

Agenda

Time	Agenda Item	NESO Presenters	Details
11:00-11:05	Welcome & Setting the Scene	Nisha Bhamidimarri , OBP Senior Delivery Manager	Purpose of the Technology Focus Group
11:05-11:10	Balancing Systems Release Plan – Technical Impact	Nisha Bhamidimarri, OBP Senior Delivery Manager Andrew Fletcher, OBP Lead Solution Architect	High-level overview of the Balancing Transformation release plan highlighting areas of technical impact on Industry
11:10 - 11:55	NBM API Integration with OBP	Chi-Ho Lam, OBP Lead Product Manager	OBP NBM integration, focused on NBM Quick Reserve (QR), covering NBM API, QR Business Logic and Market Participant Testing
11:55 – 12:10	OBP EDL/EDT Transition	Dave Uzzell, Operational Manager Andrew Fletcher, OBP Lead Solution Architect	High-level overview of migrating the EDT and EDL services from the current BM systems to OBP, detailing the impact on Market Participants
12:10 - 12:20	Q&A	Nisha Bhamidimarri , OBP Senior Delivery Manager	Opportunity for focus groups members to ask questions to NESO colleagues re: any of the topics covered in the session
12:20	Future Engagement Opportunities & Next Steps	Nisha Bhamidimarri , OBP Senior Delivery Manager	 Key takeaway messages from the session Dates of future Balancing Programme events / focus groups / webinars
12:30	Meeting Close		



Audience Participation



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



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



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



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



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





Balancing Systems Release Plan

Key:

- Technical Impact on Industry
- Complete

Programme Increment 14 (Oct 24 - Jan 25)

OBP Capabilities & Enablers:

- 1. Interface to Data Analytics Platform (DAP)
- 2. BM Quick Reserve Business Go-Live

Non-OBP Capabilities:

- . ASDP System Final release
- 2. BM System LDA updates (NEW)
- 3. VERGIL addition to improve economic dispatch (NEW)
- 4. Dispatch Efficiency Monitor real-time monitor (NEW)

Please note – GC0166 implementation date is dependent on the outcome of the Grid Code Modification process

Programme Increment 16 (Apr 25 - Jul 25)

OBP Capabilities:

- 1. Non-BM Instruction Types
- 2. Non-BM Quick Reserve
- 3. National Optimiser
- 4. Pumped Storage BOAs
- 5. Bulk Dispatch Wind BMUs (rule based)

Programme Increment 18 (Oct 25 - Jan26)

OBP Capabilities:

- 1. Constraints Pathfinder
- 2. Stability Pathfinder
- 3. Manage Sync/De-sync

OBP Enablers:

- 1. Ready to decommission ASDP
- 2. EDT/EDL mastered from OBP
- 3. PEF Integration













Retire ASDP, VERGIL & CLOGS

Programme Increment 15 (Jan 25 - Apr 25)

OBP Capabilities:

- 1. Constraint Management
- 2. Manual instructions

OBP Enablers:

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

Programme Increment 17 (Jul 25 - Oct 25)

OBP Capabilities:

- 1. BM & Non-BM Slow Reserve
- 2. Move MW Dispatch
- 3. Move Response (DC/DM/DR)
- 4. Optimisation within a Constraint

OBP Enablers:

- I. Ready to decommission ASDP
- 2. OBP becomes Operationally Critical

Programme Increment 19 (Jan 26 - Apr 26)

Capabilities:

- 1. Interface to NCMS for constraints
- 2. Response and Inertia

Abbreviations: DC: Dynamic Containment DM: Dynamic Moderation DR: Dynamic Regulation BOA: Bid Offer Acceptance DX: Dynamic Response VERGIL: Versatile Graphical Instruction Logger NCMS: Network Control Management System EDL: Electronic Dispatch & Logging EDT: Electronic Data Transfer ASDP: Ancillary Services Dispatch Platform CLOGS: Contingency Logging System



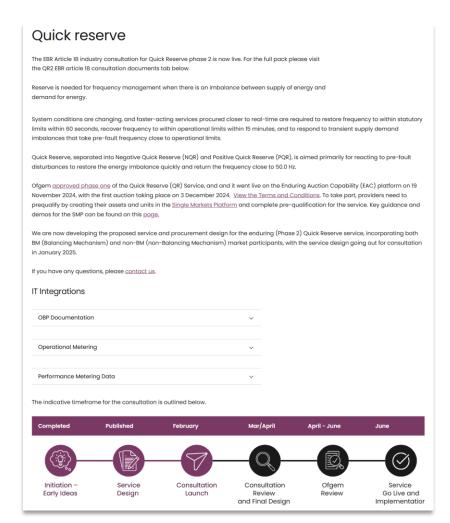
Overview of NBM & Quick Reserve - References

Non-BM (NBM) Quick Reserve and Slow Reserve are progressing in OBP – Quick Reserve (June 2025), Slow Reserve (Sep 2025)

- Quick Reserve Article 18 Consultation commenced in February 2025;
 further information available here.
- Slow Reserve NESO webinar led by Markets Team held 11 February 2025 – slides and recording available <u>here</u>.
- Dynamic Response NBM API v4 updated for NESO branding, connected to new NESO data centre.

