drive Consumer Value

Deliver a Secure, Resilient & Operable Energy System

INCREASED TRANSPARENCY

Published new data sets & dashboards related to energy skips including daily in-merit & skipped volume; “Cost of Energy Skips” report published.

What does it do? Provides improved visibility of skip rates by asset type, with data and visualisations of trends, alongside volume analysis and details of the costs.

Benefits:

The new data sets & dashboards:

- Drive activity to improve dispatch efficiency across different asset types.
- Provide transparency of Control Room dispatch actions, enabling Industry to analyse skip rate data and understand their position relative to others.

Drive Consumer Value

Lead as a Trusted Expert

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Unlocking Value Through Delivery

Ensure Fair & Open Competition

- BM participation increased by 104% across the RIIO2 period (485 to 987 units)
- 172% increase in Ancillary Service auction participation across RIIO2 (145 to 394 units)
- Routes to Market Review
- BM & non-BM within a single harmonised system & price stack
- 28% improvement in the energy Skip Rate in FY25/26
- Visibility of skip rates across technologies

Enable Clean Power

- Carbon intensity (gCO2/kWh) decreased from 172 (FY21) to 124 (FY26), saving 48 gCO2/kWh.
- New records in 2026
  - 98.8% zero carbon
  - Wind 23880 MW
  - Solar 15158 MW
- 10-fold increase in battery dispatch volume since OBP R1.
- 30-fold increase in dispatch instructions to batteries.

Maintain Security & Resilience

- Higher resilience Technology Stack
- Fit-for-Purpose services:
  - Dynamic Response
  - Balancing Reserve
  - Quick Reserve
  - Slow Reserve
  - Network Services
- Higher accuracy Forecasting & Prediction capabilities
- Enhanced dispatch tools & situational awareness

Drive Consumer Value

- £65m annual estimated carbon savings
- £95m annual saving through implementation of new Market Services
- £57m annual saving in Network Services
- £100m - £200m of annual savings through improvements in forecasting
- £36m annual saving - more efficient dispatch and improved situational awareness

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Journey to 2028: NESO 1 Key Deliverables

Jun - Nov 2026

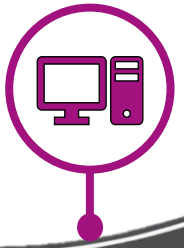
Grid Code Change
GC0166 Implementation

What: Introduces new parameters for limited duration assets.

Benefit: Expected to improve the use of flexible assets in the Balancing Mechanism.

Jul 2026

Open Balancing Platform
Optimisation within a Constraint



What: Introduces an optimiser to manage systems constraints.

Benefit: Automation of Control Room processes to reduce skips behind a constraint.

Jul - Sep 2026

Skip Rate Data Publication
Skips behind a thermal constraint

What: Skip rate for thermal constraint figures published aligned with agreed methodology.

Benefit: Transparency in dispatch actions behind thermal constraints.

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Journey to 2028: NESO 1 Key Deliverables

Sep 2026

Market Services
Demand for Constraints: Demand-side flexibility service

What: Long-term contracts for flexible, demand turn up capacity in constrained locations.

Benefit: Provides investment certainty through availability payments.

Oct - Dec 2026

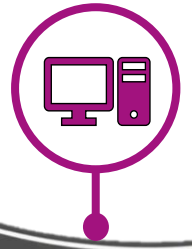
Operational Review
Storage Behind a Constraint

What: Clear & consistent operational policy for how storage is dispatched behind constraint.

Benefit: Improve efficiency and consumer value when using storage behind a constraint

Nov - Jan 2026

Open Balancing Platform
Electronic Data Transfer / Electronic Dispatch & Logging (EDT / EDL) transition to OBP



What: EDT / EDL – the main communication links between NESO and Market Participants - will transition from BM systems to OBP.

Benefit: Reduced number of planned outages with more consistent & economic dispatch.

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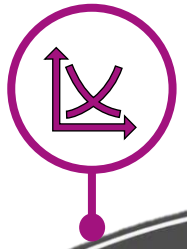
Journey to 2028: NESO 1 Key Deliverables

Apr – Jun 2027

Market Services
Realtime Dynamic Response



What: Adds real-time instruction capability to Dynamic Response services – replaces Mandatory Frequency Response (MFR).

Benefit: Greater transparency with more efficient instructions; supports increased participation of low-carbon technologies.

Autumn 2027

Market Services
Locational Response & Reserve

What: Enables NESO to procure response & reserve req. on a locational basis.

Benefit: Improves system security by accounting for network constraints; enables Industry participation in a wider spread of potential markets.

2027 / 2028

Market Services
Splitting Response & Reserve

What: Enables providers to split capacity across multiple services in the same settlement period.

Benefit: Enables more flexibility to providers in the participation across markets; expected to result in more economic dispatch.

A Day in the Life of a Control Room Engineer

Alex Carter, Operational Energy Manager

NESO
National Energy System Operator

Managing the System

Network Access Planning Team

Carryout network analysis using the offline transmission analysis tool (OLTA) in a time frame from 8+ year ahead to 24 hour ahead – produce outage plan.

Market Requirements

Day ahead response & reserve auctions

Trading Team

Energy Market, sufficient margins

Energy Forecasting Team

National Demand
Solar, wind, GSP demand

Systems:
- Energy Forecasting System (EFS)
- Platform for Energy Forecasting (PEF)

Handover of outage notes

Handover of Transmission System Operating Plan (TSOP)

Strategy Team

Plan for security of the system based on Security & Quality of Supply Standard (SQSS), from 24 hours to 4 hours ahead of time.

Scheduling, System Operating Plan, Margin Analysis, Data Processing and Profiling

System: Scheduling Platform in Controlled Environment (SPICE)

Handover of System Operating Plan (SOP)

Real Time Operation

Transmission Team

- Monitoring & managing System flows, outages, faults, and voltages following SQSS to ensure Security of the System.

Energy Team

- Monitoring & managing System Frequency following SQSS, and Transmission Constraints.
- Demand Prediction, Dispatch Advice, Energy Balancing i.e., Issuing Instructions (BM & Non-BM), Ancillary Service Management.

Systems:
- System Operation in Real-Time (SORT)
- Versatile Graphical Instruction Logger (VERGIL)
- Contingency Logging System (CLOGS)
- Open Balancing Platform (OBP)
- Ancillary Services Dispatch Platform (ASDP)

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Control Room Teams

Power System Manager (PSM)

Strategy Team

- Operational Strategy Manager (OSM)
- Control Technical Assistant (CTA)
- Assistant National Scheduling Engineer (aNSE)
- National Scheduling Engineer (NSE)
- Transmission Analysis Engineer- Scotland (TAEs)
- Transmission Analysis Engineer- E&W (TAEe&w)
- Day Ahead Congestion Forecasting Engineer (DACF)

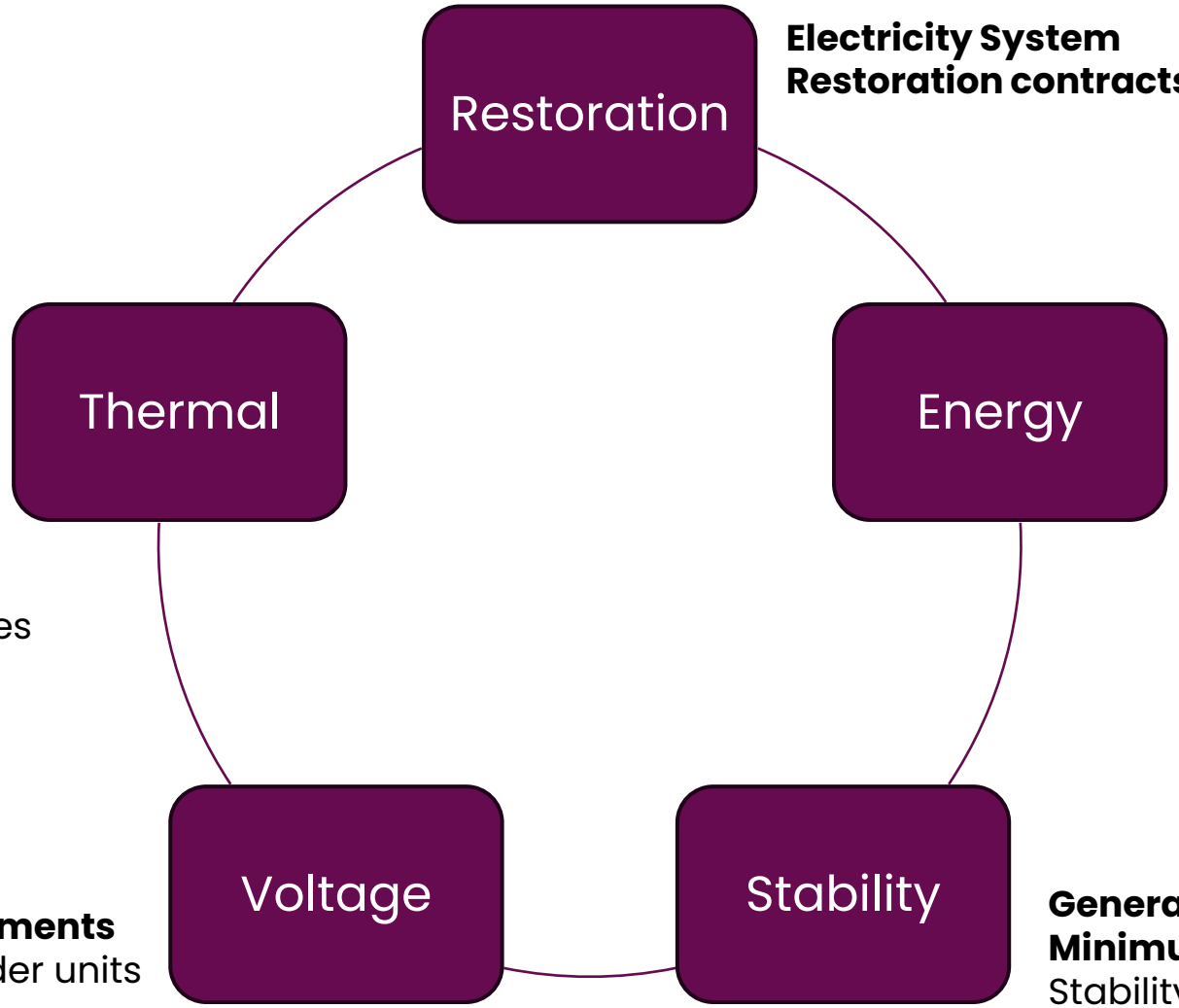
Energy Team

- Operational Energy Manager (OEM)
- National Balancing Engineer (NBE)
- Assistant National Balancing Engineer South (aNBE)
- Assistant National Balancing Engineer North (aNBE)
- Assistant National Balancing Engineer – Battery (additional post added)

Transmission Team

- Transmission Security Manager (TSM)
- Transmission Security Engineer- Scotland North(TSESc-n)
- Transmission Security Engineer- Scotland South(TSESc-s)
- Assistant Transmission Security Engineer – E&W North (aTSEe&wn)
- Transmission Security Engineer- E&W North(TSEe&wn)
- Transmission Security Engineer- E&W South(TSEe&ws)
- Assistant Transmission Security Engineer – E&W South (aTSEe&ws)

System Security



Electricity System Restoration contracts

Reserve
Slow Reserve
Balancing Reserve
Quick Reserve
Demand Flexibility Service

Balancing Mechanism
Regulating Reserve
Contingency Reserve

Response
Dynamic Containment
Dynamic Moderation
Dynamic Regulation
Primary, Secondary, High Response (MFR)
Static Response

Generator stability
Minimum inertia
Stability Pathfinder units

Voltage requirements
Voltage Pathfinder units

Thermal constraints
MW Dispatch
Local Constraint Management
Operational Tripping Schemes

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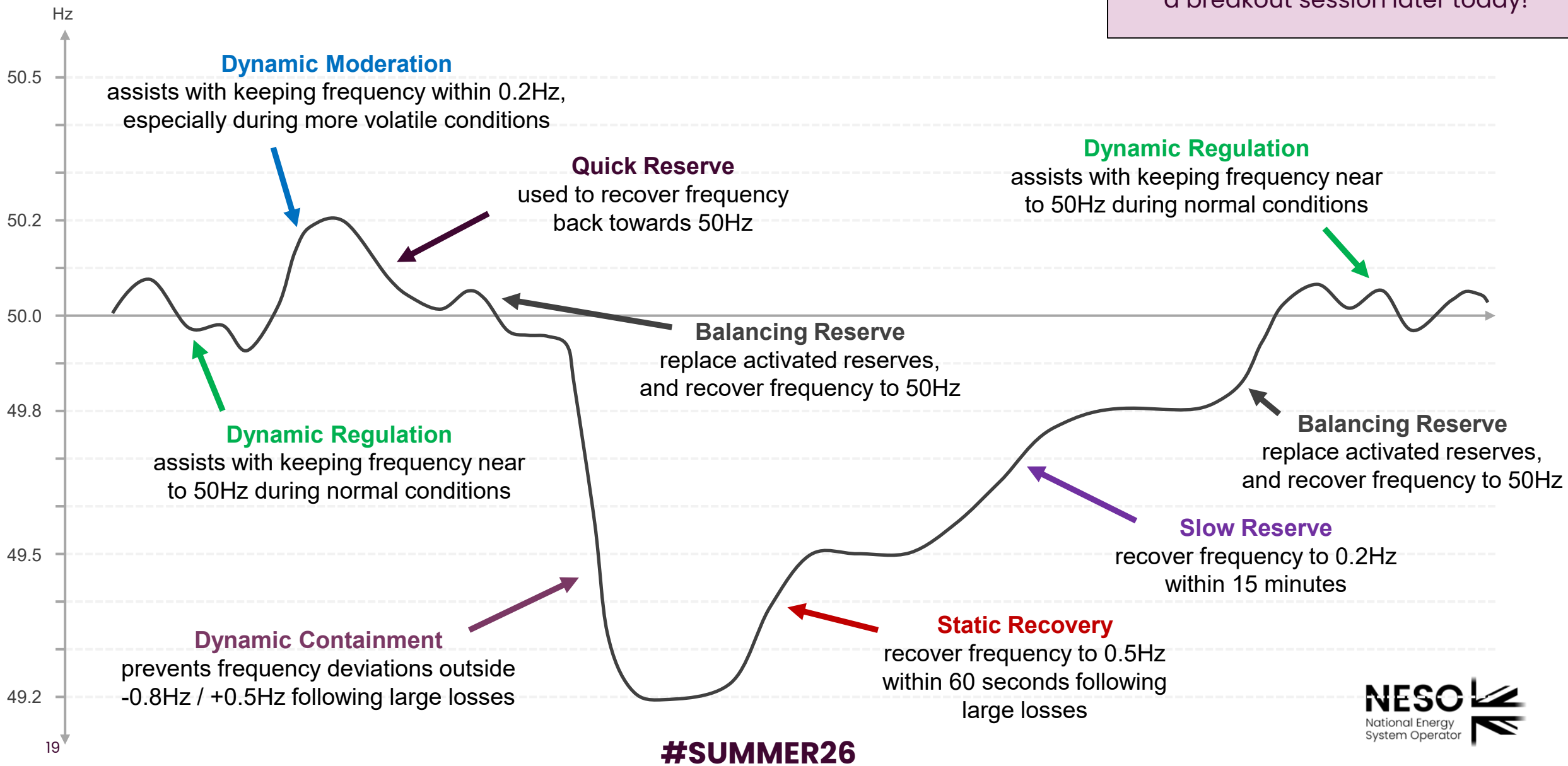
Reserve and Response Services

You will hear more about **market services – what's happened recently & what's to come in the near future** in a breakout session later today!



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Slow Reserve

Slow Reserve went live on 1st April 2026

The table below provides a high-level comparison of the STOR and Slow Reserve services.

Requirement	STOR	Slow Reserve
Direction	Positive only	Positive & Negative
Service Windows	Seasonal variations, contracts for 2 windows a day of ~4 hours each. Must deliver for **min** 2 hours once instructed	2-hour+ windows throughout the day. Unit must be able to deliver for the full committed window
Operational day	05:00 – 05:00	23:00 – 23:00
Recovery Period	≤1200 minutes	≤60 minutes
Time to full delivery	≤20 minutes	≤15 minutes
Minimum Capacity	3MW	1MW
Baselining	From-zero	Non-zero baselines allowed
Payments	Availability + Utilisation	Availability + Utilisation
Metering	Every 60s (0.01667 Hz)	Every 15s (0.0667 Hz)
Aggregation	Allowed, nationally	Allowed, per GSP group
Procurement	Daily, D-1 with a further 400MW of legacy 'long-term' contracts	Daily, D-1

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Linked Windows for Positive Slow Reserve

Local time	04:00	04:30	05:00	05:30	06:00	06:30	07:00	07:30	08:00	08:30	09:00	09:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30
SR window	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Linked window					Morning (6:00–10:30)									Midday (10:30–15:00)									Evening (15:00–21:00)															

To manage the added scheduling complexity introduced by the Slow Reserve service, compared with the existing STOR design, and to maintain system security during daily peak-demand periods, we launched with three linked windows for both weekdays and non-weekdays for Positive Slow Reserve .

No linked windows for negative slow reserve.

