Public

November Reserve Webinar

18 November 2024

NESO
National Energy System Operator

Agenda

1. Introduction
2. QR phase 1 update and SMP onboarding
3. QR phase 2 update
4. Slow Reserve
5. Balancing Reserve
6. BR procurement strategy update
7. BR dispatch flexibility
8. Q&A

QR Phase 1

Update

Mock auctions have been carried out over the last few weeks. Please let us know if you have any feedback.

Following the approval of the service from Ofgem, the service terms and other legal document can be found on the how to participate section of our Website.

19 November 2024 EAC auction platform goes live (opens 14 days ahead of first auction) - Sandbox version of auction platform available now

3 December 2024 (14:00) first auction (co-optimised with response services) for operational day **3 December 23:00**

Procurement volume update - *QR requirement positive will be flat circa 500MW across all service windows* ***except for overnight windows*** *(23:30 – 05:30)****when requirement is going to be reduced circa to 300MW.*** *QR Requirement negative will be flat circa 300MW across all Service Windows.* Website link

NESO National Energy System Operator

SMP Onboarding

The Single Markets platform prequalification is now open to providers

What you can do now:

- Set up your company on SMP,
- Create your Assets and Units you wish to use for Quick Reserve
- Align your Units and Assets within SMP.
- Prequalification for the Quick Reserve service in SMP, including signing up to the service terms and procurement rules.
- Submit completed Form B within the SMP platform

SMP Guidance is available online, as a user guide and demo videos

If you have any further questions please contact:

Onboarding – Sam.Stokes@nationalenergyso.com & Stephanie.Tudor@nationalenergyso.com

Commercial.operation@nationalenergyso.com

NESO
National Energy System Operator

QR Phase 2
Update

- **11 October 2024** proposed Service and Procurement Design published to industry – feedback closed 15 November.
- **w/c 25 November 2024** we will be publishing our OBP API non-BM interface specification
- **December 2024** Article 18 consultation expected to be launched
- **June 2025** the enduring Quick Reserve service expected to go live
- Drop-in sessions, sandbox and mock auctions will follow similar approach as phase 1.
- Optional Fast Reserve
  - Service will continue during transition period

Slow Reserve
Update

- **Mid November 2024** proposed Service and Procurement Design published to industry for feedback
- **w/c 25 November 2024 we will be publishing our OBP API non-BM interface specification**
- **January 2025** deep dive webinar
- **January 2025** Article 18 consultation expected to be launched
- **September 2025** service expected to go live
- STOR service will continue until end 2025
  - no change expected to the existing windows/seasons from 1 April 2025
  - Season 19 calendar, procurement volume etc to be communicated in January 2025.
  - Transition plan to be shared in early 2025

Slow Reserve

Slow Reserve

Technical Design Element	Proposal
Direction	Positive and Negative
Time to full delivery	Up to 15 minutes from instruction
Minimum Activation Period	Up to 30 minutes
Maximum Recovery Period	Up to 30 minutes
Energy Requirements	Unit must be able to deliver the full contracted capacity per Contracted Window
Operational Metering	**0.0667Hz / once per 15s**
Dispatch mechanism	BOAs via EDL/EDT or wider access equivalent or **OBP NBM platform dispatch instruction** and control/system telephony as alternative dispatch solution during contracted windows
Notice to Start Ramping	Up to 14 minutes
Time to accept instruction	Up to 2 minutes
Ramp rates	Max ramp rates ≤100% contracted capacity/minute. Max instantaneous ramp rates cannot exceed >50% contracted capacity in a 30s ramping period. Min ramp-up/down rate to be in line with Time to Full Delivery, incl. notice to start ramping
Performance Metering	**0.0667Hz / once per 15s**
Performance Monitoring	Time to Full Delivery, Availability, Ramp rates, Utilisation - Penalties for over (>120%) & under (95%) delivery
Baselining	**Physical Notifications or equivalent 24 hours in advance for all providers** final at 60 mins ahead of Settlement Period. Both zero and non-zero baselines allowed.
Aggregation	Allowed, per GSP group
Operational data	BM units as per current BM operations **NBM units to submit relevant operational data**
Passing through zero	Allowed
Ramp rates for baselines	Aligned with Dynamic Response markets