Quick Reserve References:

- Quick Reserve NESO <u>Quick Reserve website</u> inc. details of:
 - Quick Reserve Service Terms
 - Service and Procurement Design
 - Crossover Guidance
 - IT Integration NBM Web Service (v4), Operational Metering, Performance Metering





What does NBM Quick Reserve Do?

Quick reserve

Reserve is needed for frequency management when there is an imbalance between supply of energy and demand for energy.



System conditions are changing, and faster-acting services procured closer to real-time are required to restore frequency to within statutory limits within 60 seconds, recover frequency to within operational limits within 15 minutes, and to respond to transient supply demand imbalances that take pre-fault frequency close to operational limits.

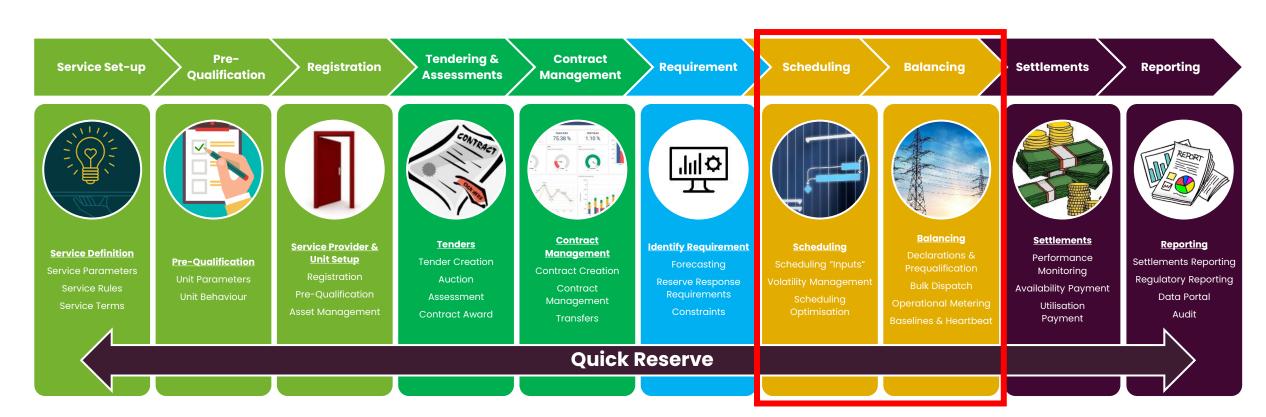
Quick Reserve, separated into Negative Quick Reserve (NQR) and Positive Quick Reserve (PQR), is aimed primarily for reacting to pre-fault disturbances to restore the energy imbalance quickly and return the frequency close to 50.0 Hz.



See NESO Quick Reserve webpage for more details – click **here**



Market Participant Journey – Quick Reserve



Open Balancing
Platform
(OBP)



NBM Quick Reserve Timeline

11 Oct 2024

Proposed Service and Procurement Design published to industry

19 Dec 2024

OBP NBM API interface specification published

May 2025

OBP Market Participant Testing (MPT) to commence

Jul 2025

Enduring Quick Reserve service expected to go live















15 Nov 2024

Industry feedback closed

12 Feb 2025

Article 18 consultation published

May-Jun 2025

Mock Auction E2E Testing

Other NBM

- **NBM Slow Reserve** (& BM) expected Sep 2025
- **NBM Dynamic** Response expected Sep-Oct 2025
- **NBM MW Dispatch** expected Oct+ 2025



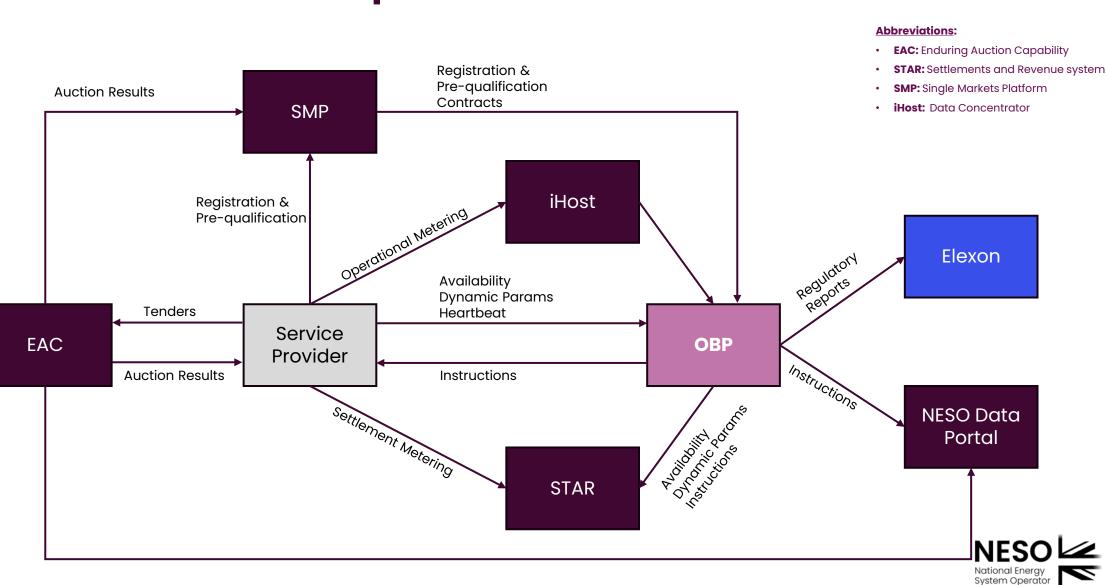
OBP and NBM Quick Reserve

NBM Quick Reserve introduces two concepts into OBP that have been part of its architectural and product visions from inception