Date:
Wednesday
15th April 2026

Time:
04:00 to 10:00

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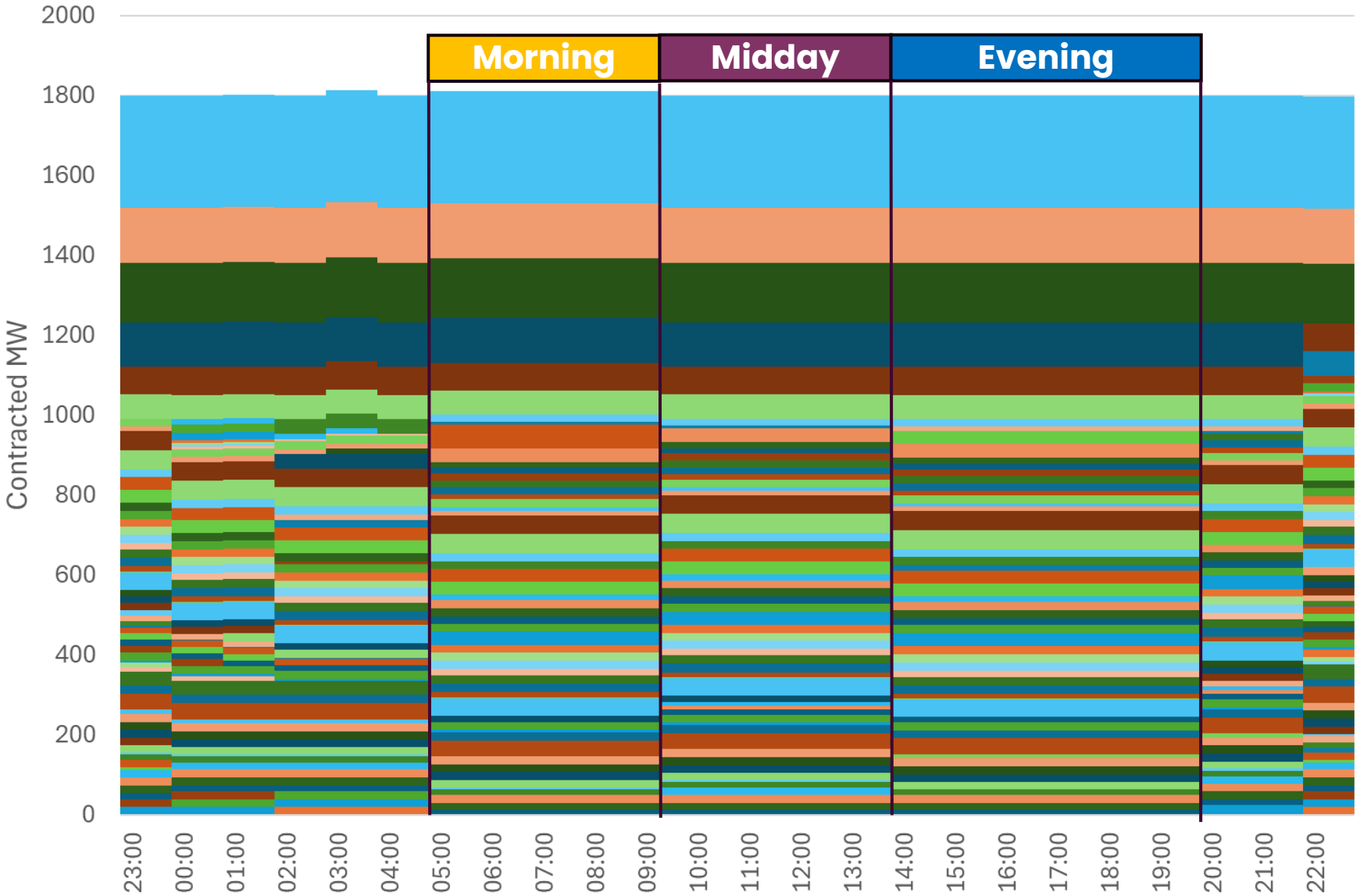
Positive Slow Reserve on 15 April 2026



- The colours represent volumes of the different units
- Some units are contracted all day; some for shorter periods
- ~40% of the volume on 6 units
- 54-64 units per settlement period
- Linked windows minimise the variation

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System Operating Plans

	Tuesday Morning Shift (14/04) 07:00-14:00	Tuesday Evening Shift (14/04) 14:00-21:00	Tuesday Night Shift (14/04) 21:00-07:00					
Morning Peak (2A) Wednesday 08:25	13:44	19:52	20:53	23:43	01:43	03:16	03:21	04:27 Final
Morning Ramp Wednesday 06:50		15:23			02:17 Final			

Final SOP handed over from Strategy to Energy Team 4-5 hours ahead of SOP time

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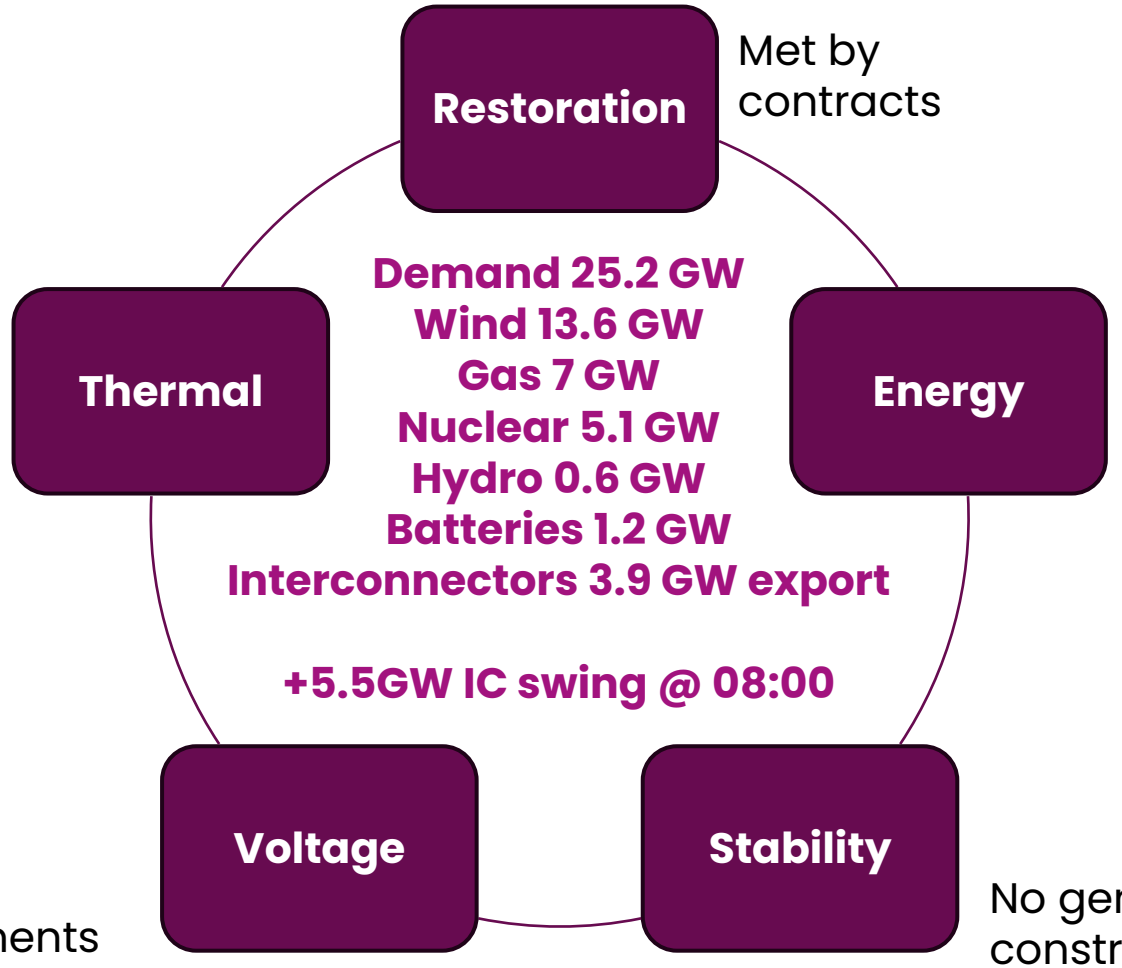
System Security – Morning Ramp 06:50

~4.5GW pullback for Mid Scotland & northern constraints

PEMB-41 & SEAB-1 for SWESTIMP (CCGT)

GMSNOW & ESTEX restrict contingency



Met by contracts

Reserve
SR requirement mainly met by contracts but 205MW restricted by constraints
Balancing Reserve 450MW contracted
Quick Reserve 160MW contracted
+500MW Batteries
+400MW Small BMU
+6.6GW CCGT
Negative met by market including wind

Response
DC/DR/DM contracted, 50MW additionally needed of PSH
2018MW generation loss covered
1480MW demand loss covered

Voltage requirements met by market & plan

10 Voltage & Stability pathfinder units

No generator stability constraints
Minimum inertia met by market & plan

Abbreviations:
SR: Slow Reserve
DC: Dynamic Containment
DM: Dynamic Moderation
DR: Dynamic Regulation
IC: Interconnector
PSH: Primary, Secondary, High response

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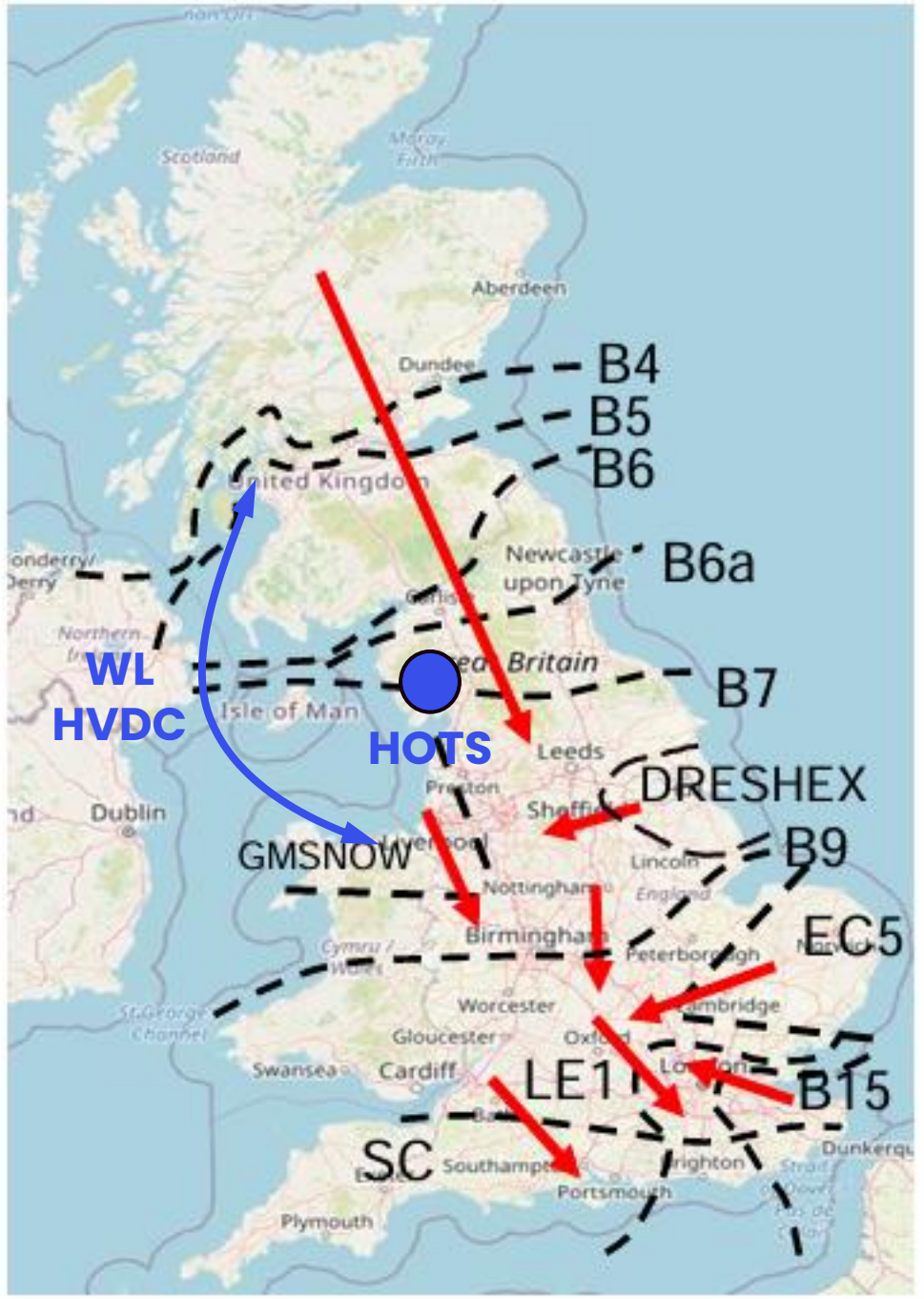
Transmission Team

Optimise use of the transmission network

- Western Link HVDC flow (+/-2250MW)
- Arming operational tripping schemes (e.g., Heysham Operational Tripping Scheme - HOTS)
- Quad Booster tap positions
- Substation running arrangements

Ensure system security

- Monitoring of real time flows
- Contingency analysis



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Active Constraints

Active export constraints

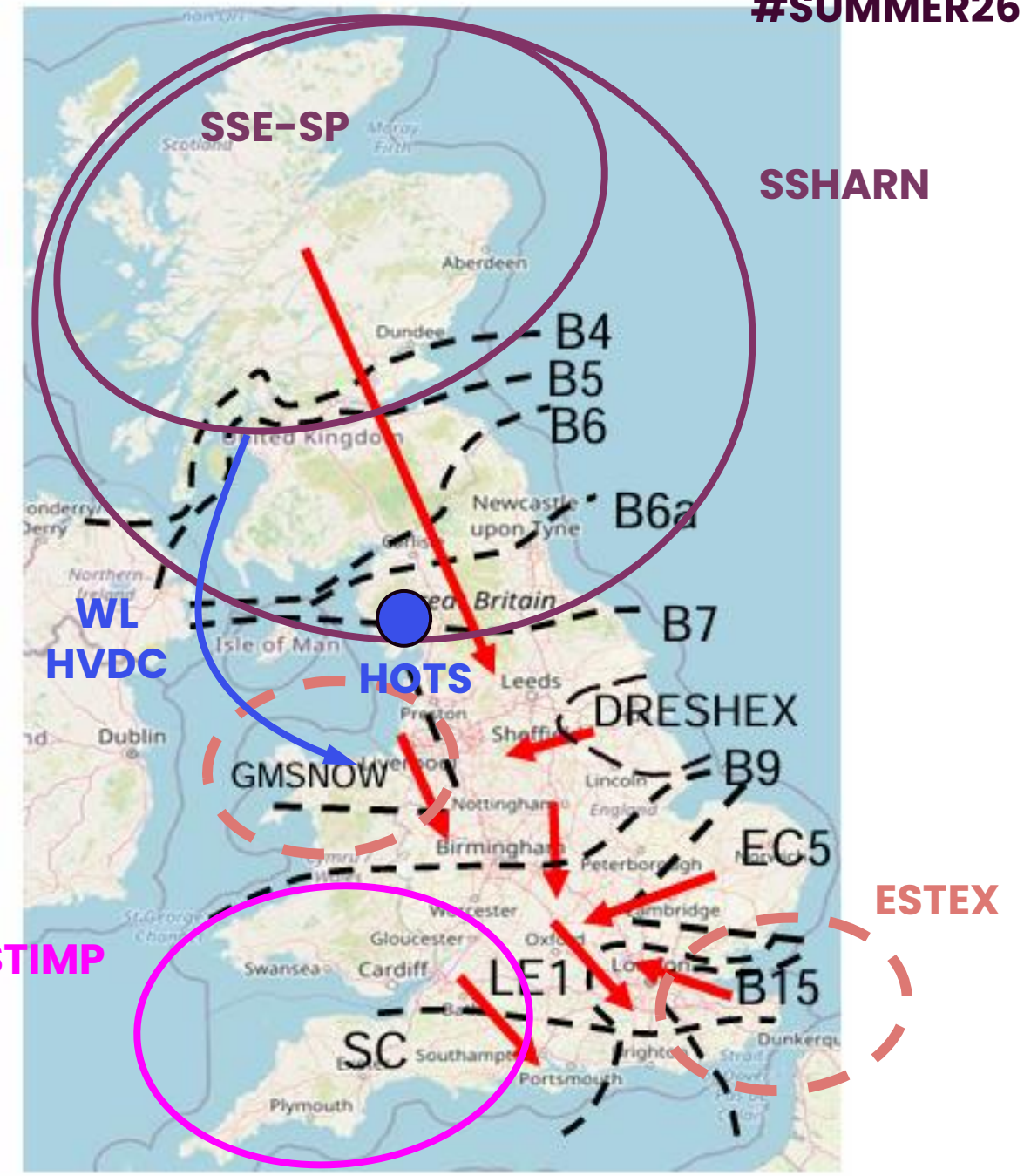
- SSE-SP (B4/B5),
- SSHARN (B7)

Active import constraint

- SWESTIMP (SC+)

Restricting contingency

- ESTEX (B15)
- GMSNOW



You will learn more about how **Constraints influence dispatch efficiency,** and activity taking place within this space, in a breakout session later today!

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02:20 - Morning Ramp Plan (06:50)

Constraints

- ~4.6GW wind pullback for SSE-SP & SSHARN
- SWESTIMP: Need to run PEMB-41, SEAB-1 (CCGTs)
- Pumped Storage and CCGTs units restricted by GMSNOW

Additional Units Already Running (CCGTs)

- DAMC-1, KEAD-2, LAGA-1, SHOS-1, WBURB-2

Additional Units to Order (CCGTs)

- EECL-1 (04:00 order, 05:25-21:25, 435/265MW, £122/MWh)
- SPLN-1 (04:15 order, 05:10-22:25, 878/335MW, £133/MWh)
- WBURB-1 (05:00 order, 06:25-21:55, 420/185MW, £140/MWh)

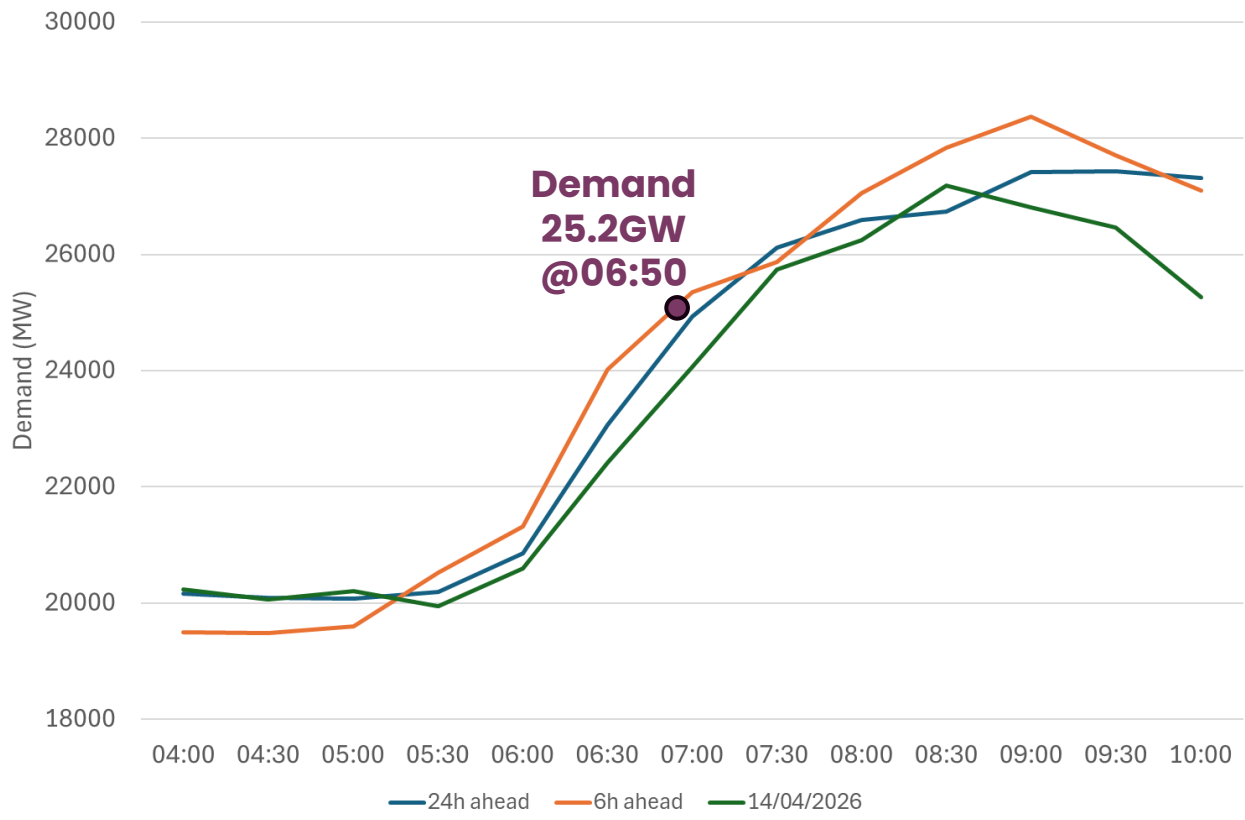
Short run units:

- +500MW batteries (<£118/MWh)
- +400MW Small BMUs (<£200/MWh)

Contingency

- KILLPG-2 (300MW, £230/MWh) (OCGT)

Demand Forecast



You will hear more about **what's next for flexibility** in a breakout session later today!