Procurement Design Element	Proposal
Service Windows	**Minimum 2 hrs at 30-minute granularity**
Maximum Bid Size	N/A
Frequency of Procurement	Daily – Firm procurement Within day – optional procurement
Locationality	National
Auction Platform	EAC
Auction Timing	**Results by D-1 14:30**
Stacking	Same MW cannot be sold twice
Bid Sizing	Above or equal 1MW
Linking of bids	Yes, by Service Window and Product (Positive SR and Negative SR only)
Bid Curtailment Rules	User defined
Payment Structure	Firm: Availability + Utilisation Optional: Utilisation only
Payment Mechanism	Availability: Pay-as-Clear Utilisation: Pay-as-Bid through BOAs **or OBP dispatch mechanism**

NESO
National Energy System Operator

Balancing Reserve update

1. Continuing settlements tool development for IVC implementation - 01 December go live is still on track.
2. Dispatch flexibility rules review underway – further info later in the presentation
3. Continuing to plan for a BR consultation in Spring 2025. Activities include auction timing review, alignment with QR (e.g. contract transfer process) and general contract wording improvements.
4. We have been undertaking a review of the benefits of BR and the impacts on Balancing Costs.
5. We are reviewing the BR procurement strategy.

Public

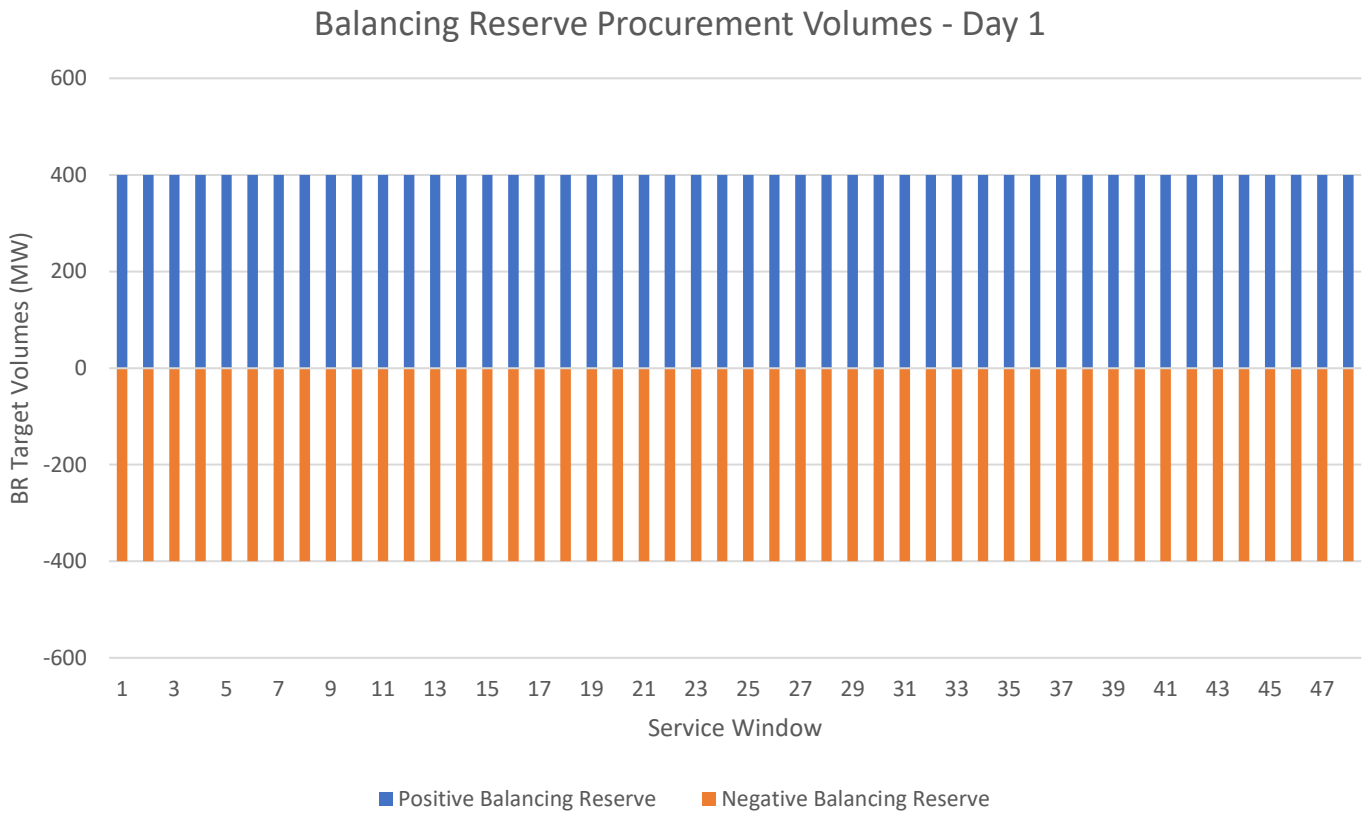
BR – Procurement strategy update

Update