Foundation for all NBM services in OBP OBP will become the single Balancing system for the Control Room and downstream systems BM & NBM: OBP will be replacing all Ability to combine and Balancing & Dispatch systems harmonise units and services as part of its Transformation within balancing processes Roadmap Harmonised where possible, specific handling where required (such as Open Instructions)

Brings concept of Service Flexibility & Service Rules into OBP – and dispatching NBM Services based on contracts and service rules Addition of future NBM services by configuration and parameters

NBM Quick Reserve – Operational Interfaces

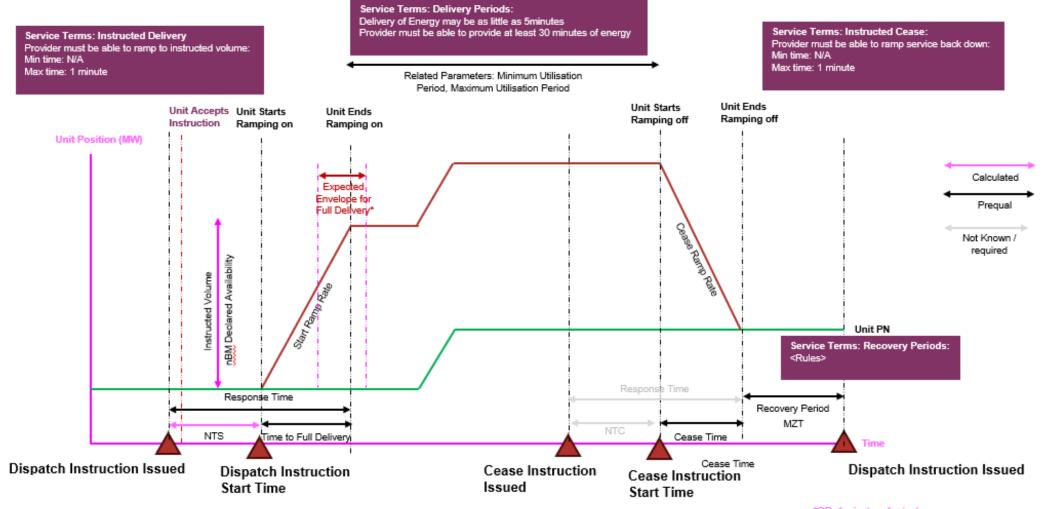


Market Participant Data Flows/Touchpoints

Process	Data Flows	System
Registration, Prequalification	Unit, Asset Registration, Service Prequalification	SMP
Manage Auction Tenders	Auction Tenders and Results	EAC
Auction Results	Consolidated Auction Results	Data Portal
Balancing	Availability, Heartbeat, Instructions, Dynamic Parameters (PN)	OBP/NBM API
Balarionig	Instructions	Data Portal
Operational Metering	Operational Metering	iHost
Settlements	Second by Second Metering	STAR



Visual Representation of Parameters





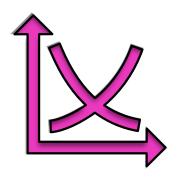


Key Data Items - NBM Quick Reserve

Data Item		Description	
	Unit ID	ID of a Unit, e.g., 'NBM-123' (Service Provider can have multiple Units pre-qualified)	
	Unit Start Date	Start date of Unit as per accepted Pre-qualification/Registration	
	Unit End Date	End date of unit as per accepted framework agreement (Pre-qualification / Registration)	
	Pre-qualified Capacity (MW)	The capacity a pre-qualified unit has prequalified for a Quick Reserve service (Ramp Rate calculation)	
	Response Time	The period inclusive of notification to start ramp for the service and the ramp period (Time to full delivery). For Quick Reserve this is no longer than I minute (Ramp Rate calculation)	
Prequalification	Time to Full Delivery (TTFD)	The period for pre-qualified units to reach pre-qualified service capacity MW from the start of the Ramp period. For Quick Reserve this is no longer than I minute from the instruction start time	
	Cease Time	The period for pre-qualified units to reach the PN (Physical Notification) from the start of a cease instruction and is the converse of the TTFD. For Quick Reserve this is no longer than 1 minute from the instruction stop time	
	Minimum Activation Period (MAP)	The minimum period a pre-qualified unit has specified a Quick Reserve instruction should continue for. It includes Ramp to declared MW capacity, time at declared MW capacity and Ramp back to PN. For Quick Reserve this is no longer than 5 minutes	
	Recovery Period	The period after a pre-qualified unit has reached its PN following a cease instruction and represents the time during which no further instructions will be sent for a Quick Reserve service, in the same direction, delivered under the previous instruction e.g. the time between the cease of a PQR and the start time of another PQR/PxR instruction. For Quick Reserve this is no longer than 3 minutes	
	MW for the service window	Declared Available Power MW for the Service – must remain the same for the entire Service Window (30 minutes for Quick Reserve)	
Declared	Utilisation Price	Declared utilisation price for the Service – must remain the same for the entire Service Window (30 minutes for Quick Reserve)	
	Physical Notification (PN)	The expected output level of unit in absence of any Instruction	