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03:45 – Decision time

What would you do? Time to Vote !

Option 1

Demand forecast looks too high, plenty of reserve, run, EECL-1 & SPLN-1 (CCGT)

Don't run WBURB-1 (CCGT) 420/185MW, £140/MWh

Use batteries (>£118/MWh) and KILLPG-2 OCGT (£230/MWh) if needed.

Saves £155k

Option 2

Demand forecast looks good, go with the plan

Order EECL-1, SPLN-1 and WBURB-1 (CCGT)

Option 3

Demand forecast looks too low, order another unit in addition to the plan

Order EECL-1, SPLN-1 and WBURB-1 (CCGT)

Order SUTB-1 - CCGT, 399/300MW, £169/MWh, 6 hour run (05:59-11:59)

Costs an additional £316k

Scan me to enter the NESO Summer Event or search for Slido online and enter **#Summer26 –** Choose 'Day in the Life Room' & select poll.

Public

#SUMMER26

04:30 - Morning Peak Plan (2A@08:20)

Constraints

- ~4.3GW wind pullback for SSE-SP & SSHARN
- SWESTIMP: Need to run PEMB-41, SEAB-1 (CCGTs)
- ESTEX: Need to desync GRAI-6 & GRAI-7 at 08:59 & 08:58 (CCGT)
- Pumped Storage & CCGTs units restricted by GMSNOW

Additional Units Already Running (CCGTs)

- DAMC-1, KEAD-2, LAGA-1, SHOS-1, WBURB-2, EECL-1, WBURB-1, SPLN-1

Short run units:

- +500MW batteries

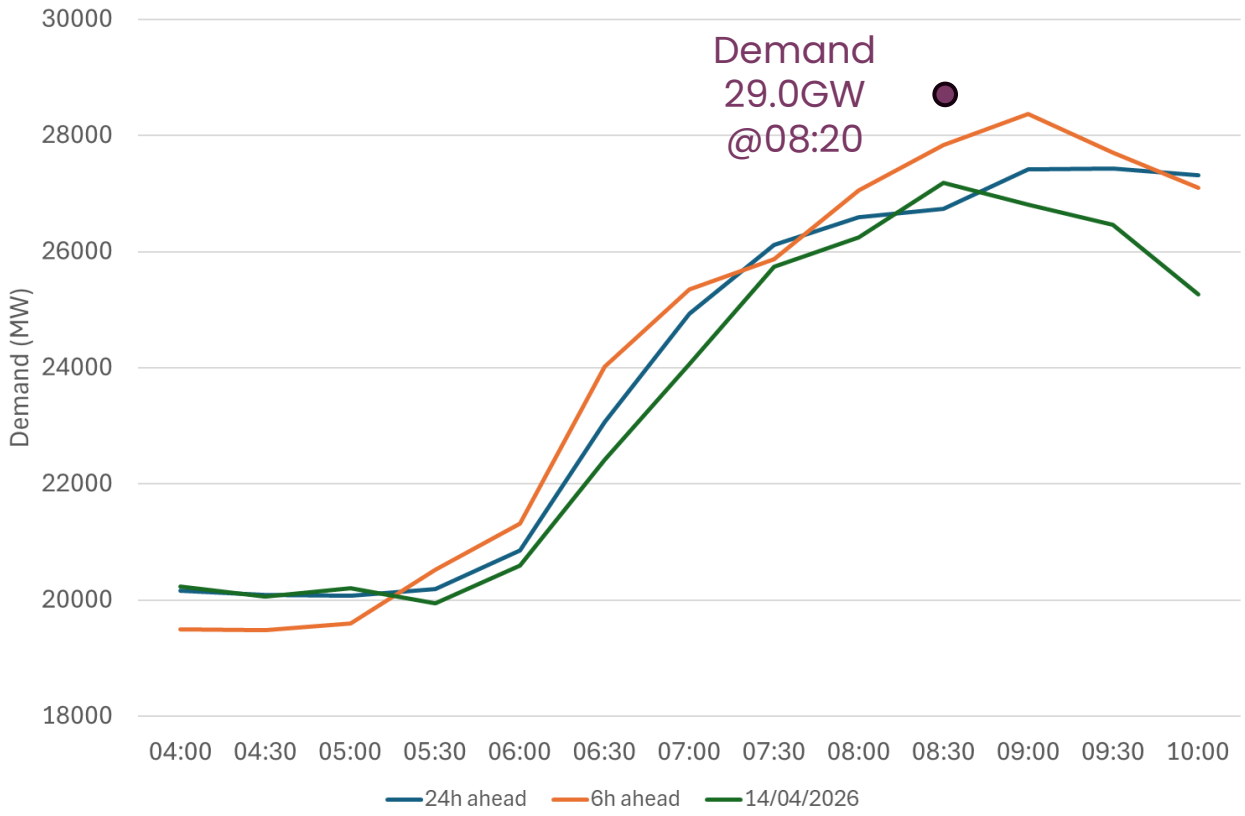
Market

- +5.5GW interconnector swing at 08:00

Contingency

- 400MW Small BMUs (<£200/MWh)
- KILLPG-2 (300MW, £230/MWh) (OCGT)

Demand Forecast



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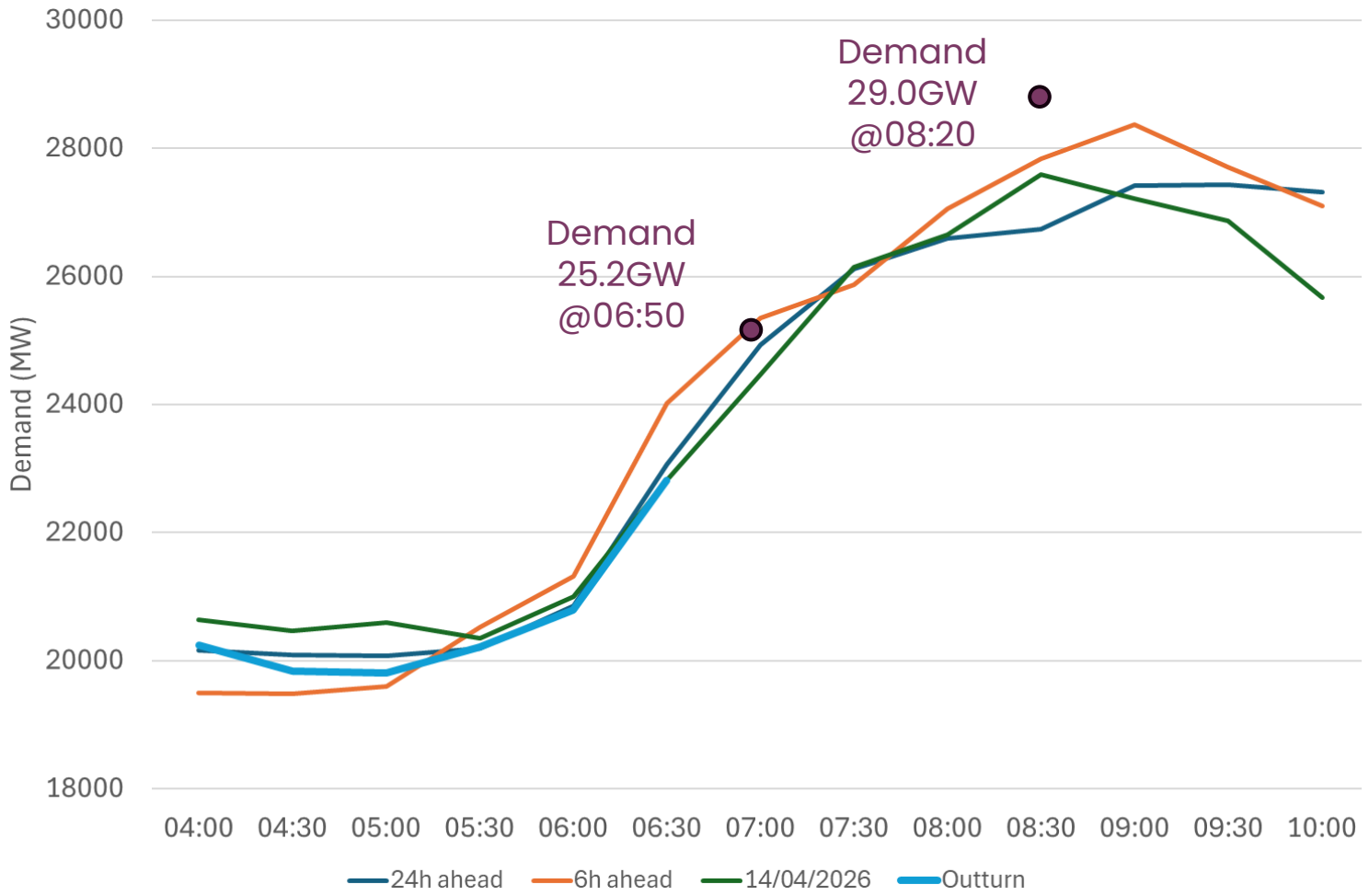
06:30 – Handover preparation



- System Operating Plan Forecast 29.0GW
- 6h ahead forecast higher than 24h ahead forecast
- Tue 14/04/26 outturn lower (-2GW offset)

At 06:30 – Where is demand going?

Option 1 27 GW (Tue)

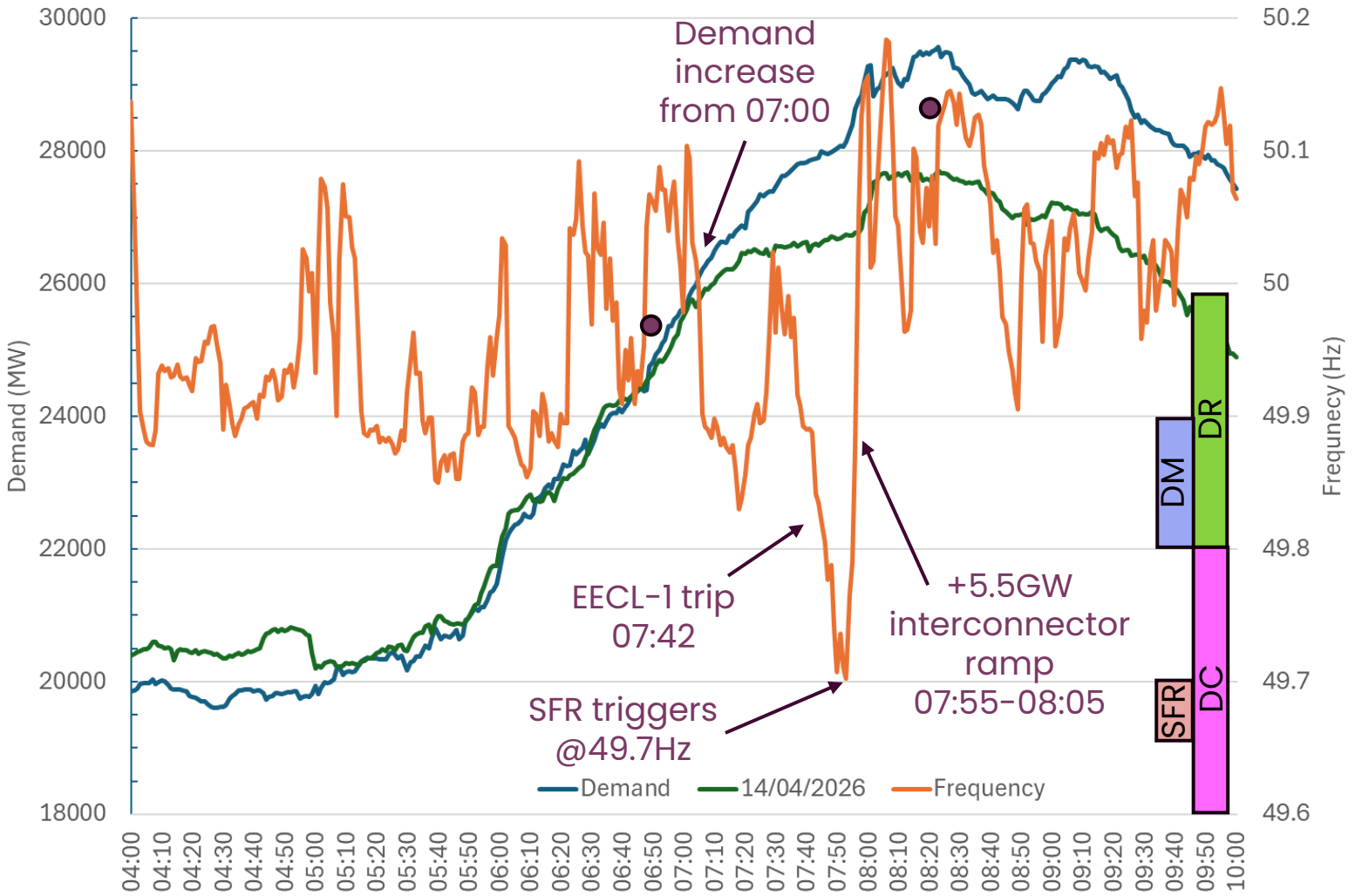
Option 2 28 GW (forecast)

Option 3 29 GW

Option 4 30 GW

Scan me to enter the NESO Summer Event or search for Slido online and enter **#Summer26 –** Choose 'Day in the Life Room' & select poll

What Actually Happened?



- SSHARN and GMSNOW at limit
- 4.4GW wind bids
- Demand ~1GW below forecast at 06:50
- From 07:00 demand increasing above forecast
- Up to 720MW Non-BM up to £180/MWh (06:12-08:02)
- Small BMUs instructed up 1100MW including x PSR at up to £205/MWh
- Batteries at 1000MW with little upward volume available
- SEEL-1 (OCGT PSR) 295MW, £209/MWh (07:03-09:03)

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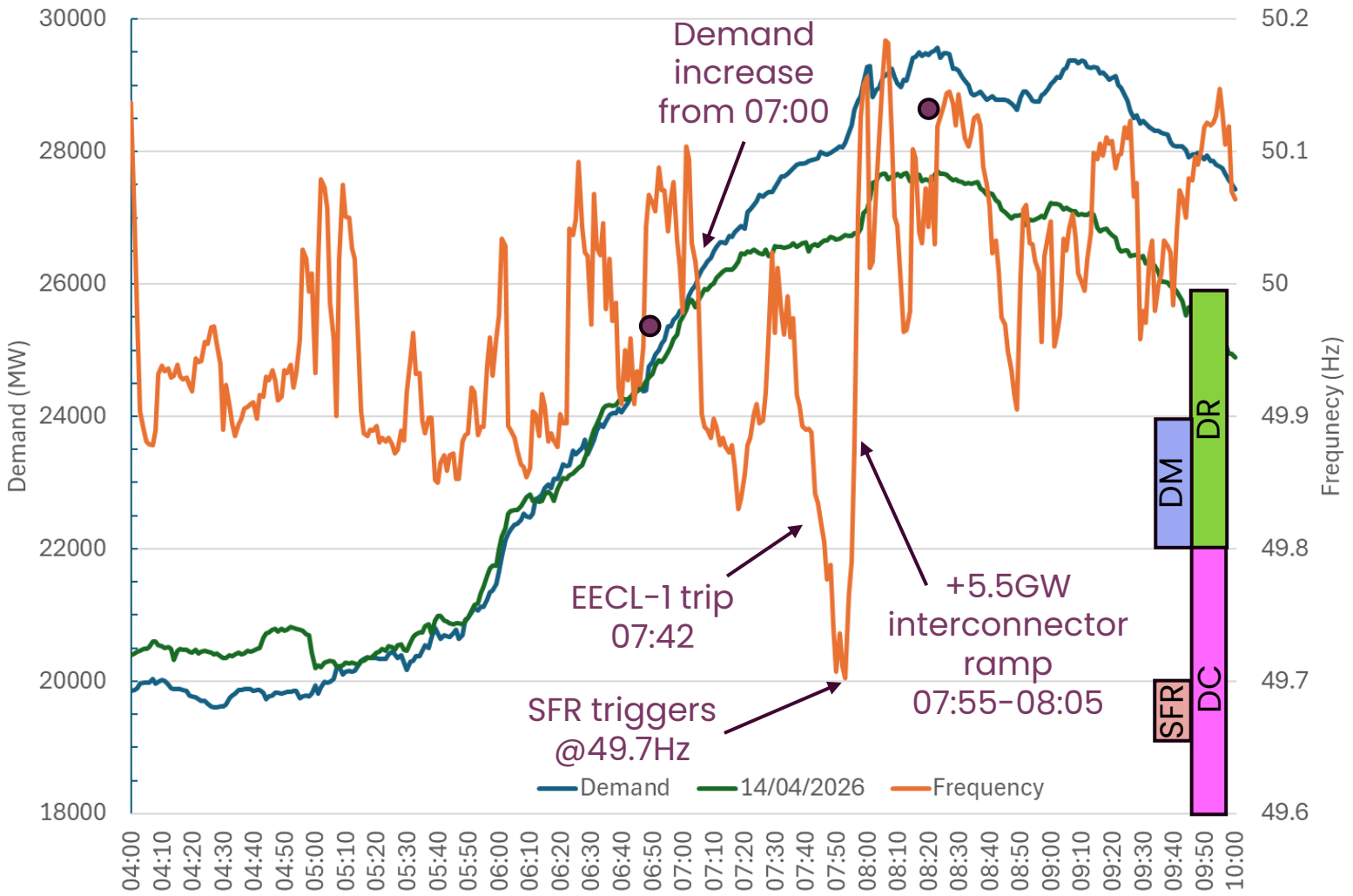
What Actually Happened?