NESO
National Energy System Operator

Procurement strategy update

Recap - March

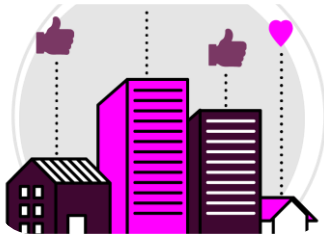


We will aim to buy **400MW of Positive Balancing Reserve (PBR) and 400MW of Negative Balancing Reserve (NBR)** for each service window from Day 1.

Procurement strategy update

Recap – March cont.

- We plan to grow the market in a controlled phased manner.
  - Fixed flat requirement,
  - Increased fixed requirement with profile across the day
  - Full dynamic requirement



Customer feedback

Control room feedback

Market Liquidity

Impact on Dx markets

Cost benefit

Procurement strategy update

PBR windows
99.9% >400MW offered
97% cleared full volume
100% any volume cleared
<0.5% hit price cap
97% > 200MW excess at cap

NBR windows
26.4% >400MW offered
4% cleared full volume
81% any volume cleared
19% cleared at cap
0.5% >200MW excess at cap

Impact on Dx markets

Market Liquidity

*Based on data 14th March – 8th November

Procurement strategy update

Impact on Dx markets

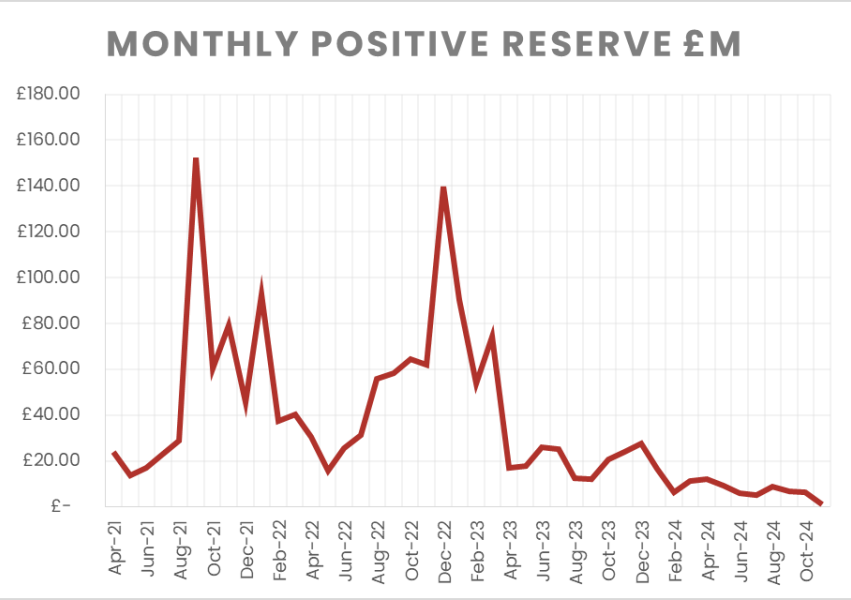
Market Liquidity

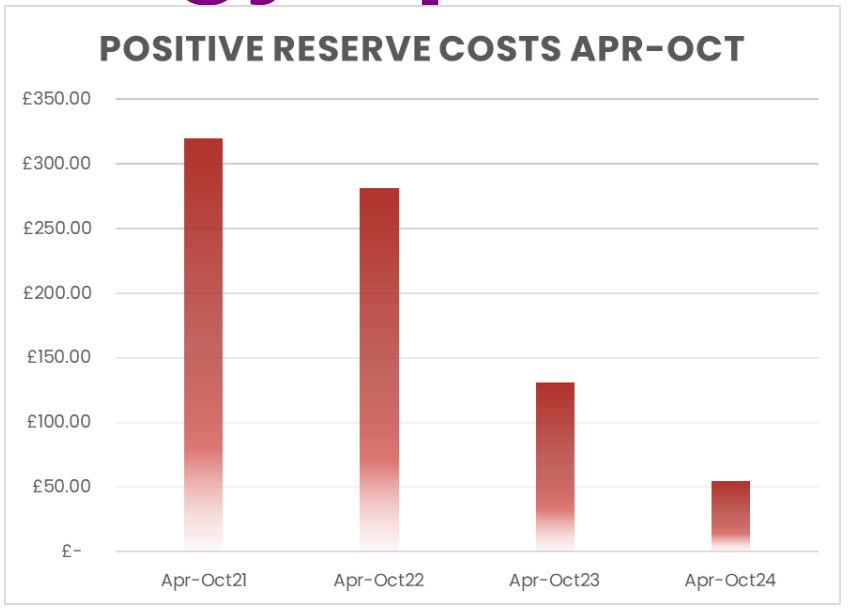
- PBR
  - Units
    - 111 offered
    - 92 successful
  - Market Participants
    - 20 offered
    - 13 successful
      - 90% from just 2
  - Technology types
    - 4 offered
    - 3 successful
      - 69% Gas recip
      - 29% Batteries