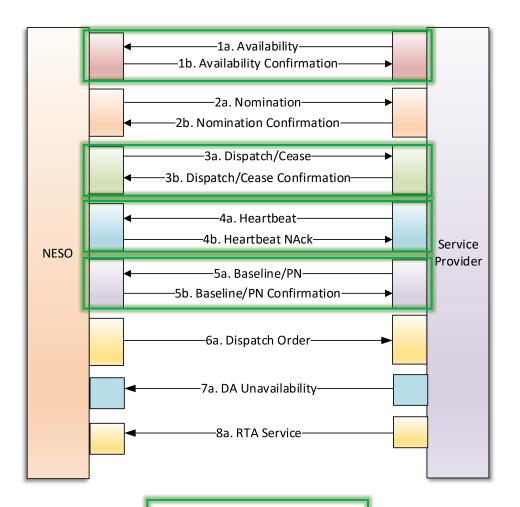
Ramp Rate Calculation

Service	Notice Period to Deliver (minute)	Notice Period to Cease (minute)	Ramp Up Rate (MW/min)	Ramp Down Rate (MW/min)
Positive	[Response Time] _ [Time to Full Delivery] 60 60	[Response Time] _ [Cease Time] 60	[Pre-qual MW] [Time To Full Delivery]/60	[Pre-qual MW] [Cease Time]/60
Negative	[Response Time] _ [Time to Full Delivery] 60 60	[Response Time] 60 [Cease Time] 60	[Pre-qual MW] [Cease Time]/60	[Pre-qual MW] [Time To Full Delivery]/60



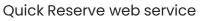


NBM API Web Services



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

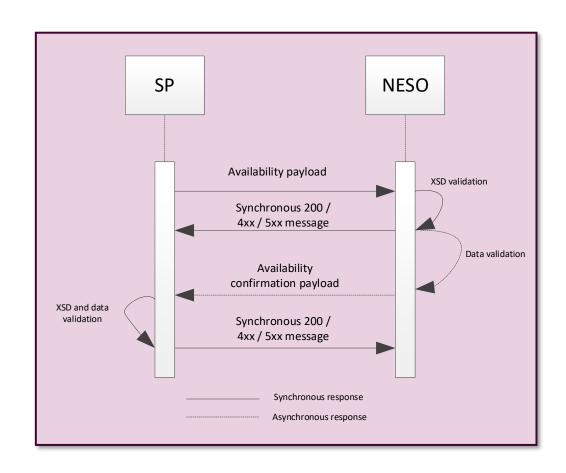
- Web Services will use SOAP v1.1
- NESO will wait for 2 minutes to receive synchronous response back from Service Providers before the system times out
- NESO has provisioned for its systems and Service Providers' systems to be out of sync by only 1 minute
- Datetime fields for all web services below should be in UTC (Coordinated Universal Time) standard unless specified explicitly
- Existing service providers who have implemented the STOR (Short Term Operating Reserve) and Fast Reserve services will only need to move to this version when they move to Quick and Slow reserve
- A new URL will be provided for integration
- Availability & Dispatch/Cease are Service specific
- Baseline/PN & Heartbeat are Unit specific
- Reference the OBP Web Services specification for full details





Availability

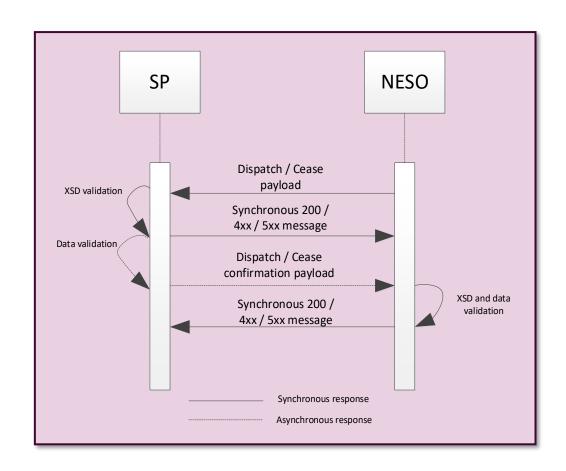
- Service specific (Positive Quick Reserve (PQR) & Negative Quick Reserve (NQR))
- Availability declarations (MW & Price) are required for contracted and optional services
- Availability declarations (MW & Price) are required for the entire service window
- Availability declarations are required before gate closure (60 mins) before the applicable service window
- Availability declarations received after gate closure will be rejected, aside from emergency redeclaration
- If no declaration has been received, then the unit is considered unavailable for the service, unless it is required to support a crossover
- Availability declaration MW and price should be submitted in same message except for:
 - Emergency redeclaration MW only (0MW), no price
 - Price-only (no MW value) submission for crossovers
- NESO expects providers to declare their MW to match with contracted MW. If they do not, the unit may still be dispatched with declared capacity, but the provider may not have met the service terms