- PETEM-1 (OCGT PSR) 110MW, £210/MWh (07:27-08:12) but struggled and was ~30 minutes late
- KILLPG-2 (OCGT) 300MW, £230/MWh (07:25-09:25)
- Enfield (EECL-1, CCGT) tripped at 07:42 from 335MW
- KILLPG-1 (OCT PSR) 300MW, £349/MWh (07:52-08:38)
- PSR 5x small OCGTs 300MW £499-599/MWh, (~07:53-~08:49)
- Static Frequency Response triggers at 49.7Hz (min 49.668Hz)
- 08:00 +5.5GW planned interconnector swing
- Frequency recovered allowing more expensive units to desync

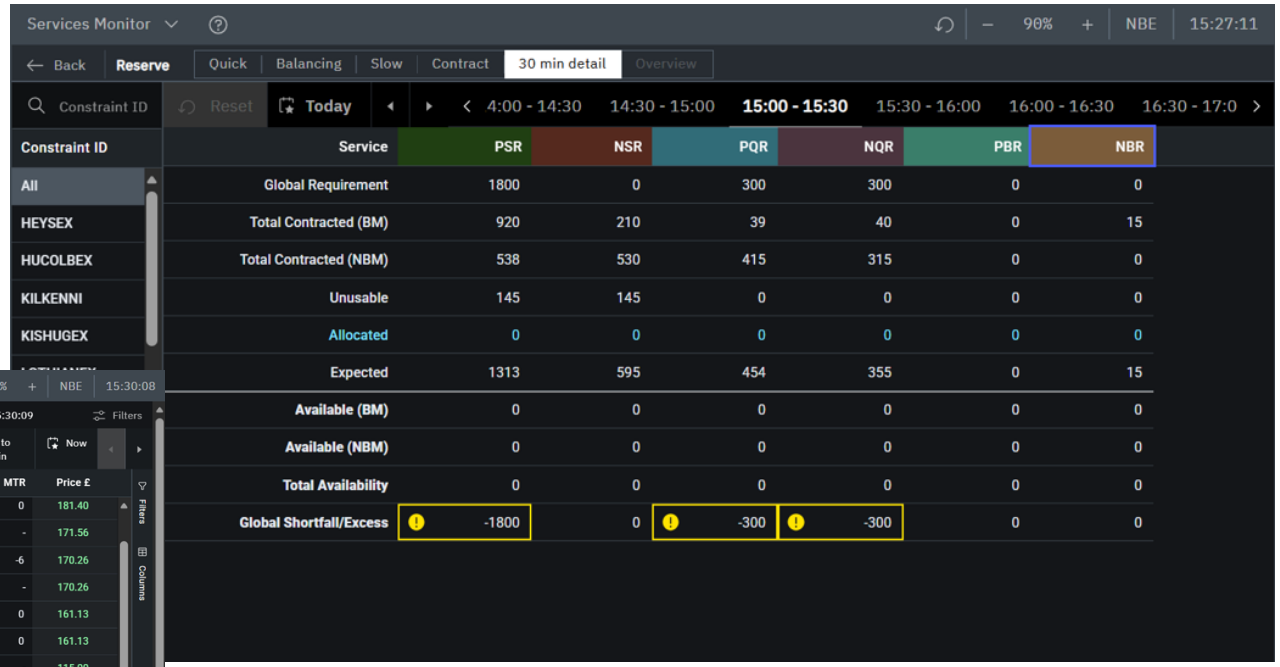
Public

Open Balancing Platform (OBP) Tools

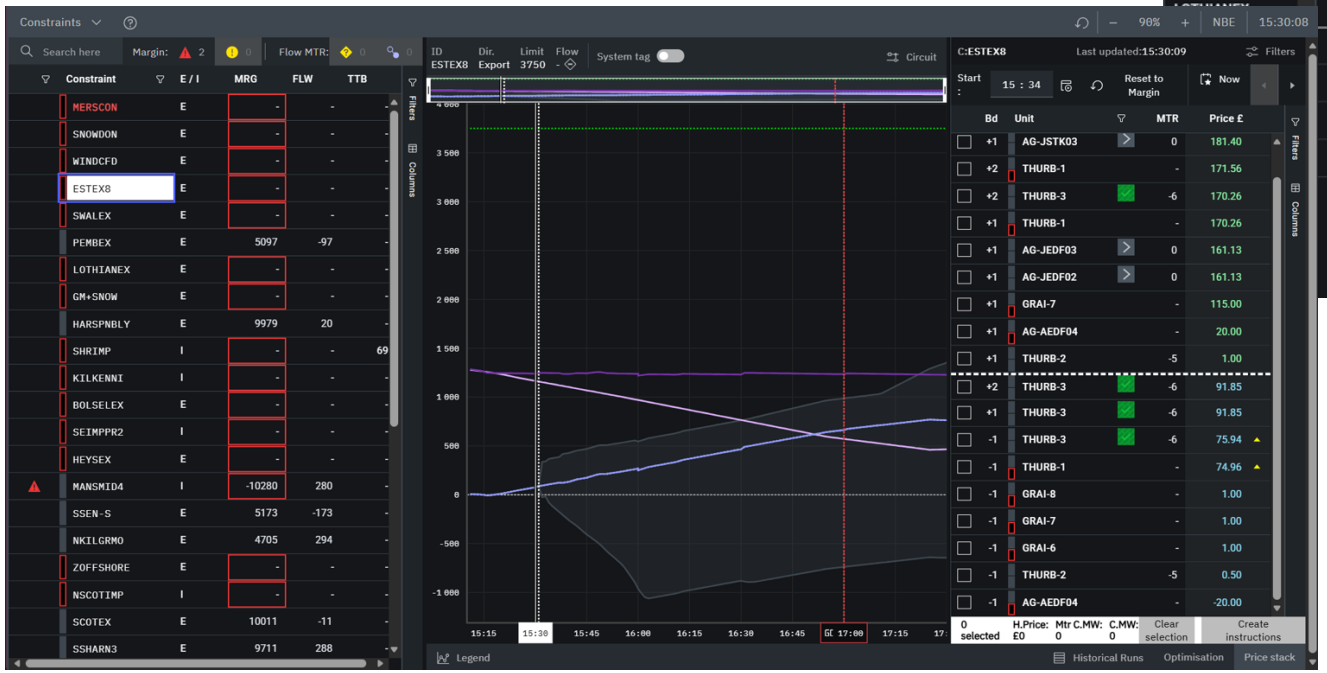
What OBP tools do we use in the Control Room to help us in situations like this?

- Service Monitor & Service Include/Exclude
- Constraint Management functionality
- Multi Instruct from Price Stack
- Fast Dispatch & Target Dispatch

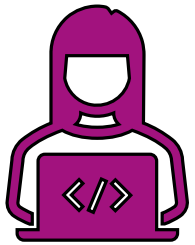
Service Monitor



Constraint Management & Multi Instruct from Price Stack

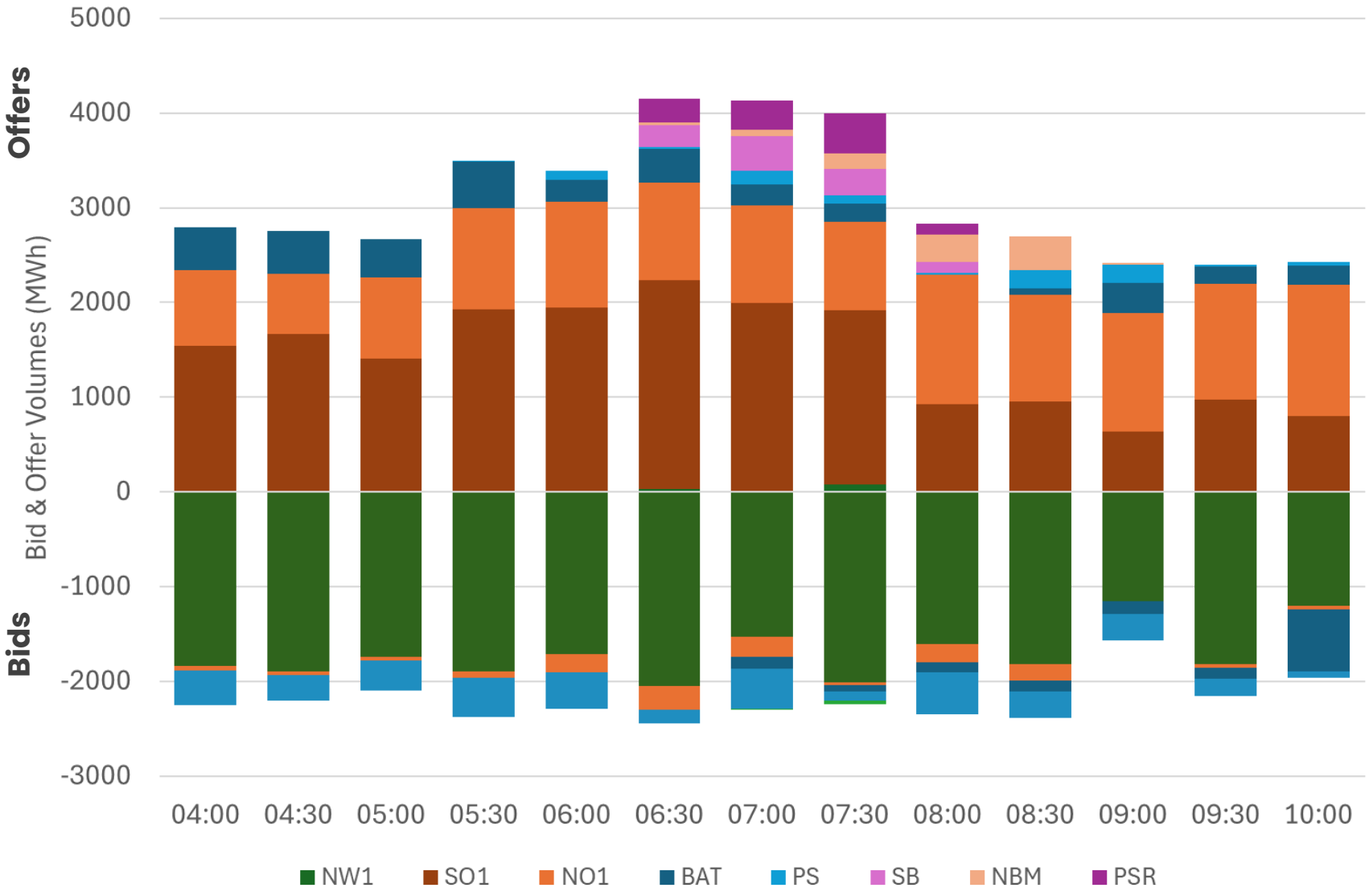


Please note: these images contain dummy data



You will hear more about this functionality in a breakout session later today – OBP in action!

Instruction Volumes (MWh)



Key:

NW1 – North Wind

SO1 – South

NO1 – North

BAT – Batteries

PS – Pumped Storage

SB – Small BMU (<50MW)

NBM – Non-BM (Fast Reserve)

PSR – Positive Slow Reserve

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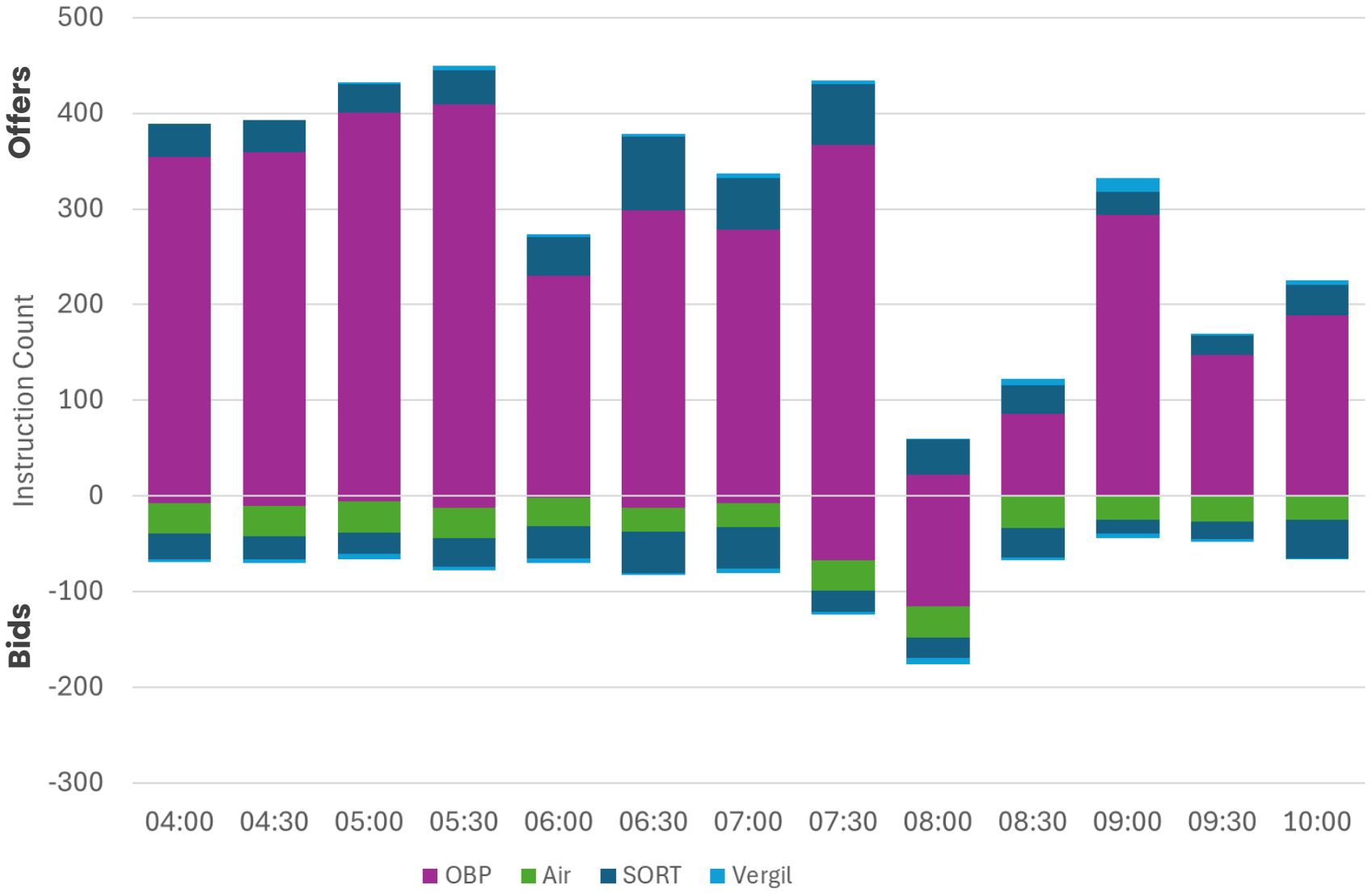
Instruction Counts



Which system did the instructions come from?

- **OBP (Open Balancing Platform):** Mainly Batteries and SBMUs
- **Air (Automatic Instruction Repeat):** Wind bids
- **VERGIL (Versatile Graphical Instruction Logger):** Pumped storage

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Summary of What Happened

- Demand ~1GW below forecast at 06:50
- Demand increased above forecast from ~07:00 and was ~1GW above the forecast at 08:20
- EECL trip at 07:42 (335MW)
- BM Units instructed up to ~£230/MWh including KILLPG-2
- Up to 1500MW of PSR run at up to £599/MWh
- ~500MW PSR remaining from 07:45-08:00
- Frequency and margins recovered after 5.5 GW interconnector ramp at 08:00

25% residual balancing carried out by the NESO Control Room

How would the room have done?

03:45 Order Option 1

- WBURB-1 not run, saving £155k
- 420MW less available, replaced by PSR costing ~£250k
- £95k more expensive, only 100MW of PSR left

03:45 Order Option 2

- What actually happened

03:45 Order Option 3

- SUTB-1 additionally run, costing £316k
- 300MW less PSR run, saving ~£165k
- £151k more expensive, 800MW of PSR remaining

Demand between Option 3 & 4

Thank you

Any questions?

#SUMMER26

Open Balancing Platform in Action – What's New & What's the impact?

Neil Morgans, OBP Principal Product Manager (Glasgow)
Chi Ho Lam, Lead Product Manager (London)
Bernie Dolan, OBP Principal Product Manager (London)
Aly Sohail Punjwani, Balancing Platform Delivery Lead (London)
Nisha Bhamidimarri, OBP Senior Delivery Manager (London & Glasgow)
Alex Carter, Operational Energy & Strategy Manager (Glasgow)

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System Transformation – Where are we?

December 2023

System

Energy Forecasting System

Electricity Balancing System

Balancing Mechanism Systems

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

Ancillary Services Dispatch Platform

- Non-BM services
- DNO services

June 2026

System

Platform for Energy Forecasting

Balancing Mechanism Systems

- Scheduling
- Market Communication Interfaces

Open Balancing Platform

- New resilient technology stack
- Bulk Dispatch capabilities
- Market Services
- Network Services
- Optimisation
- Real-Time Predictions

December 2027

System

Platform for Energy Forecasting

Open Balancing Platform

- Complete migration of balancing functions to OBP
- Modern, resilient, adaptable and scalable system
- Reduced downtime
- More opportunities for Flexibility Providers
- No differentiation between BM and non-BM units
- Improved situational awareness
- More economic dispatch & lower consumer costs
- Reduced CO2 emissions

If you missed our Mar 2026 event, catch-up *here* to view more detail about where we are in our balancing & forecasting transformation journey.

Public

Balancing Roadmap Update – June 2026

#SUMMER26

DI Closure Reports

DI20&21 (Oct 25 -Jan 26)

CAPABILITIES

1. National Dispatch Optimiser
2. Pumped Storage BOAs

ENABLERS

1. OBP Operationally Critical
2. PEF integration with BM

DI22&23 (Jan 26 – Apr 26)

CAPABILITIES

1. Slow Reserve (BM & NBM)
2. New Parameters for Limited Duration Assets (GC0166)*
3. Move MW Dispatch
4. Move Response DC/DM/DR
5. Stability Pathfinder
6. Price Stack Bulk Dispatch by Service (BM & NBM)

ENABLERS

1. Platform Improvements
2. User Experience Improvements

DI24&25 (Apr 26 – Jul 26)

CAPABILITIES

1. Optimisation within a Constraint
2. GC0166 Business Go-Live

ENABLERS

1. PEF Integration with OBP
2. Decommission ASDP
3. Migration of OBP development/test environments from NG Azure to NESO Azure

DI26&27 (Jul 26 – Oct 26)

CAPABILITIES

1. Response Management
2. Constraint Management Intertrip Service East Anglia – Enduring*

ENABLERS

1. Decommission of NG Azure

DI28&29 (Oct 26 - Jan 27)

CAPABILITIES

1. Enhanced Data Transparency
2. Calculate & Display Reserve Margins
3. Constraints Pathfinder Migration

ENABLERS

1. EDT/EDL mastered
2. CLOGS enhancement

Regular OBP releases deliver additional enhancements, fixes and user-driven improvements across all increments

Delivered
Brought Forward
Moved Backwards
New Scope
No change

Legend

ASDP – Ancillary Services Dispatch Platform
BMU – Balancing Mechanism Unit
BOA – Bid Offer Acceptance
CLOGS – Contingency Logging System
DC – Dynamic Containment
DI – Delivery Increment
DM – Dynamic Moderation
DR – Dynamic Regulation
DX – Dynamic Response
EDL – Electronic Dispatch & Logging
EDT – Electronic Data Transfer
NBM – Non-BM Unit

* Service will initially operate with interim processes; full OBP functionality enabled following EDT/EDL transition

Changes to the Balancing Systems Release Plan

Delivered ahead of plan

Migration of OBP Development & Test Environments to NESO Azure (Delivered Q1 FY26)

Delivered one quarter earlier than planned, completing migration to NESO Azure and removing prior platform capacity constraints.

Rephasing aligned to EDT/EDL transition

EDT/EDL: (Rescheduled to Oct 26 – Jan 27)

Rescheduled to allow completion of network and software updates, endpoint changes and Market Participant Testing before cutover, improving end-state resilience.