*Based on data 14th March – 8th November

NESO National Energy System Operator

Procurement strategy update





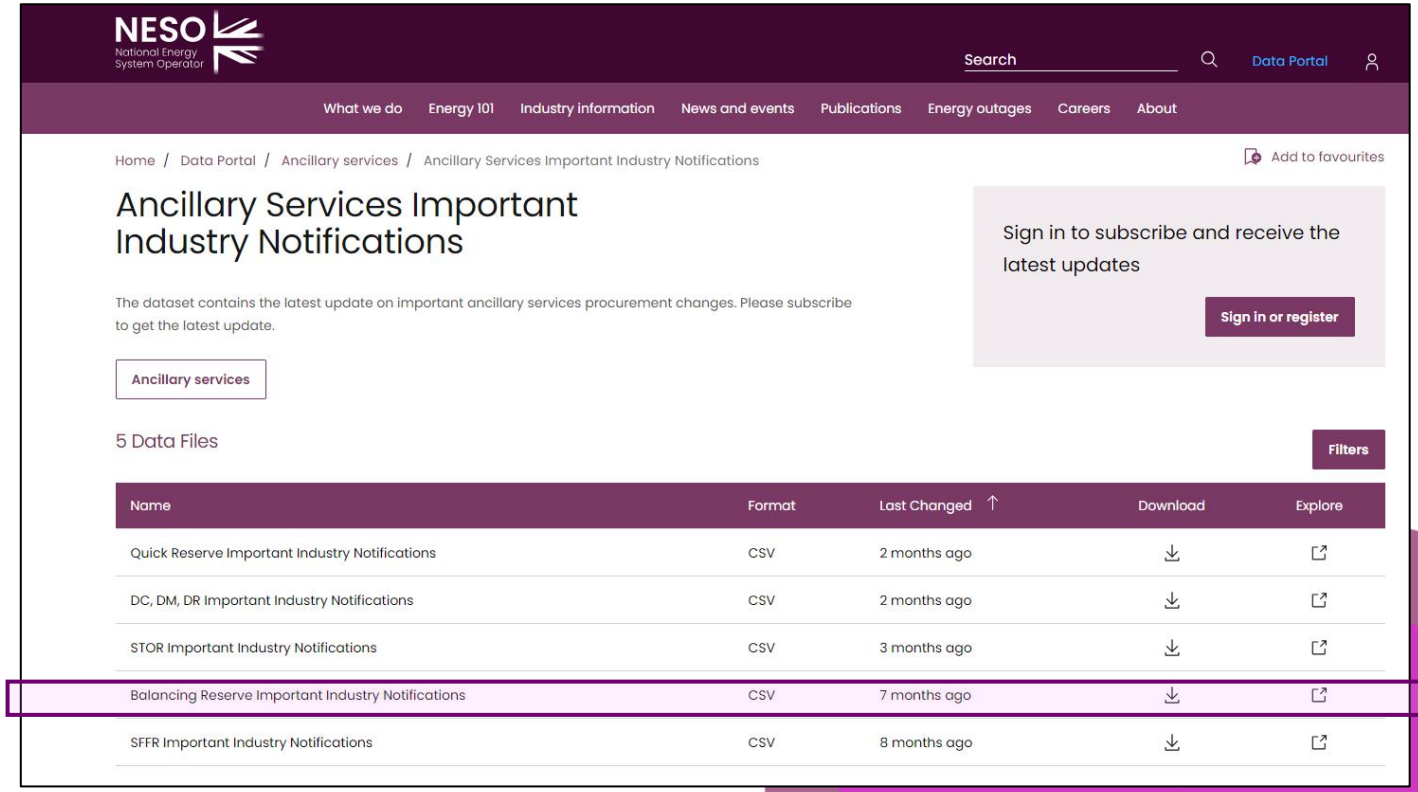
Cost benefit

- Positive reserve costs in 2024 are significantly lower than previous years
- We have produced a methodology for evaluating the benefits of firm BR against outturn data.
- The benefits so far are positive but low

Daily Balancing Services Use of System (BSUoS) Cost Data | National Energy System Operator

Procurement strategy update

- Shaped PBR requirement
  - Reduction in volume during periods identified of lower value
  - Increase volume requirement at more valuable times.
  - Initially fixed, so every day will have the same profile.