Dispatch/Cease

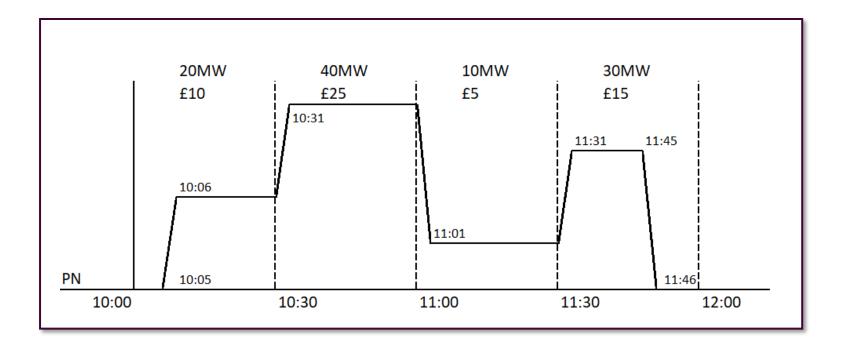
- Service specific (PQR/NQR)
- NESO will issue a Dispatch instruction to START the unit for the service, and a Cease instruction to STOP the unit for the service
- The volume requested in the START instruction will be the declared available MW in the appropriate window
- After receiving a Dispatch instruction, the unit should start to deliver the service MW (at the calculated ramp rate) from the scheduled date & time
- The unit should continue to deliver the service, through declared contracted/optional windows until a Cease instruction is received, or if the unit enters a window that has no availability (subject to crossover guidance)
- If a Cease instruction is sent before the START scheduled date & time, then the Dispatch instruction should not be started
- NESO will seek to issue instructions to honour Minimum Activation Period / Recovery Periods, however an Emergency Cease may be issued if NESO needs a unit to stop delivering before MAP is honoured due to operational issues
- It is expected that the unit should comply with the emergency cease, however, if it is technically not possible, then the Emergency Cease should be rejected





NBM Instruction Profile

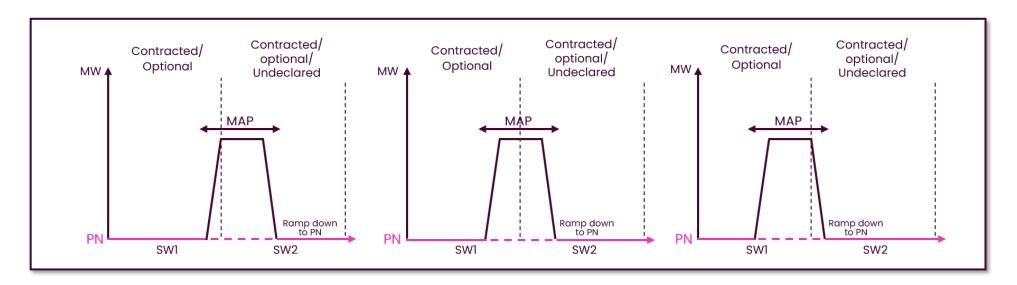
- Following a START instruction, the unit should continue to follow declared available MW profile (following crossover guidance) until Ceased, or if the declared profile returns to PN
- Once the unit has returned to PN, the unit should not deviate from PN unless a subsequent START instruction is received
- In the example, the instruction profile starts at 10:05, and continues until a Cease instruction with a (start to) Cease at 11:45 before returning to PN at 11:46
- NESO could send a Cease at any time after the Minimum Activation Period (MAP) period has been honoured after 10:05 (unless an Emergency Cease is required)





Service Window Crossovers (1)

- NESO requires Quick Reserve units, either contracted or declared optionally available, to deliver at least to their Minimum Activation Period (MAP)
- As such, if an instruction is started near the end of a service window (SW), then the unit would need to continue to run for up to 4 mins (as determined through its MAP) into the next service window
- A crossover is not required if the subsequent service window is contracted/declared for a different balancing service
- A separate crossover guidance document is available

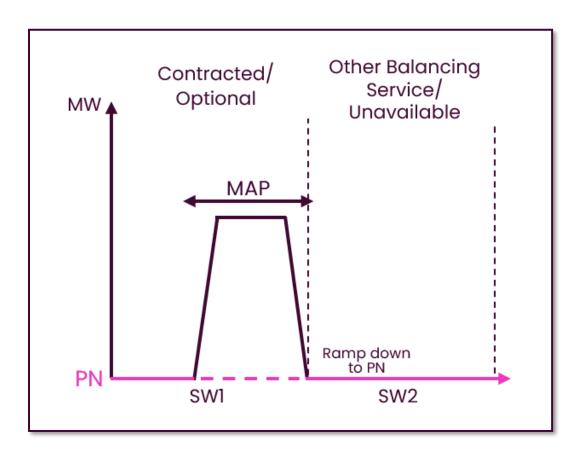


- Quick Reserve requires a unit's MAP to be no greater than 5 minutes.
- Therefore, the latest that NESO can instruct a unit for, and for a Crossover not to apply, is 5 minutes ahead of the end of a service window



Service Window Crossovers (2)