Related changes aligned to EDT/EDL transition:

- **CLOGS Enhancement** – Will operate across OBP and BM to maintain contingency coverage through transition
- **Constraints Pathfinder Migration** – Will continue in BM systems until OBP fully supports EDT/EDL interfaces

2023 – 2028: Balancing & Forecasting Capability Journeys

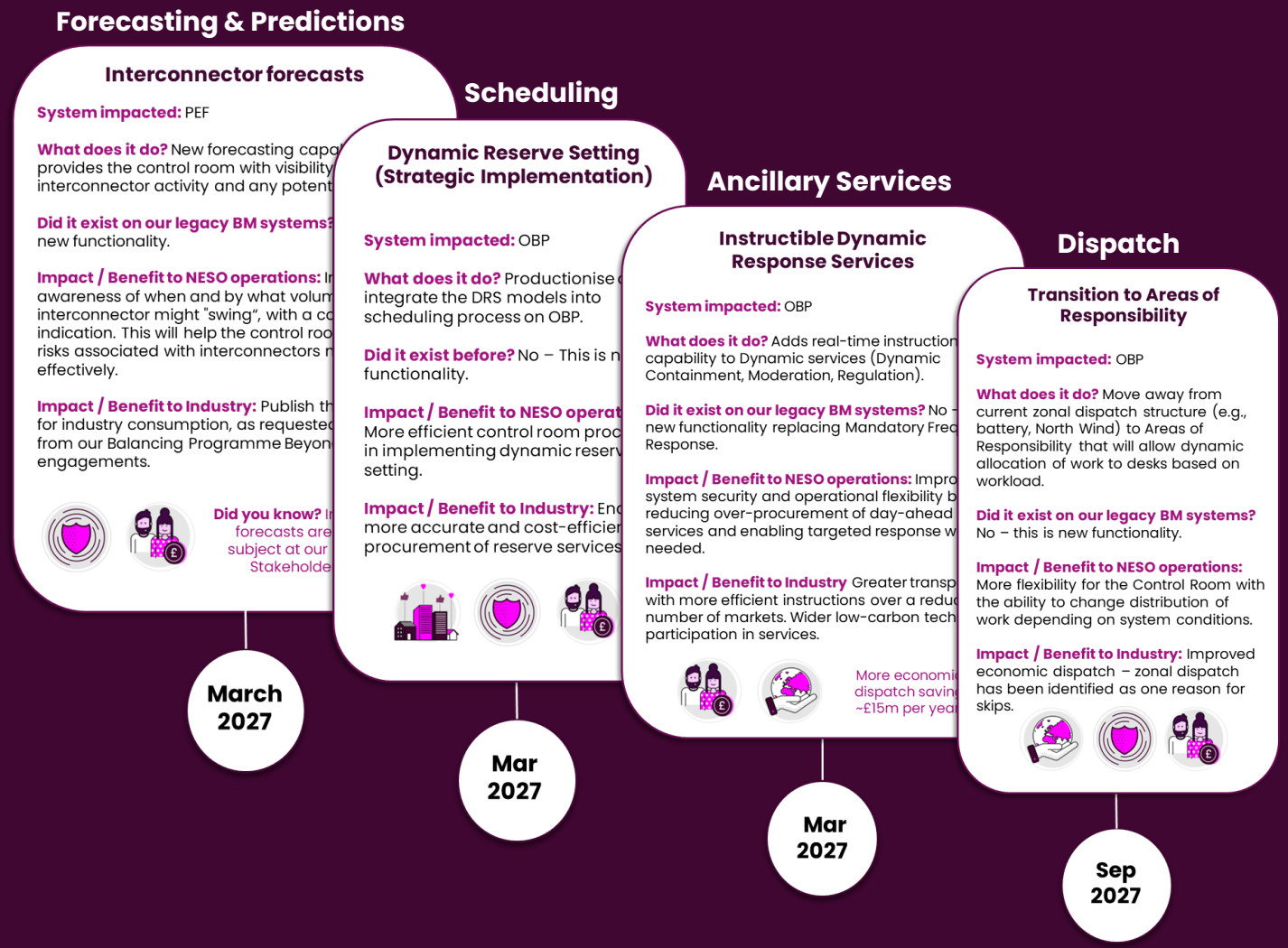
Want to learn more about what the Programme has delivered so far, and what's still to come?

We've broken our delivery into four capability journeys, each showing how the Electricity National Control Centre is already using the functionality delivered, and how it will continue to do so in the future.

These journeys highlight the benefits and impact for the Control Room & industry, the key challenges addressed, and how our work aligns with NESO's strategic goals.

The capabilities you see have been shaped through a combination of external engagement & internal NESO workshops.

View our capability journeys *here.*



Public

EDT/EDL Transition & Why it matters?

What are EDT / EDL?

Electronic Data Transfer / Electronic Dispatch and Logging (EDT / EDL) are the main **communication links** between NESO and Market Participants.

These channels are how we **receive key market information & send dispatch instructions** to all participants of Balancing Mechanism

Transition to OBP will enable the following:

- Reduced number of planned outages and reduced window of the planned outage
- More resilience in the EDT and EDL network connectivity; any of your sites will connect to both of our sites and will have automatic failover
- Reduced need to resort to telephonic instructions

Impact / Benefit to NESO operations:

- Reduced operational risk – Enabler for retiring legacy systems
- Improved resilience posture at the platform and network level
- Improved workload balance across operators and more optimal dispatch

Impact / Benefit to Industry:

- Improved resilience in communication system – reduced chances of outage for control point or trading agent
- Higher availability of the balancing mechanism and ancillary services markets

Participant Readiness

EDT

Customer Category	Total Required	Technical document	Network Change Request	Network Implementation	NATS – MPT	Type Test	BPIT	NATS - Prod
Software Supplier	11	11	9	9	6	1	0	0
Participant - Hosted	84	N/A	N/A	N/A	0	N/A	0	0
Participant - On Prem	12	10	8	7	0	0	0	0
	107							

EDL

Customer Category	Total Required	Technical document	Network Change Request	Network Implementation	NATS – MPT	Type Test	BPIT	NATS - Prod
Software Supplier	9	9	6	6	1	1	0	0
Participant - Hosted	50	0	0	0	0	0	0	0
Participant - On Prem	33	22	8	2	0	0	0	0
	92							

We have continued to make solid progress in the last quarter – we now need your help to see us over the line!

Progress to Date:

- ✓ Strong progress in Software Supplier and Participant network changes for EDT. **82%**
- ✓ Positive progress with EDL connections for Software Suppliers. **67%**
- ✓ Proven EDT and EDL with key software supplier during Market Participant Testing (MPT).

Next Steps and Need to Accelerate:

- Confirm outstanding Software update and rollout plans for remaining suppliers to enable our transition, underpinned by the industry.
- Support in the network changes across EDL on-prem participants.
- Progress end to end MPT at pace. Support needed from participant business and technical teams.

OBP in Action

Get ready to see the system in action & vote on how you would respond to different situations if you were in the hot seat in the control room.

Through this session we will demonstrate how OBP is used by the Control Room including new functionality & the associated benefits.

Get your phones at the ready & get involved in securing the electricity system.

#SUMMER26

Scenario 1

There is a gradual divergence from the forecasted demand & frequency is slowly falling as demand increases

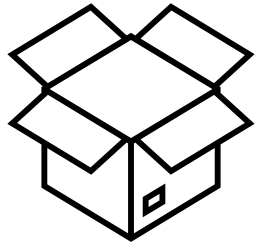
What would you do?

1. Generate a new target program for where we need generation to be and use OBP target dispatch (optimisation tool) to fill the requirement with synchronised units alongside balancing reserve

2. Synchronise additional plant – this involves instructing units that are not currently running

3. Do nothing at this stage and wait to see if the demand curve drops as the forecast suggests

CAST YOUR VOTE



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#SUMMER26

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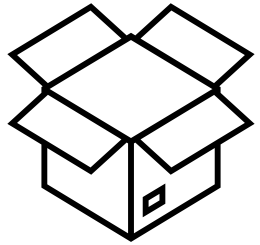
How did everyone vote?



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Please note – The above demo includes dummy data

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#SUMMER26

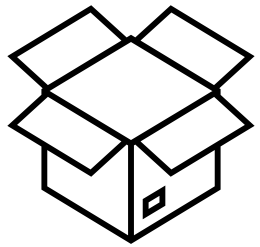
Scenario 2

There is a large loss on the system due to several units tripping & frequency drops rapidly as a result

What would you do?

1. Use OBP fast dispatch optimiser to recover frequency assisted with quick reserve
2. Instruct pump storage units / hydro units
3. Request Interconnector emergency assistance

CAST YOUR VOTE



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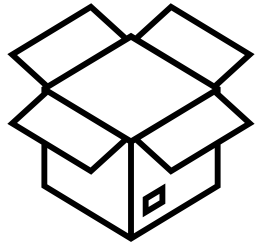

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#SUMMER26

Scenario 2

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What would you do?

1 2

To watch, please see individual OBP demo videos uploaded with event summary & slides

Please note – The above demo includes dummy data

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#SUMMER26

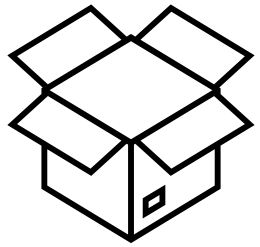
Scenario 3

Following on from the largest loss, we need to recover response

What would you do?

1. Request interconnector emergency assistance
2. Rely on already dispatch pump storage & batteries until there is a fall in demand
3. Make use of reserve services including the new slow reserve service

CAST YOUR VOTE



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#SUMMER26

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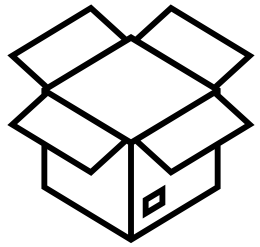

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Scenario 3

Following on from the largest loss, we need to recover response

What would you do?

3 Make use of reserve services including the new slow reserve service

Please note – The above demo includes dummy data

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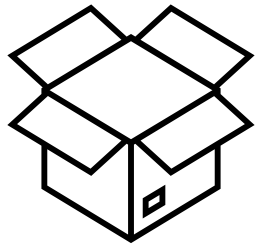
Scenario 4

Whilst managing the largest loss event, we must also manage ongoing constraints, which may pose a risk to system security

What would you do?

1. Manage constraints via manual instruction or multi dispatch from the Price Stack
2. Manage constraints via the OBP optimiser
3. Manage constraints via the MW Dispatch service

CAST YOUR VOTE



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Scenario 4

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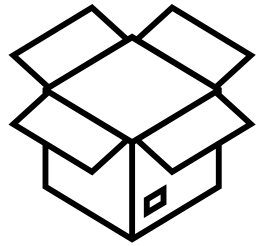
CAST YOUR VOTE



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#SUMMER26

Scenario 4

Whilst managing the largest loss event, we must also manage ongoing constraints, which may pose a risk to system security

What would you do?

1 2 3

To watch, please see individual OBP demo videos uploaded with event summary & slides

Please note – The above demo includes dummy data

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#SUMMER26

Closing Remarks

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

Slides from today's session will be published on our website. You can access content from our previous events, webinars & focus groups from earlier in the year ***here***.

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

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.

Scan Me

Stakeholder Focus Groups Sign-Up

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Dispatch Efficiency Beyond Energy

Hannah Kirk Wilson, Dispatch Transparency Programme Director (London & Glasgow)
Vivian Echbima, Data Scientist (Glasgow)
Saskia Barker, Wholesale Market Strategy Manager (Glasgow)
Sam Mancey, Data Scientist (London)
Ben Noone, Wholesale Market Strategy Lead (London)

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What we'll cover today…

Progress to date on skip rates
- Improvements in energy skip rates
- Key methodology updates (including GC0166 and other changes)

How Constraints influence dispatch efficiency
- Work underway on skips behind constraints and improving transparency

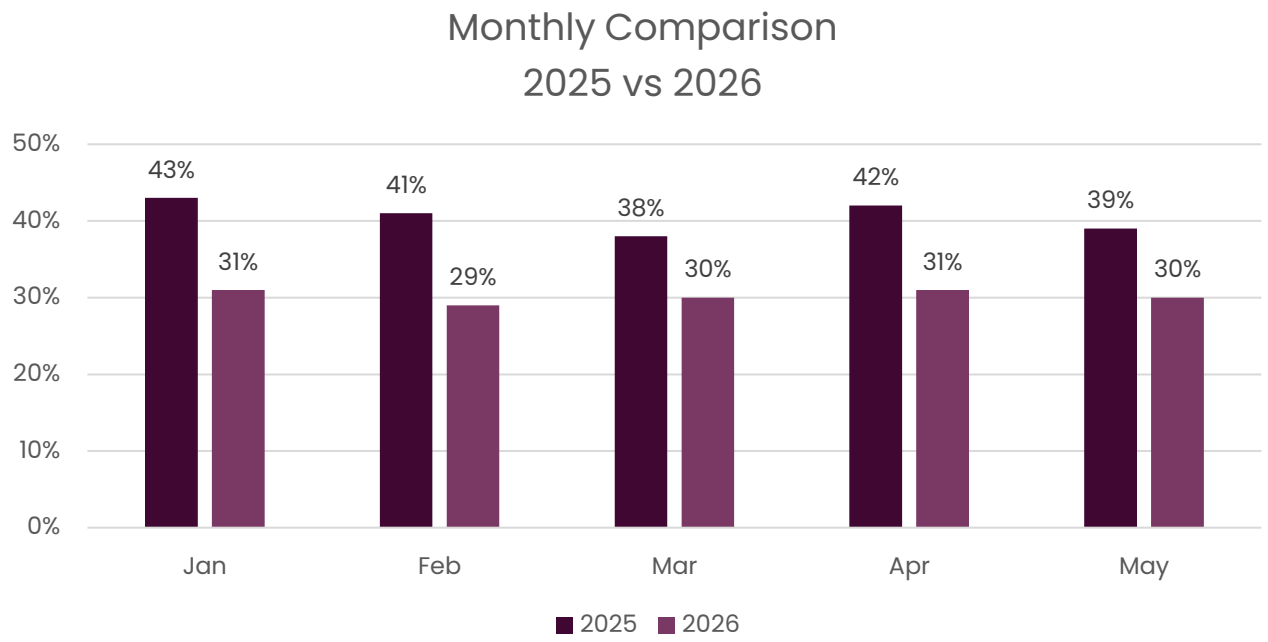
Focus topic: Storage behind constraints
- The challenge we are seeing in the market
- Options being considered to address this
- Trade-offs and potential impacts

Your input
- Gather feedback on the shortlisted options
- Sense-check direction and priorities
- Open discussion to shape next steps

We have made progress in reducing energy skips which are circa 10 percentage points lower than last year

There have been year-on-year improvements every month in 2026

This can be attributed to better tools in the control room that support dispatching in merit order and increase visibility of skips



Our Root Cause Analysis consultancy project concluded in April 2026. We have uploaded a slide pack with all hypotheses and findings here

Please let us know if you would be interested in a webinar to talk through these findings

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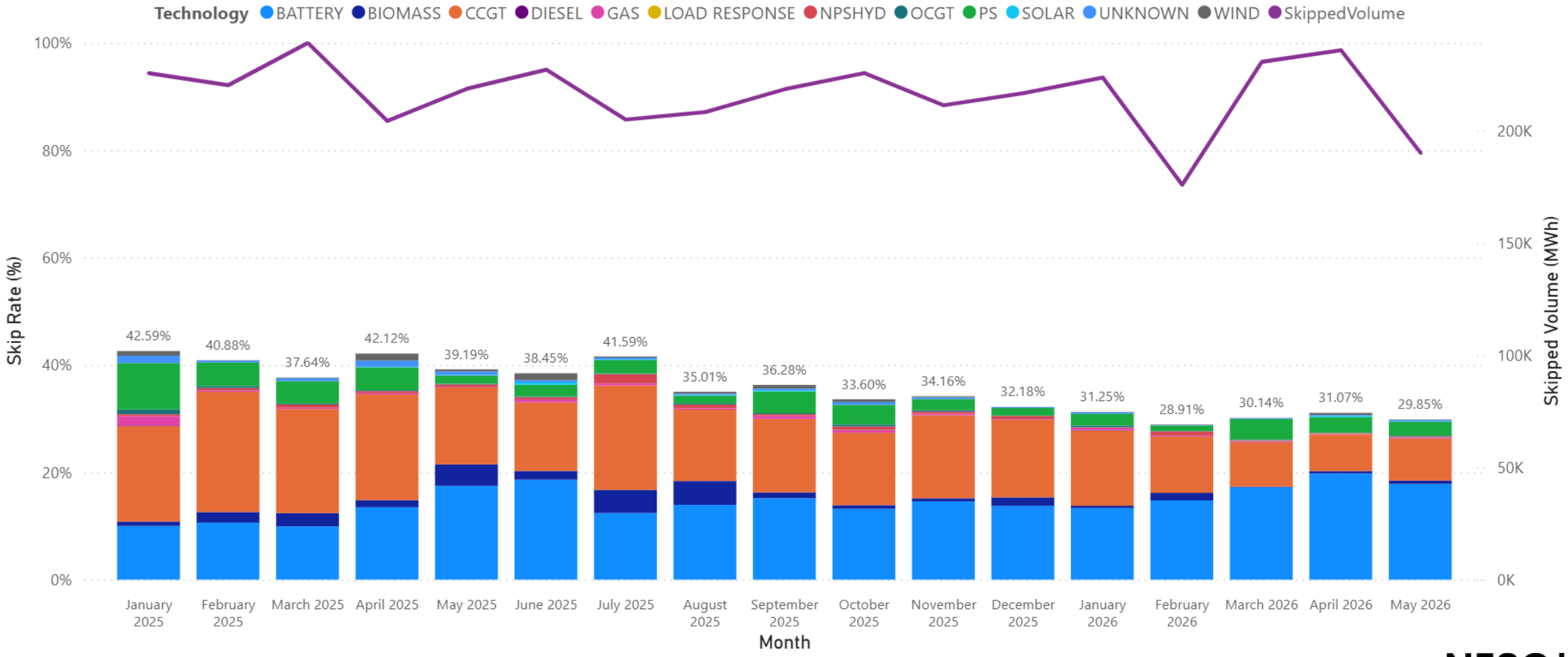
General
Public

Batteries and CCGTs continue to make up the majority of skipped volume and have the largest in-merit volumes