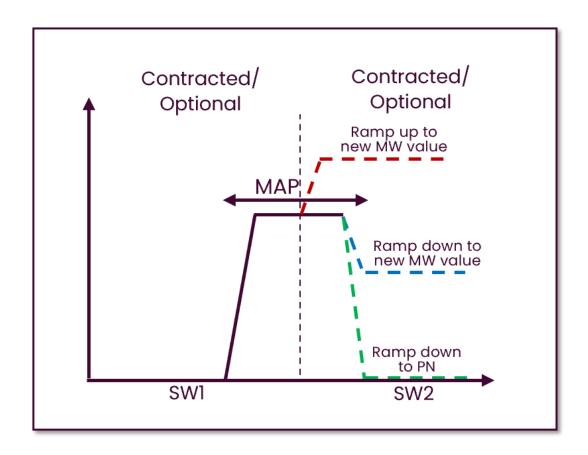
- Where the subsequent Service window is contracted/declared for a different Balancing Service, then a crossover is not required
- If there was not sufficient time to create a QR instruction in SW 1 and honour the MAP, then no QR instruction would be created in SW 1
- Where there is sufficient time to conclude the MAP within SW 1, then the unit will cease and return to PN for the end of SW 1 following a cease instruction
- The diagram illustrates the last possible time a QR instruction can be issued in this scenario





Service Window Crossovers (3)

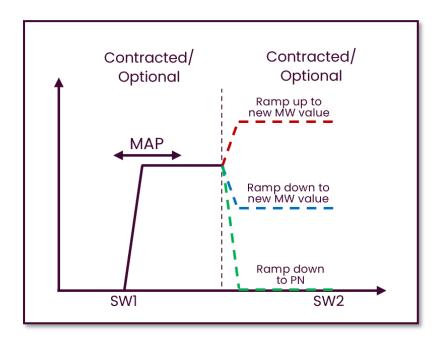
- If a crossover is required, then output should be maintained at least for the duration of the MAP at the same MW or higher, in the subsequent service window
 - If the subsequent service window has a higher MW, then the unit should ramp up to the higher MW immediately at the start of the subsequent service window
 - If the subsequent service window has a lower MW, then the unit should remain at the MW level from the first service window ramping down to the subsequent service window reaching that level at the end of MAP
- The price paid for utilisation of energy for service window 2 will be the declared price for service window 2

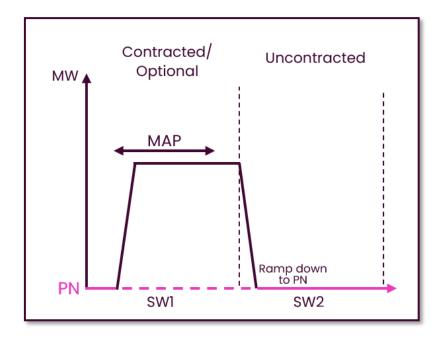




Service Window Crossovers (4)

- If a unit was declared for QR (contracted or optional), and if the MAP was honoured in a service window, then the instruction should be maintained at that level until the end of the service window before ramping to the subsequent service window MW level; unless a Cease instruction is received earlier (Left image)
- If a unit was declared for QR (contracted or optional) in service window 1, and the subsequent service window was not
 contracted for another Balancing Service and had no declaration; and if the MAP was honoured in first service window,
 then the instruction should be maintained at that level until the end of the service window before ramping to PN, unless a
 Cease instruction was received earlier (right image)
 - Service providers may submit a price only declaration for service window 2 when they do not have a contract, to support meeting their service window 1 obligations, otherwise the price from service window 1 will be used for the MAP/ramp down period in service window 2

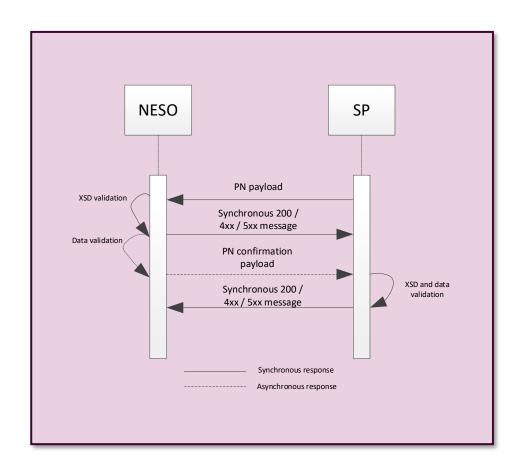






Physical Notification (PN)

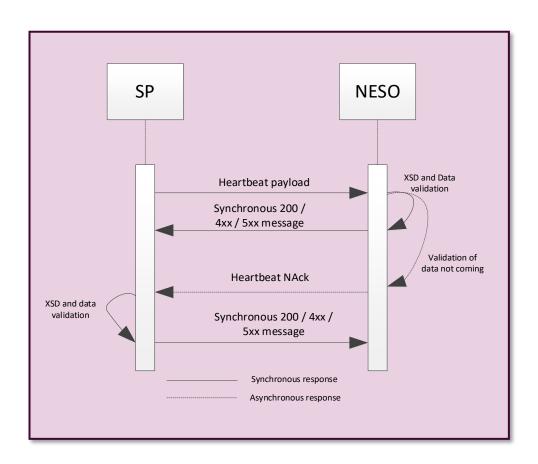
- Service Provider can send the PN data at unit level and the same PN would be applicable for all the active services of the unit
- Units can submit PNs even if not contractual or optional available for the whole operational day(s), with this being the NESO preference
 - If the unit is contracted for an operational day for any service, NESO expects the provider to submit a PN for the entire operational day
 - If a unit is optionally available for an operational day even for single period/service, NESO's preference is for PNs to be submitted for the entire operational day, however as a minimum NESO expects the provider to submit the PN for the optional periods and the next settlement periods
- PN data would be accepted for current as well as future 5 operational days
- If a provider fails to update the PN for following operational day by 18:30,
 NESO will use a default PN of 0 for any unsubmitted PNs for any periods in the following operational day
- Service Providers can update PNs as more accurate information becomes available
- The latest a Service Provider can redeclare the PN is Gate Closure (60 mins) before the start of a settlement period
- PNs should cover the complete half hour settlement period in the same request payload