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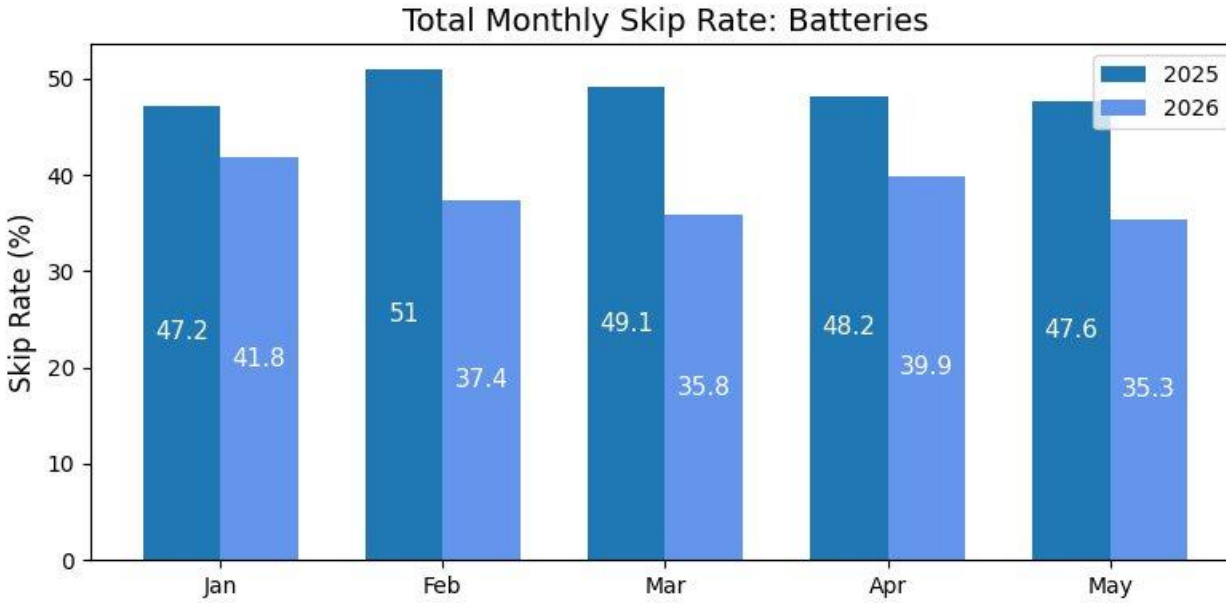
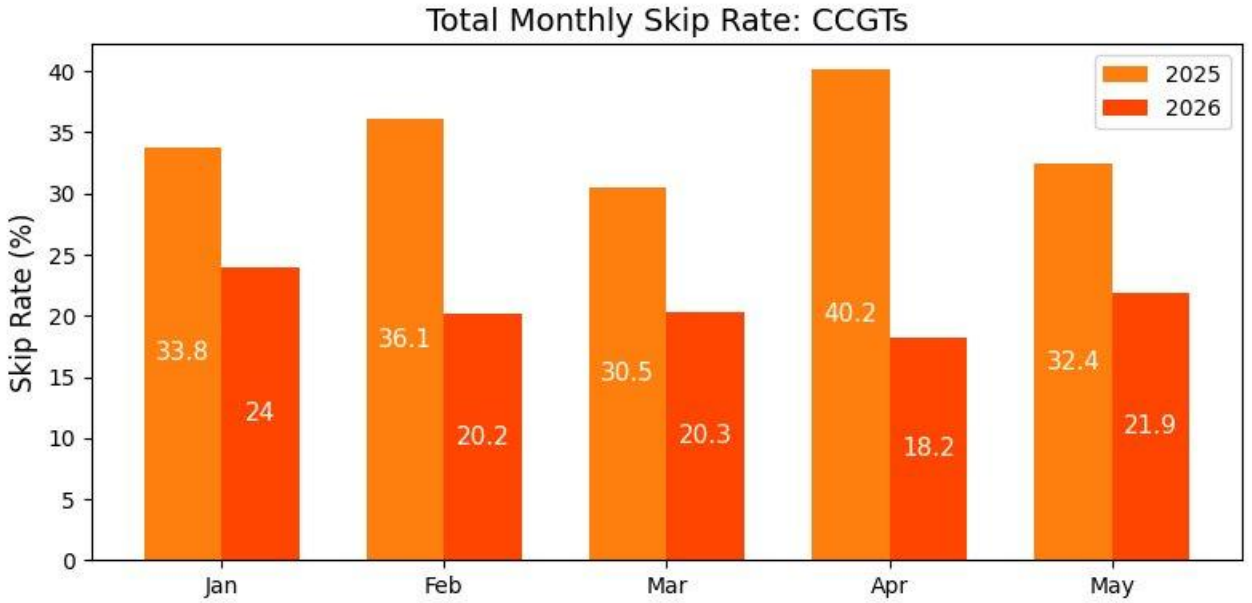
Battery-specific skip rates have remained constant this year with more batteries in-merit and accepted





Battery-specific skip rates have remained constant, confirming that more batteries are in-merit and we are accepting more batteries

Battery skip rates have remained relatively constant (with February-April staying below January). Despite the rising skipped volume, in-merit volume is increasing at the same (if not greater) rate.

The CCGT skip rate also shows a decline, with a notable downwards trend since January.

Methodology Changes – Energy Balancing

4 There are 4 upcoming changes to the existing Energy Balancing Skip Rate methodology

1 GC0166

Change: Additional parameters for storage units will be used to calculate available volume in the skip rate calculation

Reason: grid code change

Date: 25th June

2 Quick Reserve / Slow Reserve

Change: Exclude units with QR/SR contracts in the direction of the contract

Reason: capability change to protect procured reserve volumes

Date: Summer

3 Wind Offer Exclusion (update)

Change: Add an exception to the existing wind exclusion so that wind offers are not excluded if the wholesale price is negative and a unit has a PN = 0

Reason: more accurate reflection of available volume

Date: Summer

4 Solar Offer Exclusion (new)

Change: Additional exclusion to match wind

Reason: more accurate reflection of available volume

Date: Summer

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What are Constraints?

- Thermal constraints are operational limits that protect physical infrastructure. They limit the power that can flow across physical wires and cables, and can be visualised with theoretical lines drawn across the UK.

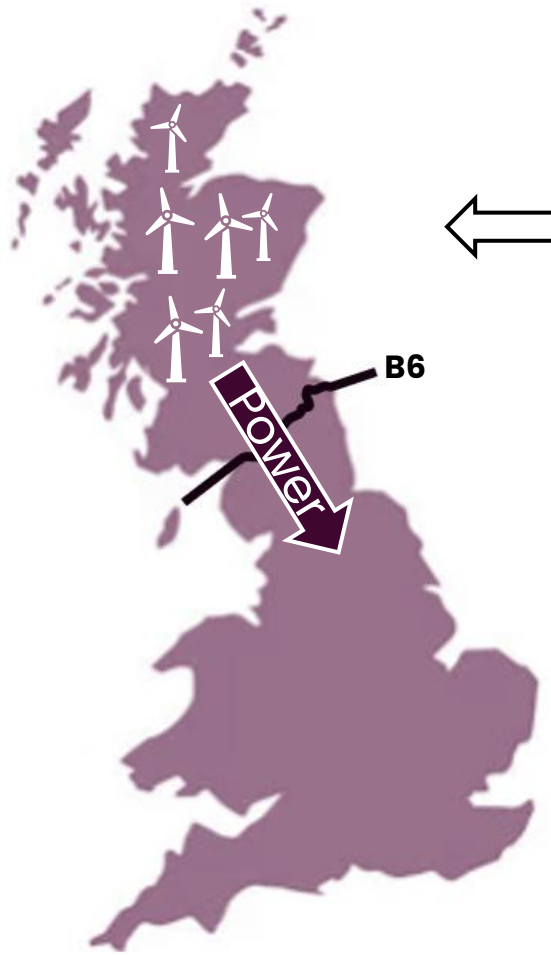
- An **active constraint** is a constraint that control engineers are currently taking actions to reduce the flow across. It is affecting dispatch decisions.

- **Export constraints** upper limit on the power that can flow out of a region. They often surround areas of high generation and low demand, such as Scotland on a windy day.

- **Import constraints** lower limit on the power that can flow into a region. They often surround areas of high demand and low generation, such as large cities.

- Constraints can also be due to voltage or stability.

Import and Export Constraints



Export constraints

- Limit the power that can flow **out** of a region
- Surround areas of high generation and low demand

Import Constraints

- Limit the power that can flow **into** a region
- Surround areas of high demand and low generation

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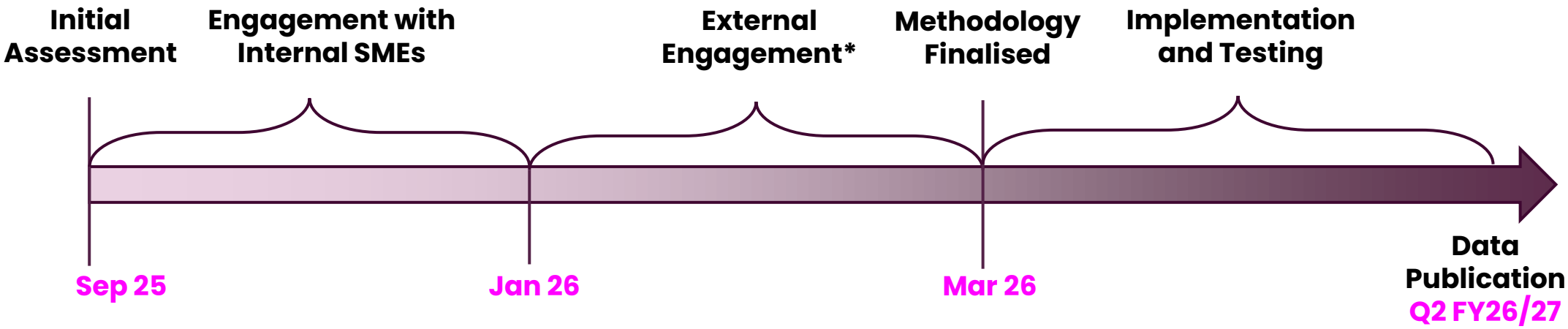
Skips Behind Thermal Constraints Update

This work will provide transparency on dispatch decisions taken to manage active thermal constraints and will create a new metric with associated datasets.



A methodology has been agreed with industry as of March 2026 and can be found here.

Implementation is currently in progress, with a view to publish data externally in Q2 2026.

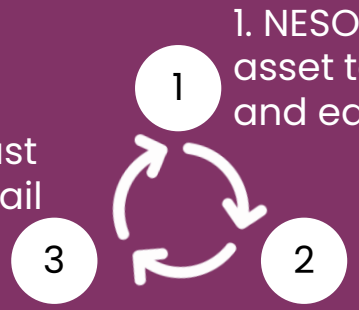
*Note: External engagement refers to Dispatch Transparency forum (January 2026) and Skips Behind Constraint Webinar (March 2026). The details can be found on Skip Rates page.

Storage Behind Constraints

Storage Behind Constraints

Storage scheduled to generate during export constraints can increase congestion.

NESO dispatches in merit order. Behind export constraints, this can create a feedback loop for storage that increases balancing actions and costs, conflicting with the requirement to minimise overall balancing costs.



1. NESO pays the storage asset to reduce its output and ease congestion.

2. State of charge changes. Asset resubmits a position to discharge again.

3. NESO must pay to curtail it again.

Cycle repeats until the constraint clears

This cycle is a rational response , not malicious behaviour. The issue is the incentive structure.

COST IMPACT

£58.2M - £97.9M

In additional balancing costs from RRT

2025 Calendar Year

50% cost growth between 2024–25FY and 2025–26FY

Source: *NESO Market Monitoring*

WHY THIS MATTERS

- Cost grew 50% year-on-year and storage deployment is still increasing.
- NESO has a licence obligation to operate the network economically and efficiently.
- Inconsistent decisions in the control room create uncertainty for BM participants.

The aim is to retain the system and flexibility benefits of storage while reducing unintended consumer cost impact.

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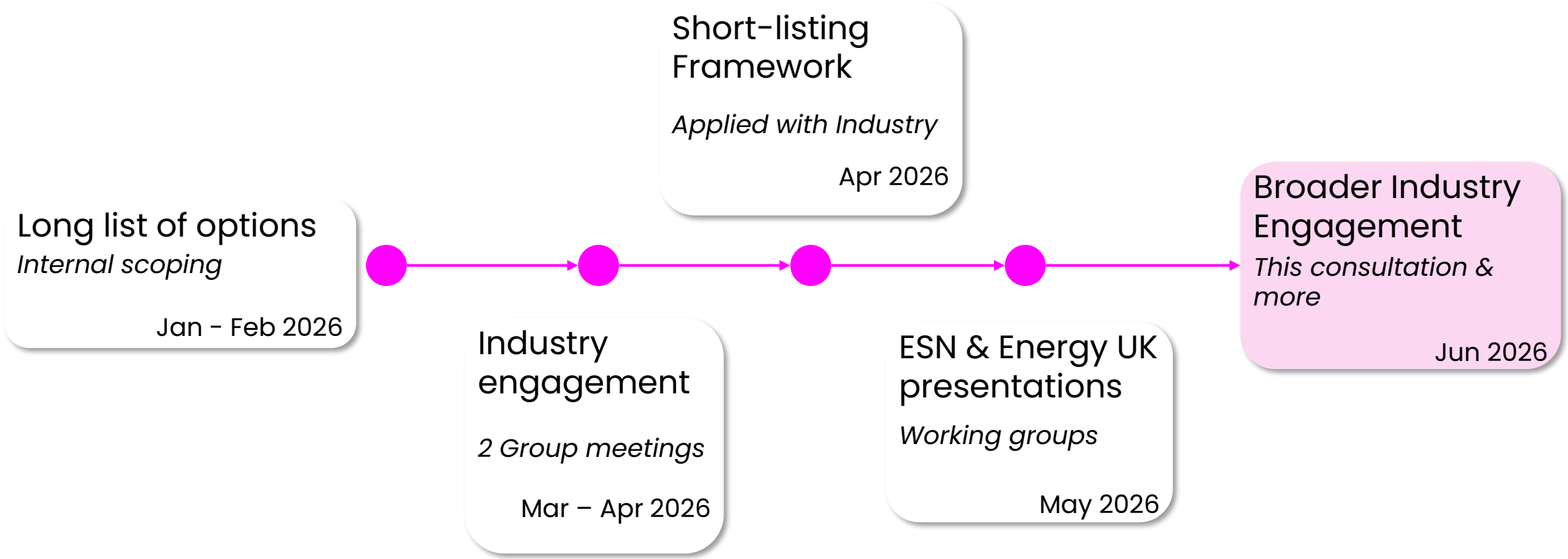
Storage Behind Constraints : How We Got Here



Storage Behind Constraints: 16 Options

Change asset behaviour in BM

1A: Redispatch storage, but they can subsequently only discharge at a portion of their PN.

Do Nothing

2A: Dispatch in price order

Change decision making in control room

3A: Dispatch according to order of actions prioritizing generation before storage, through BPS.

3AA: As 3A but storage can charge

3B: No charging of storage behind constraints

3C: Only dispatching storage assets up to a single cycle per constraint period.

3CA: As 3C but charging unrestricted

New markets to change storage behaviour

4B: Grid Trade Master Agreement Schedule 7a

4A: Boundary flow smoothing

6A: Capacity Reserve Market. NESO tenders for availability during constraint periods.

4C: Redispatch in bid/offer pairs to return SOC change to zero.

Reduce need to redispatch storage assets

5A: Intertrip services

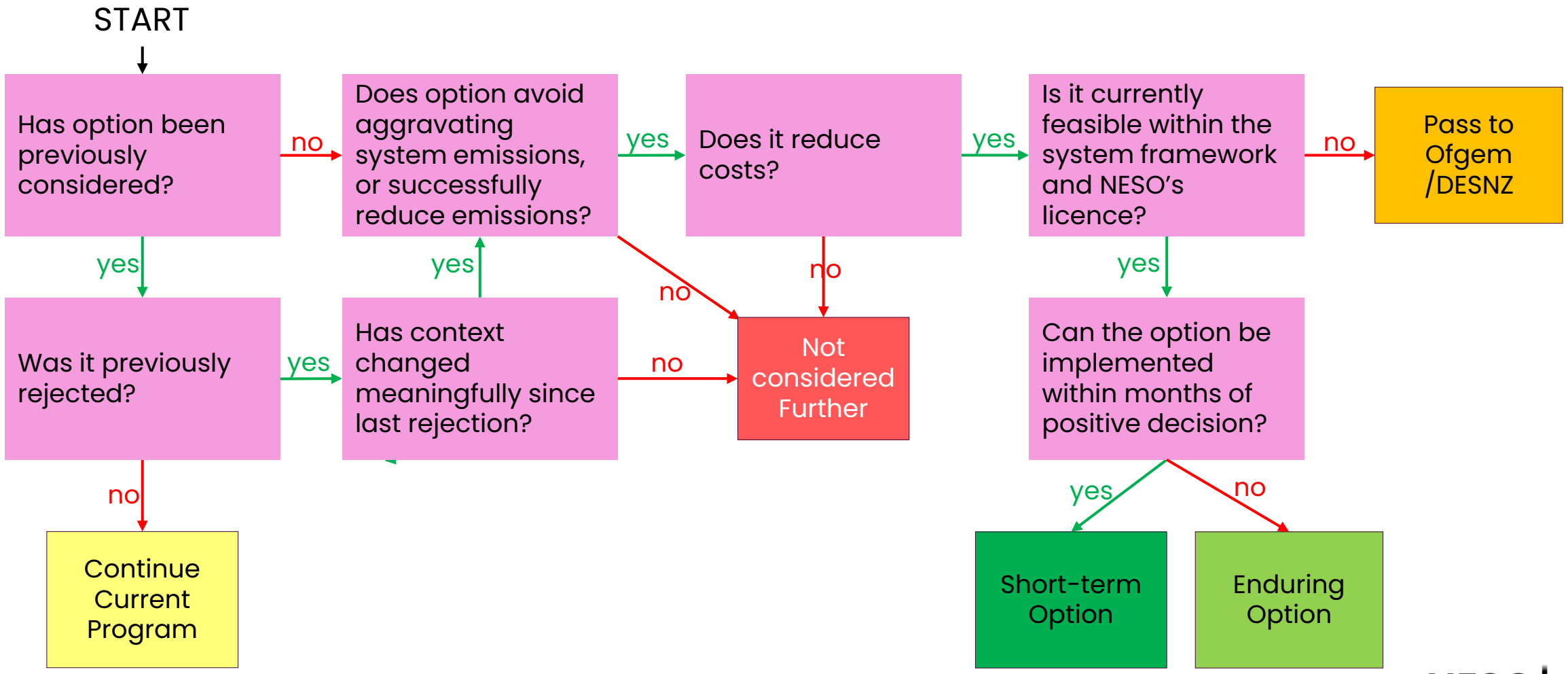
5B: DA information transparency and optimisation

5C: Non-firm / central scheduling of storage assets.

6B: Advanced cost benefit modelling

6C: Guidance on reasonable cycles per day

Storage Behind Constraints: Shortlist Framework



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Storage Behind Constraints: Shortlist Decisions

Changes asset behaviour in BM

1A: Redispatch storage, but they can subsequently only discharge at a portion of their PN.

Do Nothing

2A: Dispatch in price order

Change decision making in control room

3A: Dispatch according to order of actions prioritizing generation before storage, through BPS.

3AA: As 3A but storage can charge

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New markets to change storage behaviour

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Reduce need to redispatch storage assets

5A: Intertrip services

5B: DA information transparency and optimisation

5C: Non-firm / central scheduling of storage assets.