Heartbeat

- Unit Specific
- NESO expects to receive a Heartbeat for a unit every 5 minutes
- Heartbeat signals are expected for an operational day for a unit where any service is contracted or optional within that operational day
- If a unit misses 2 consecutive Heartbeat signals, NESO will consider the unit to be unavailable. All services for the unit will be considered unavailable until a heartbeat signal is received
- If NESO does not receive any Heartbeat signal in the last 10 minutes, when one is expected because a unit has declared MW, NESO will send a Heartbeat NACK (Negative Acknowledgement) to the Service Provider





What is Market Participant Testing

- Market Participant Testing (MPT) is intended to prove connectivity, functional and technical integration, and conformance to the Service Terms and Business Logic for the Service
- Expected to start at the beginning of May 2025
- Service Provider (SP) & NESO OBP teams to perform testing
 - OBP & SP to share respective connection details (IPs, URLs, credentials)
 - Sanity connectivity testing to confirm connectivity established between NESO & SP
 - SP to provide prequalification and registration details
 - Once connectivity established, then functional testing to be conducted against the Business Logic
 Document i.e. PNs, declarations, instructions, instruction profiles, heartbeat
- Once MPT is complete, then progression to next stage (Ready for Production Onboarding) would happen once all systems/integrations are confirmed, with a target activation date for all systems and SPs.



OBP Non-BM Integration Testing - NESO are seeking interested providers to assist our system implementation teams ahead of the Quick Reserve Phase 2 go-live. We would like to hear from providers interested in supporting testing - sign-up to support testing **here** or scan the QR code; you can also contact your account manager.





Key Takeaways



NBM Quick Reserve has commenced Article 18 consultation with a **target of July 2025 go live**



NBM Quick Reserve is replacing NBM Fast Reserve, and whilst technical integration is similar, there are key differences in the Service Design



Market Participants
should register their
interest and start
preparation for
Market Participant
Testing



Other NBM Services will come to OBP, using the same technical integration



Register and attend **Quick Reserve Drop-Ins** for a wider explanation of integration across different NESO systems for Phase 2 Quick Reserve prior to go live; details on how to sign-up are available **here**.





EDT / EDL Mastering on OBP

Today we will share an outline of the transition. We are finalising the network changes to minimise impact to participants. There will be a document issued and a follow-on session next month.

Two sets of transition:



- **Transition from BM to OBP** This is application transformation and will include branding transition from National Grid to NESO (URL, new authentication, Network changes)
- Network Transformation Transformation to a different network provider and exiting Optel/ISDN

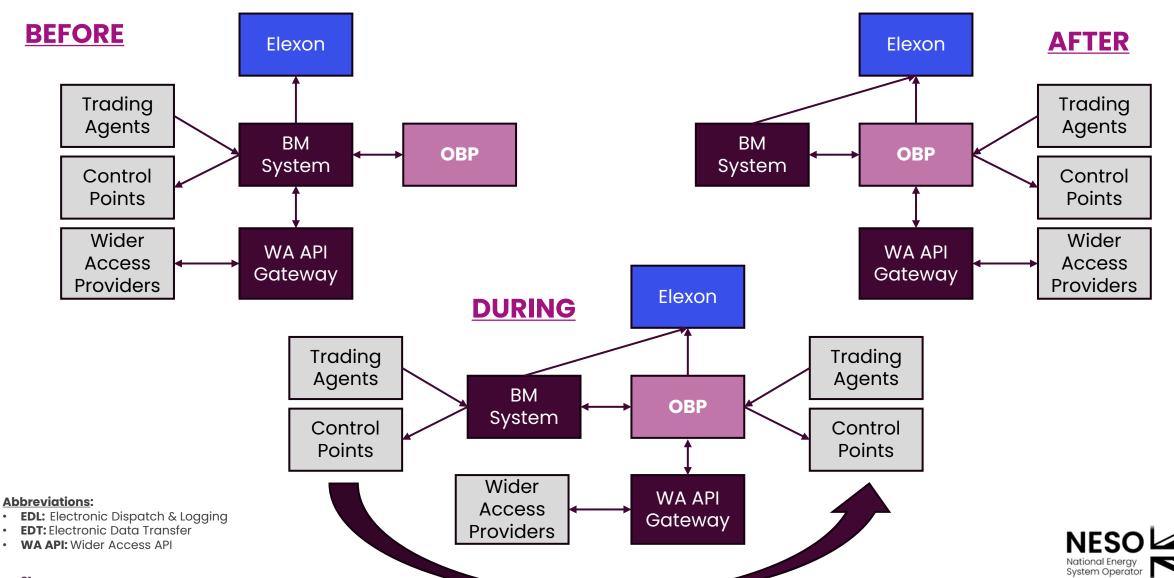
EDT/EDL transition from BM to OBP is currently planned for a 6-week period between October '25 and December '25.