6B: Advanced cost benefit modelling

6C: Guidance on reasonable cycles per day

- Not considered further
- Long-term Option
- Short-term Option
- Continue current program
- Pass to Ofgem/DESNZ
- Status Quo

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Storage Behind Constraints: Our Shortlist

SHORT TERM (3 – 6 MONTHS)

Option 3A

Change NESO's balancing rules; Prioritise redispatch actions on generation before storage behind export constraints.

✓ Breaks the repetitive retrading loop.

✓ Removes the cost externality without removing storage from wholesale or ancillary markets.

✓ Resolves tension between merit order and NESO's economic dispatch obligation.

- Short term option that does not fully resolve the issue

Option 3AA

As 3A but enables in-merit charging behind constraints without curtailing discharge.

✓ Preserves storage activity in BM

✓ Storage absorbs cheap or excess renewable energy mid-congestion.

- Does not remove the feedback loop; potential for more unwanted dispatch behind constraints with limited decarbonisation benefit.

- More complex to implement than 3A.

ENDURING (1 – 2 YEARS)

Options for Cost-Benefit Assessment

3C: Single dispatch per constraint period

NESO would call on a storage asset to reduce output once per constraint period.

3CA: 3A, with charging unrestricted

No limits on charging during congestion but can only bid back a single discharge.

4B: GTMA Schedule 7A Expansion

Extend current trading platform to agree positions with BMUs before gate closure.

6A: Capacity Reserve Market

A competitive market where storage bids to be available during congestion periods.

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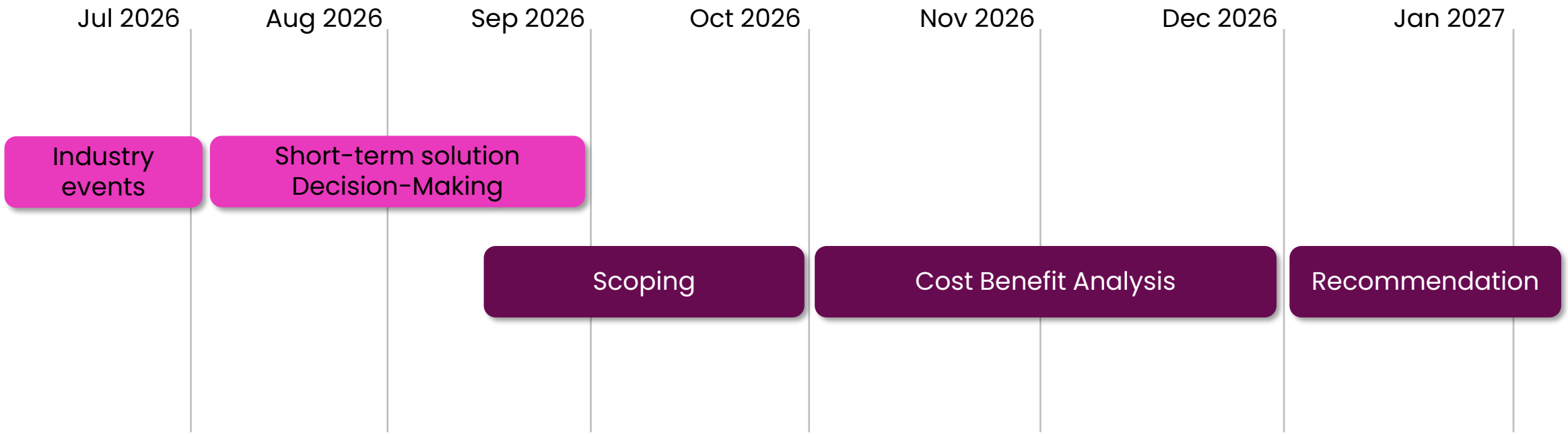
Storage Behind Constraints: What Happens Next?



KEY: Short-term Enduring

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SBC: We Want To Hear From You

- Are the shortlisted options the right focus? Is anything missing?
- Is the proposed treatment of storage behind constraints fair and workable?
- What evidence would provide sufficient confidence to support one of the short-term options?
- What should we prioritise in the longer-term cost-benefit analysis?
- How can NESO engage with you better as this work develops?

Thanks for your participation

We welcome your feedback & questions – please do get in contact with us at skiprates@neso.energy

Slides from today's session will be published shortly after the event. In the meantime, you can access content from our earlier events, webinars and focus groups here.

Subscribe to our new NESO newsletter 'Energising Progress' here - please select **Future of Balancing Services (inc Balancing Programme & Skip Rates)** to keep up to date.

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Storage Behind Constraints (SBC)

PRE-READ: KEY INFORMATION AT A GLANCE

A quick reference on every option considered

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This operational review is aiming to increase the net value that storage provides to society

- NESO places significant value on increasing storage on the system to deliver the flexibility needed to achieve Clean Power 2030
- CP30, and the Review of Electricity Market Arrangements, recognise that the existing market and system design in GB does not currently deliver the most efficient use of the new types of assets that will deliver CP30
- This operational review aims to get us a step closer to delivering the system that gets the best social value of the assets which are essential for CP30

Operability challenge: repetitive retrading

1. Consider a storage unit which has a SoC of 0% and is located behind a constraint.
   - To resolve the constraint, a bid is sent to charge the unit, increasing it's SoC for the subsequent periods.
2. With it's new SoC, the unit now wants to sell the energy, and so it submits a PN.
   - However, the constraint is still active so the energy cannot be physically delivered.
   - A second BOA is sent to the unit to prevent the energy being discharged.
3. This dynamic repeats itself for future periods and can continue for the entire constraint period.
   - As a result, a higher volume of actions are required to resolve the constraint, increasing consumer costs.

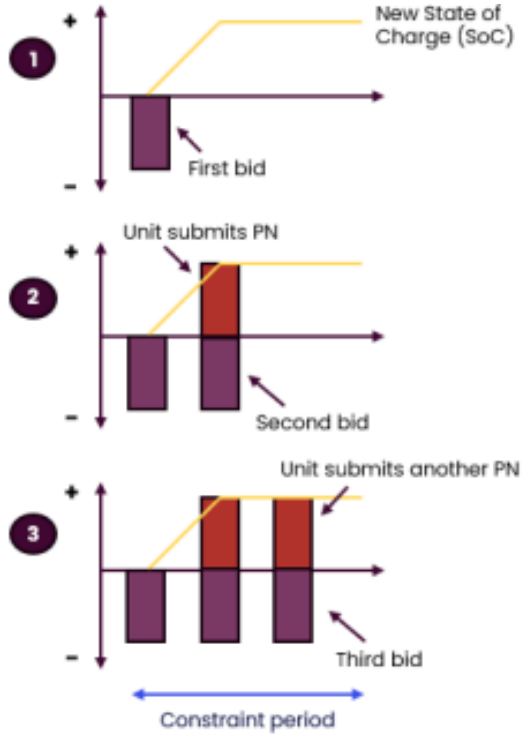

Figure 9: *Illustrative example of inefficient management of storage units*

- When storage assets are redispatched by NESO, it can create knock-on impacts as the units then have a different energy position than they expected. This then impacts on the availability or unavailability of energy in the market in future hours.
- This means that when constraints are active for multiple periods, the energy volume constrained off in storage units can perpetuate, leading to additional future constraint actions to buy out the same volume again in future periods; this dynamic is known as “repetitive re-trading”.

We have discussed a long-list of options with an industry workgroup

Initial list aimed at capturing **the full range of options**, including ones which may be deemed out of scope, out of NESO's remit, or that don't achieve the objectives of the review.

Change asset behaviour in BM

- 1A) Redispatch storage, but they can subsequently only discharge at a portion of their PN

Do nothing

- 2A) Dispatch in price order

Change decision making in control room

- 3A) Dispatch according to order of actions prioritising generation before storage, through BPS
- 3B) No charging of storage behind constraints
- 3C) Only dispatching storage assets up to a single cycle per constraint period

New markets to change storage behaviour

- 4A) Boundary flow smoothing project
- 4B) Grid Trade Master Agreement (GTMA) Schedule 7a
- 4C) Redispatch in bid/offer pairs to return SOC change to zero

Reduce need to redispatch storage assets

- 5A) Intertrip services
- 5B) DA information transparency and optimisation
- 5C) Non-firm / central scheduling of storage assets

Other options have also been suggested by the industry workgroup and included for consideration

- 6a: Capacity reserve market
- 6b: Advanced cost-benefit modelling of RRT to evaluate against BOA price differences in real-time
- 6c: NESO provide a guidance document on reasonable number of cycles per storage asset and NESO empowered to skip bids beyond this

Storage Behind Constraints: All Options Considered

Option	Name	Description
1A	Limit post-redispatch output	Restricts generators' ability to return to higher output after being redispatched to manage constraints. Limits the symptom, not the cause.
2A	Dispatch in price order	This is the current approach. The baseline that generated over £58m in costs.
3A	Prioritize generation before storage behind constraints	Changes dispatch sequence so generation is utilized before storage when managing constraints. Cleanest break, clear instructions for control room.
3AA	As 3A, but redispatch to charge	As 3A but still permits redispatch of storage assets to charge while prioritizing generation for bid actions. Compromise option, smaller cost savings.
3B	No charging of storage behind constraints	No redispatch of storage assets to charge, but would redispatch any discharge to 0. Doesn't maximise benefit and has no impact on behaviours.
3C	One dispatch cycle per constraint event	Limits dispatch actions during a constraint event to a single cycle to avoid repeated feedback effects. Hard to track consistently.
3CA	As 3C, but unrestricted charging	Maintains one-cycle dispatch but allows redispatch of storage to charge within the constraint. Likely produces more storage cycles per day.
4A	Boundary flow smoothing	Smooths power flows across network boundaries to reduce the severity of constraint actions. CCP already running an innovation programme to target physical causes of constraints but it operates upstream of dispatch so cannot address what happens when storage is already sited behind an active constraint.
4B	Grid Trade Master Agreement Schedule 7a	Expands pre-gate trades to replace balancing actions and reduce redispatch volumes. Already exists, expansion without unintended consequences targeted.

Storage Behind Constraints : All Options Considered

Option	Name	Description
4C	Redispatch in bid/offer pairs to return SOC change to zero	Coordinates matching bids and offers across time frames to maintain no change to storage state of charge. Beyond NESO licence remit to implement.
5A	Intertrip services	Expands automated protection schemes that reduce output when constraints are triggered allowing higher pre-fault flows. Helps at the edges of constraints, does not touch dispatch issue.
5B	DA information transparency and optimisation	Provides earlier visibility of expected constraints to inform market behaviour. This won't alter behaviour alone, if incentive remains to re-trade.
5C	Non-firm / central scheduling of storage	Moves storage toward centrally coordinated or non-firm operation within constraints. Fundamental redesign of how storage participate in markets.
6A	Capacity Reserve Market	Storage would bid to be available during congestion periods. Constraint cover procured competitively, with prices set through bidding. Design is hinged on Ofgem clarifying whether availability payments constitute a regulated service.
6B	Advanced cost benefit modelling	Factors cost of repetitive retrading into merit price stack that is visible to control engineers for decision making. Current tech does not support predicting market behaviour in real-time.
6C	Guidance on reasonable cycles per day	Sets limits or guidance on how frequently storage can cycle within a day. Enforcement mechanism non-existent. 'Reasonable' will also need to be defined.

The Future of NESO Market Products and Services

Jon Wisdom, Head of Market Change Delivery (Glasgow)
Cathy Fraser, Head of Market Requirements (London)
Joseph Donohoe, Service Delivery Manager (London)
Will Gratton, Senior Strategy Analyst (Glasgow)

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Agenda

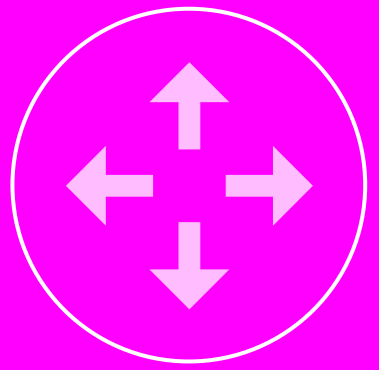
- Market and Ancillary Service update
- What has happened recently?
- What's in the near future?

Public

Market & Ancillary Service Update

Barriers to entry for smaller demand side assets

- SFFR min unit size to 0.1MW
- DFS min unit size to 0.1MW
- Further information on Demand Side Flex covered in the EDSF session



Delivery risk and reform overload

- Understand there is a lot of changes
- Rapidly evolving system and markets
- Aim to provide forward notice of changes
- Early engagement on locational procurement, RTDx & MFR

Clarity around stacking and how NESO services interact

- Updated Response stacking Guidance
- Working on Response & Reserve
- Aligning with Market Facilitator
- Broader stacking options will be evaluated

SFFR: Static Firm Frequency Response **EDSF:** Enabling Demand Side Flexibility **RTDx:** Realtime Dynamic Response **MFR:** Mandatory Frequency Response

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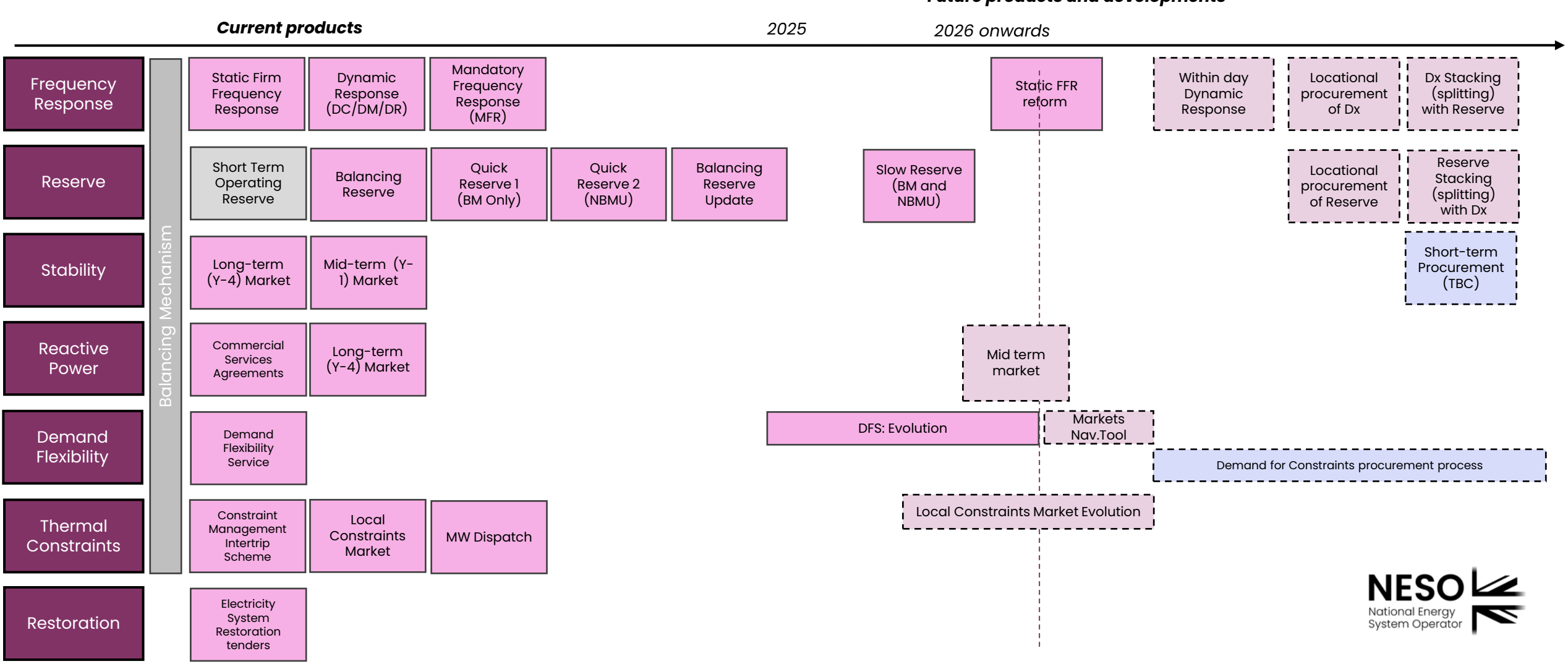
Public

#SUMMER26

Market and Ancillary Services –

Overview and Roadmap

To operate a safe and secure power system, NESO procure a suite of ancillary services through designated markets and via Bid Offer Acceptances (BOAs) in the Balancing Mechanism.



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What's Happened Recently?

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Demand Flexibility Services (DFS) Changes went Live 14 April

Demand Turn-Up

Add a Negative Margin element to the service

Locational Procurement & Primacy

Introduce locational procurement

12 Locational Zones

Introduce early Primacy process

Baselines

Retain P376 methodology for Domestic Participants

Introduce optional self-nominated baseline methodology for Industrial & Commercial (I&C) and intermittent renewable assets

Eligibility Rules

Reduce eligibility criteria from 1 MW to 0.1 MW

Static Firm Frequency Response (SFFR) Evolution -Go Live 31st July

Reduce minimum bid & unit size

Reduced the minimum bid and unit size to 0.1MW

Reduced Trigger Level

Reduced the trigger level to 49.65Hz

Performance Monitoring Improvements

Updated Percentage Performance Measure (PPM) to better reflect delivery performance.

Introduction of an escalation process to suspend and de-register providers.

Data required

Additional clarity included on the data required from providers

Dynamic Response Consultation

Improved ENCC situational awareness

Requiring operational baselines and operational data at all times.

Stacking guidance improvements

Additional guidance published on stacking Dynamic Response with Stability & Inertia services.

Performance Monitoring Improvements

Introduction of the Tiered Performance Regime.

Ability to suspend from the market.

Continuous Transition Period

Withdrawn: Replacement for Grace Period 2 to ensure confidence in Response Volumes over contracted windows.

Quick and Slow Reserve

Slow Reserve

- Introduced 31 March 2026 for BM and Non-BM.
- 21 Market Participants
- Avg. Clearing Price 3.82 (£/MW/h)

Quick Reserve

- Introduced to BM market in March 2024 and to NBM in September 2025
- 24 Market Participants
- Avg. Clearing Price 4.45 (£/MW/h)

Activity

What has gone well?

What could have gone better?

Public

What's in the near future?

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Response & Reserve Current Service Design Status

	Needs case	Options assessment	Service design	Formal Consultation	Go Live
	**Engagement**				
Real Time Dynamic Response			★		
Locational procurement			★		
30 Minute Service Window - Response		★			
Stacking Response/Reserve		★			

The need for Realtime Dynamic Response

Enables reduction over-procurement at day ahead and purchase based on need at the time - Expected to save around £10m p.a.

Cost effective alternative action to instructing Mandatory Frequency Response (MFR) - Expected to save around £7m p.a

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Real-time Dynamic Response

Providers will submit limits (MW) and prices (£/MWh) for each SP and service if they wish to participate

Limits and prices can be updated until gate closure

ENCC will send 'start' and 'cease' instructions to providers to initiate and stop delivery

Delivery will be assessed and paid in the same way as for the current day ahead procurement, availability only

The is no change to the current day ahead auction

Long Term Frequency Response Changes

Mandatory Frequency Response (MFR) must change

MFR will be reformed/replaced to meet this requirement

In parallel there is a case for aligning technical parameters of Dynamic Response Services*

Request for Input (RFI) is currently live until 03 July

Service design targeted for early 2027 with delivery planning, code changes and transition period leading to MFR replacement in 2029

***Dynamic Response Services:**
DC: Dynamic Containment
DR: Dynamic Regulation
DM: Dynamic Moderation

The need for Locational Procurement

- Reduction of repositioning costs and actions within day.
- Fewer repositioning actions reduces complexity of scheduling and dispatch processes, reducing operational risk.
- Improvement to market signals in investment and dispatch timeframes.

What does Locational Procurement mean for Providers?

12 zones aligned with key transmission boundaries.

Locational information for each asset/unit to enable unit allocation to a single zone and Grid Supply Point (GSP) Group.

Units to be aggregated in zone and GSP group

EAC algorithm considering Available Transfer Capacity (ATC), along with system wide and Zonal requirements

If active constraints across zonal boundaries exist, market clearing prices for the same service and in the same period may differ.

Considering accounting for distribution network capacity. In collaboration with MF, exploring the role for primacy.

Demand for Constraints – Site Visits

Demand for Constraints is a new service we're developing to help incentivise new flexible demand assets in Scotland, which will help us manage thermal constraints.

We are in now in the final stages of design and are looking to organise visits to potential participants' sites in Scotland.

If you're interested in participating in Demand for Constraints and could host a site visit:

- Please email us at the the following email address box.market.dev@neso.energy by 3rd July, letting us know:
  - Project details
  - Timeline for the project
  - Possible dates and location of the visit.

- We are also hosting a commercial design webinar on Tuesday 23rd June at 10:30 AM – if you'd like to join please email us!

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Activity

Do you understand the reasoning for upcoming changes?

- Are there any change drivers we could be clearer on?

Do you understand the impact to you of upcoming changes?

- Are there any changes you would like to see?
- Is there anything you would like to learn more about?

Is there anything that you'd like to see?

-What aren't we looking at, and why?

What's Next For Flexibility?

Becky Hart, Head of Flexibility Market Development

Pravnick Heer, Balancing Services Market Development Manager

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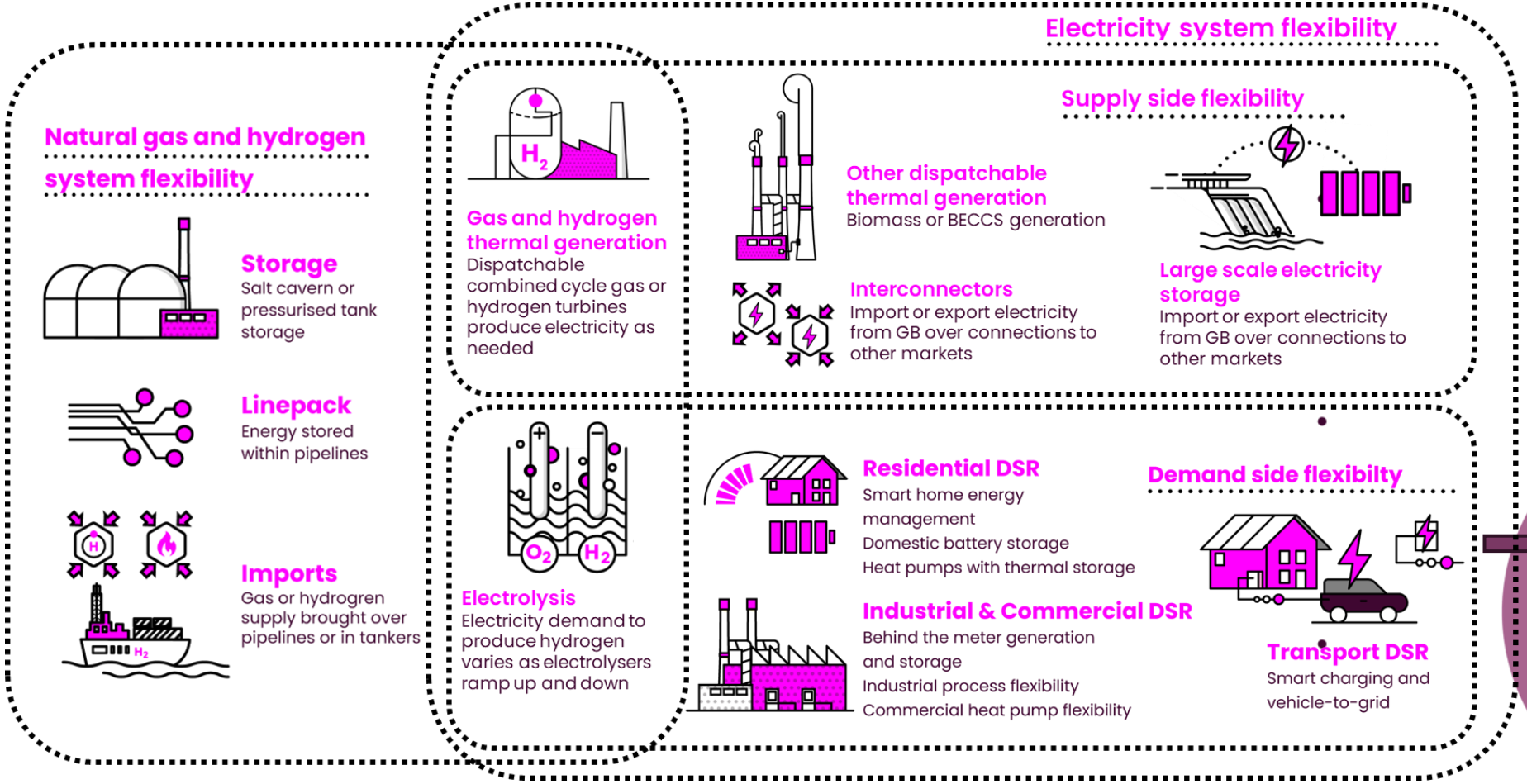
Flexibility can mean Different things to Different People



Demand Side Flexibility incorporates assets and technologies that can **increase**, **decrease**, **shift demand** for, and **store** electricity. It can generally be considered as behind the meter.

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NESO's Vision for Demand Side Flexibility

Enable flexibility resources to operate seamlessly between markets, driven by effective, market signals, delivering whole electricity system value to consumers and supporting the transition to net zero

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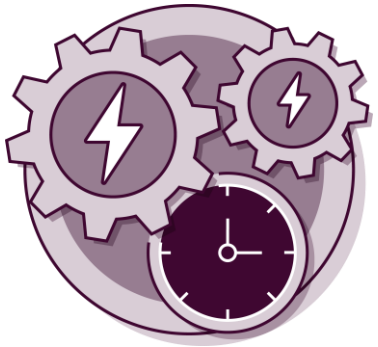
Enabling Participation in NESO Markets

Programme Governance

Targets, tracking & utilisation



Enablement activities

Innovation & collaboration

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What does good look like for DSF in our Markets in Future?

The EDSF programmes aims to ensure that our markets develop so that demand-side flexibility can fulfil its potential as a key part of operating a decarbonised and decentralised electricity system

Integrated & Coherent Market Design	DSF Used to its full Potential	Flexibility Coordination	Whole-System Planning
•System needs are changing and our markets need to evolve accordingly •This includes within-day flexibility requirements and longer-duration flexibility	• DSF can be used to help with within-day flexibility, frequency as well as load shifting at times of peak • It can also help manage transmission constraints	• Growth in DSF requires clear coordination with DNO markets • Covering changes spanning onboarding through to revenue stacking	• NESO's new remit covers energy system planning, including the need to get the right assets in the right places.

View from the Control Room

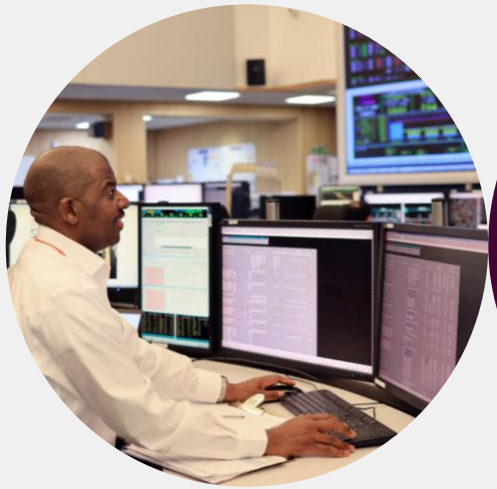
At the Electricity National Control Centre (ENCC), a number of significant changes are underway to enable NESO to operate the power system of the future

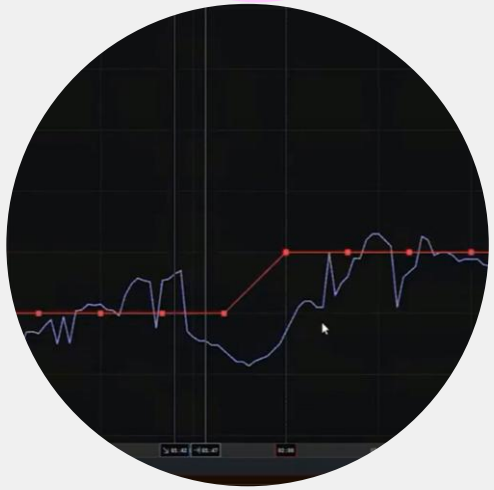
Many of these changes will enable, maximise benefit & mitigate against risks of increased demand side flexibility through changes to our **Systems, Data, Processes and People**

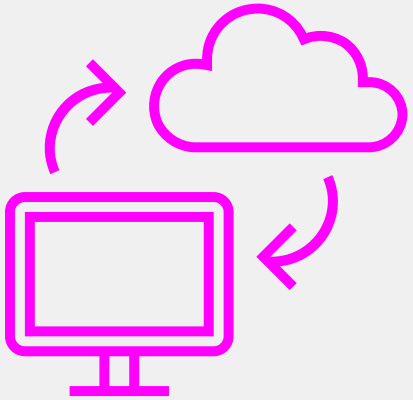
View from the Control Room

System changes in the short to medium term are focused on the Open Balancing Platform which is enabling the Control Room to make more efficient and flexible actions from an increasingly diversified pool of generation assets

In the longer term, our innovation programme Volta, is exploring the use of cutting-edge technology and research to develop the future algorithms required to implement fully time-constrained economic dispatch. This will enable the Control Room to work quicker across the broader range of technologies available to them







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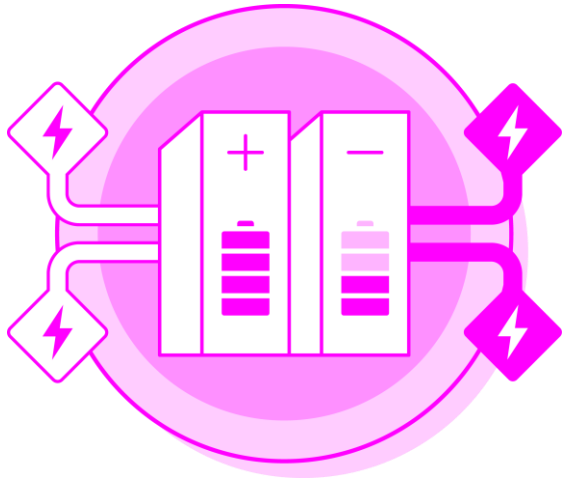
View from the Control Room

A significant focus on **data** runs through a number of change programmes to ensure the ENCC has the visibility required to respond to, and make the most of, different types of flexibility

GC0166 – Establishing new data parameters to improve ENCC visibility & utilization of limited duration assets



New ENCC data roles – focused on targeted tactical improvements to improve efficiency, situational awareness and general ENCC data capability

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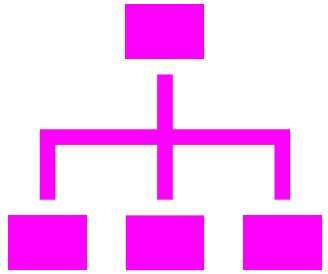
View from the Control Room

Transforming ENCC **people structures and processes** is another critical element as DSF depends not just on data and systems, but on how effectively people interpret, coordinate, and act on them in real time

Creation of new **market insight role** directly supporting ENCC scheduling & dispatch functions

Review of the whole **ENCC operating model** inc. roles, responsibilities, governance & inputs



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Routes to Market Programme

This is a key pillar of the Enabling Demand-side Flexibility programme

It's also a key deliverable under the Clean Flexibility Roadmap.

We'd like your feedback on:

A) Progress so far and

B) Any new barriers to entry

Routes to Market Barrier Activities

Focus area

Onboarding	Procurement & Dispatch	Settlement	Metering & Baselines

Why?

Removal of complexity and time-consuming onboarding processes	Removing uncertainty for Demand Side Flexibility Providers and improving operational efficiency	Collaborating for changes to ensure a level playing field and consistency	Reducing costs and complexity for DSF assets to meet operational standards

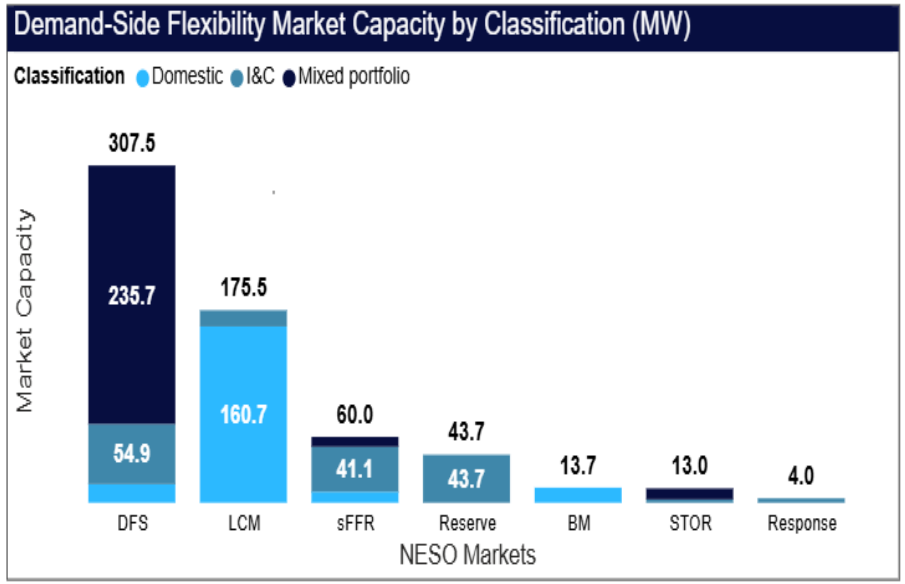
What are we doing?

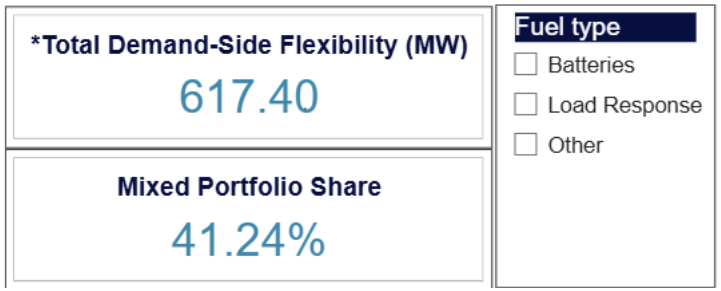
Onboarding team, Single Market Platform improvements	Skip rates programme, Sub-MW & Non integer participation in NESO markets	Code modifications	Operational metering Phase 1 & 2, Assessing 30 min procurement windows

General
Public

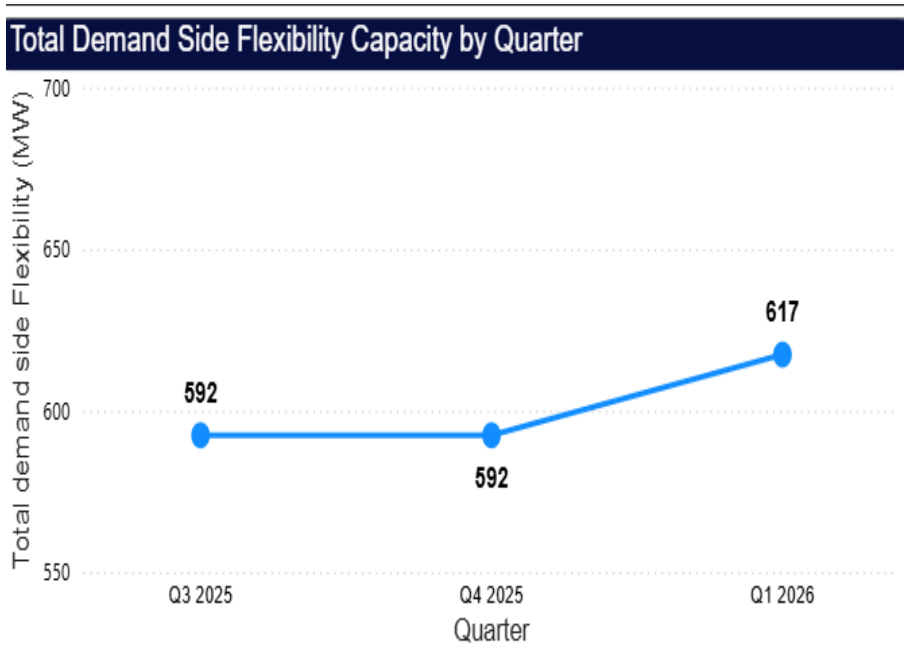
DSF Market metrics dashboard

We publish a **Demand-Side Flexibility in NESO markets data dashboard** on a quarterly basis alongside these updates. Below is a summary of the total volume of Demand-Side Flexibility that was active in NESO markets from **January 2025 to March 2026**. The full dashboard can be found on this webpage.





*Total Demand-Side Flexibility in NESO markets capacity reflects unique units only. Capacity for units participating in multiple markets has been counted once to avoid duplication.



We'd like to know what you think

Please either raise your hand or submit your thoughts via slido on the following:

- Feedback on activities already in progress/completed within the Routes to Market programme
- What other barriers would you like added to the programme to enable more DSF participation in NESO markets?

Thanks for listening!

Your ongoing engagement and collaboration is vitally important to shape and realise NESO's DSF vision

If you would like to discuss or provide feedback on this presentation, including input into routes to market programme. Please reach out to the team at flexibility.strategy@neso.energy

You can find links to our latest Enabling Demand Side Flexibility report and Routes to Market quarterly update here

Power Response's Onboarding support for I&C customer interested in participating in our markets. Power.responsive@neso.energy

Scan or click the QR code or search **NESO Power Responsive**

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Closing Remarks

We really want to hear your feedback on the day – Please use the back of your name badge to share your feedback and pop it in the **Green box** if we have met your expectations and the **Red box** if we have not met your expectations as you make your way out.

If you have any further questions after today, please get in contact with us at:

- **box.marketsengagement@neso.energy:** Market Services related queries
- **box.balancingprogramme@neso.energy:** Open Balancing Platform related queries
- **skiprates@neso.energy:** Skip rate / dispatch transparency related queries

The full slide pack from today's session will be published on the NESO website, along with the Q&A; we will email you directly to the address you used to sign up when we do so.

Subscribe to our new NESO newsletter 'Energising Progress' **here** to keep up to date on everything happening from across the organisation.

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Public

Thank You For Your Time Today

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