- The transition has been carefully planned to avoid a big bang cut-over; it will happen in tranches during a transition window
- <u>Every party must transition to OBP within a 6-week window.</u> We cannot allow new participants to connect to the BM systems during this period
- A more specific window will be confirmed once we have finished our testing with Market Participants



EDT / EDL Transition



EDL/EDT Mastering on OBP Update

What support do we need from Software Providers & Market Participants?



Provide information about your team and software

• We will be emailing all TAs & CPs a survey requesting contact details for business and IT technical areas which interact with the submission/receipt of EDL/EDT data – completion of this Survey is essential to ensure we have accurate information about your software, and contact details so that we can plan and co-ordinate testing and cutover with your teams.



Participate in testing

Details provided in following slide



Make changes to your systems:

- Branding change from National Grid to NESO including URLs
- Readiness to move to Secure File Transfer Protocol (SFTP) from File Transfer Protocol (FTP)



Plan for changes to your network

- Firewall changes
- Network route changes



Proposed External testing strategy



Network access test NATs (EDT and EDL)

- · To prove the network changes have been correctly implemented
- To be executed from the production Participant application hardware to ensure E2E connectivity to the correct list of addresses (BM and OBP production and Test) with the required ports/protocols. Applicable for both EDL and EDT.

Software Supplier Type Test



- To prove the software can perform functionally when connected to the new OBP software (OBP MPT environment)
- To prove the software recovers following a set of NESO failure scenarios
- To be executed between Software Suppliers and NESO

Business Process E2E Test



- To prove EDT and EDL Payloads can be successfully sent/received from/to NESO from/to Participant
 - **EDT:** Participant re-points production instance to OBP DNS and sends PN file, retrieves ACK and ACC files, NESO confirms receipt, participant confirms responses
 - EDL: Selected sets of control points removed from production BM and connected to Control Points from OBP production, BOA sent by NESO, Redec sent by Control point. NESO confirms redec receipt, Control point confirms BOA receipt



Guide for Market Participants – Coming Soon



- Will be published and shared with this forum:
 - Transition Phases
 - Impact on Software Vendors and Market Participants
 - Testing Requirements





Next Steps...



Attend our EDL/EDT focussed technology focus group session in late April (exact date TBC) to dig into the details of the transition plan inc. testing specifics - Calendar invites will go out later this week



If you are a Control
Point / Trading Agent
and have not
received an EDL/EDT
survey from us,
please let us know at
box.balancingprogr
amme@nationalene
rgyso.com



Market Participants
should register their
interest Market
Participant Non-BM
Integration Testing sign-up to support
testing here; you can
also contact your
account manager.

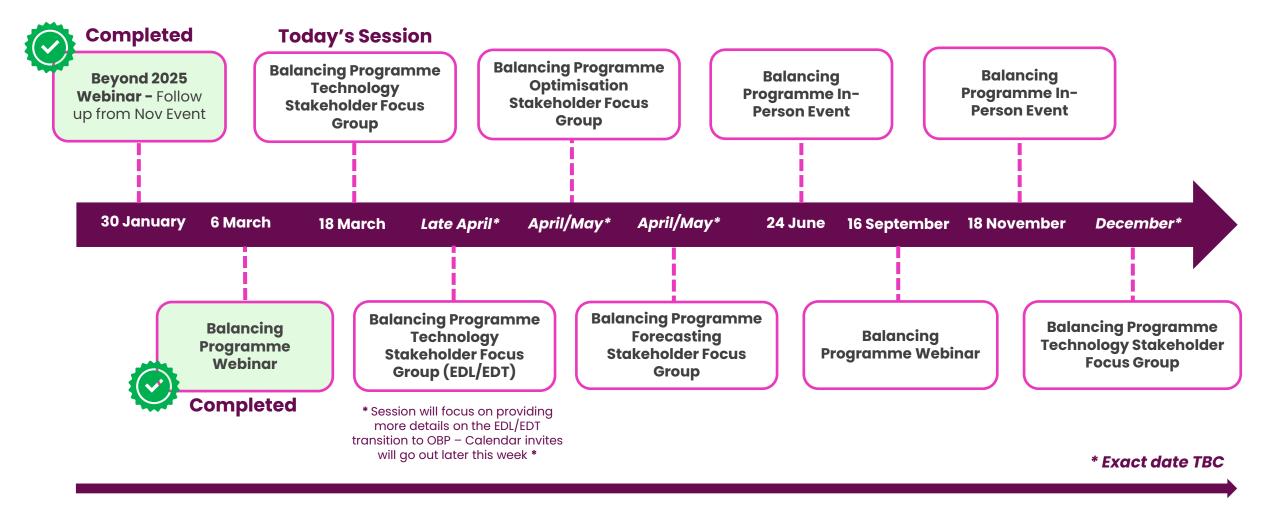


Register and attend

Quick Reserve DropIns for a wider
explanation of
integration across
different NESO
systems for Phase 2
Quick Reserve; details
on how to sign-up
are available here.



2025 External Engagement Timeline



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

Further Stakeholder Focus Group dates to be added throughout 2025.



Closing Remarks...



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



The recording and slides from today's session will be published on our website by close of this week.



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



Sign-up to our other Stakeholder Focus Groups for Optimisation & Forecasting - Balancing Programme Stakeholder Focus Groups.



If you are interested in a regular meeting with a representative from the Programme and would like more information, please get in contact using the email address above.