The details have not yet been signed off, but we expect them to be imminent. The intent is to align with the go-live of QR.

[Balancing Reserve Important Industry Notifications | National Energy System Operator]

[Balancing Reserve Auction Requirement Forecast | National Energy System Operator]

Procurement strategy update

Next steps:

- Publish requirements and communicate via channels
- Continue to review the service behaviour
- More frequent incremental changes to the requirements as the service develops over the winter

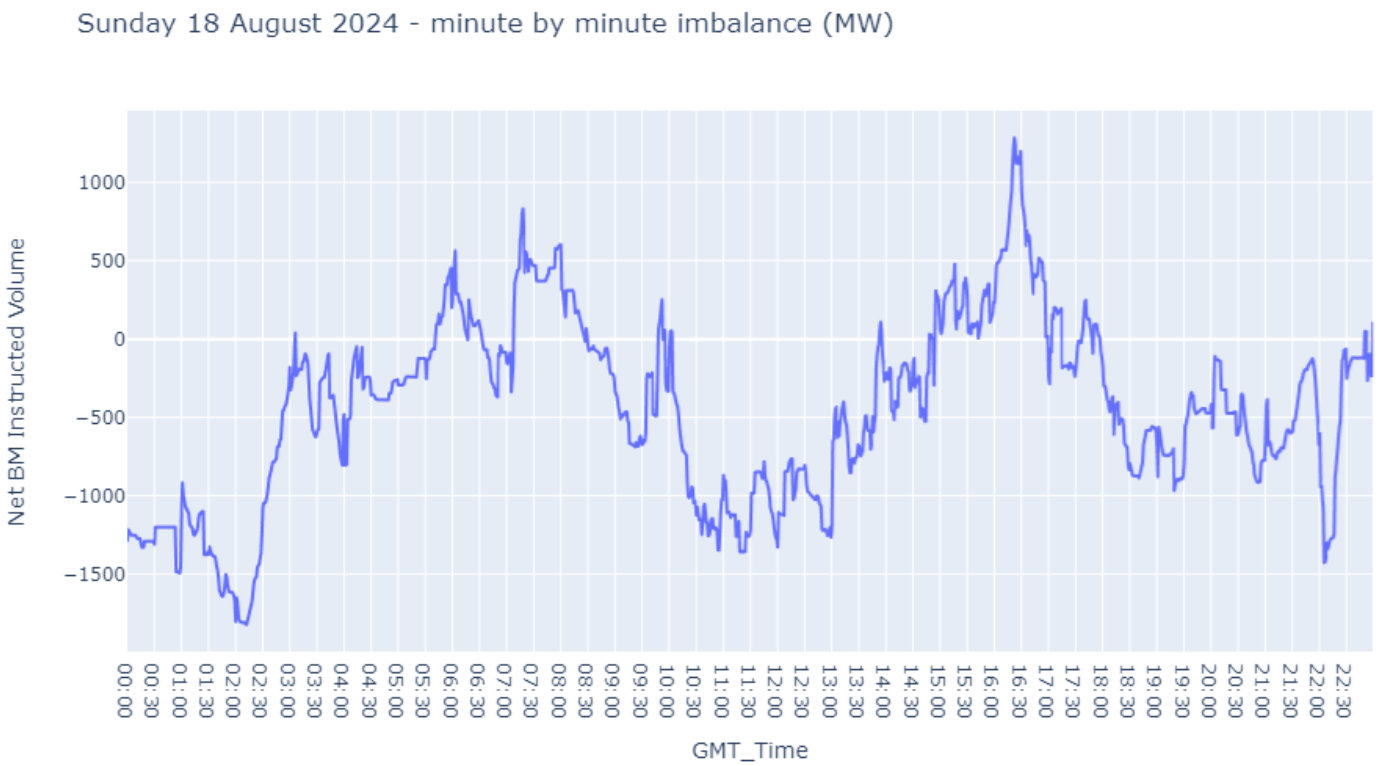
Public

BR - Dispatch Flexibility Rules Review

Update

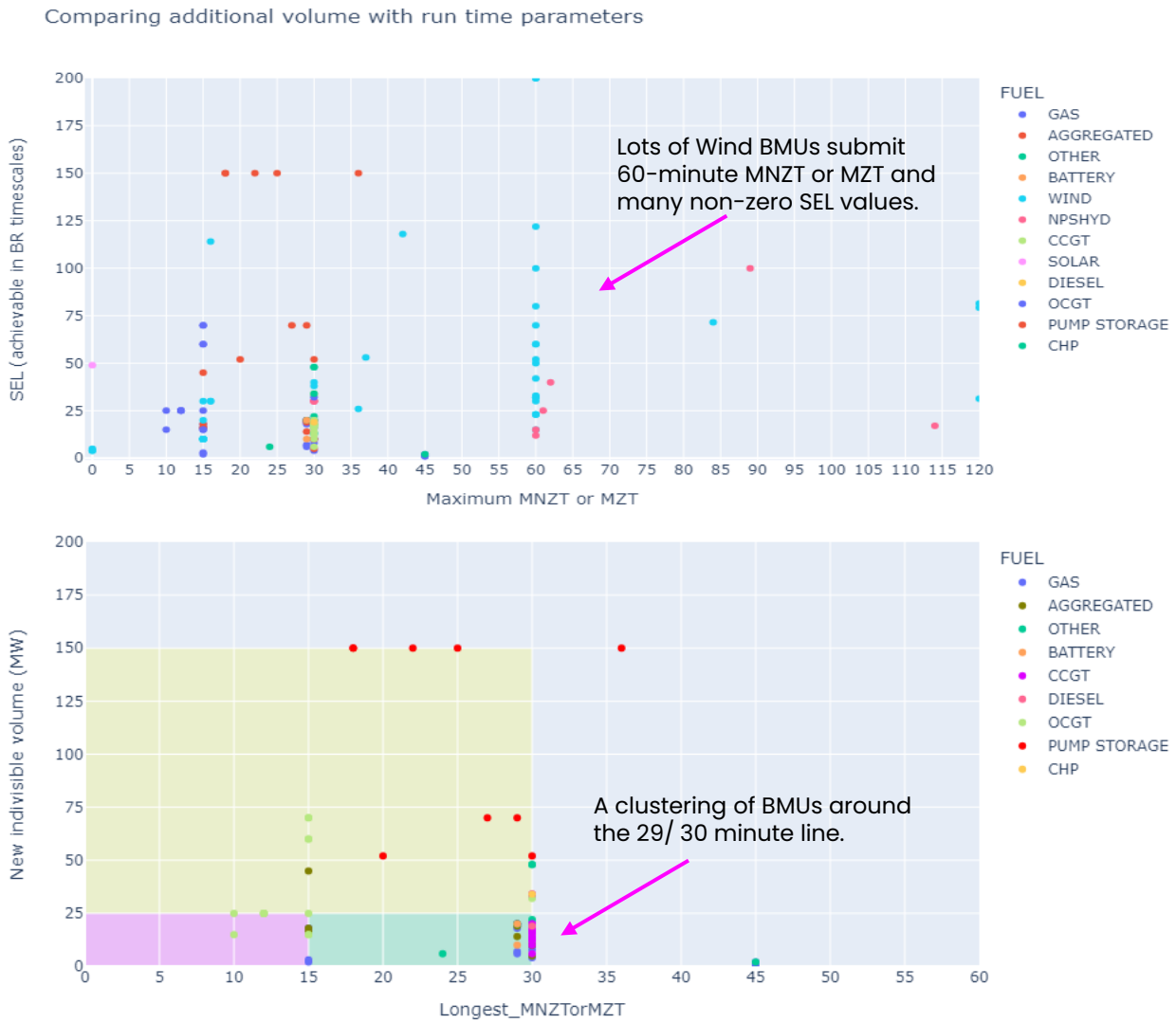
NESO
National Energy System Operator

Recap: What are the dispatch flexibility rules for BR?



- The “Incremental MW” rule requires that contracted units for BR can be dispatched to each MW from 1 above or below the FPN all the way to their total contracted volume.
- This is performance monitored by confirming that flexible dispatch is not limited by SEL or SIL.
- The “1-minute” dispatch rule requires that contracted units for BR can be dispatched for as short as a 1-minute flat top BOA with no recovery time limitations.
- This is performance monitored by confirming that flexible dispatch is not limited by MNZT or MZT.

Step 1: Identifying options for change

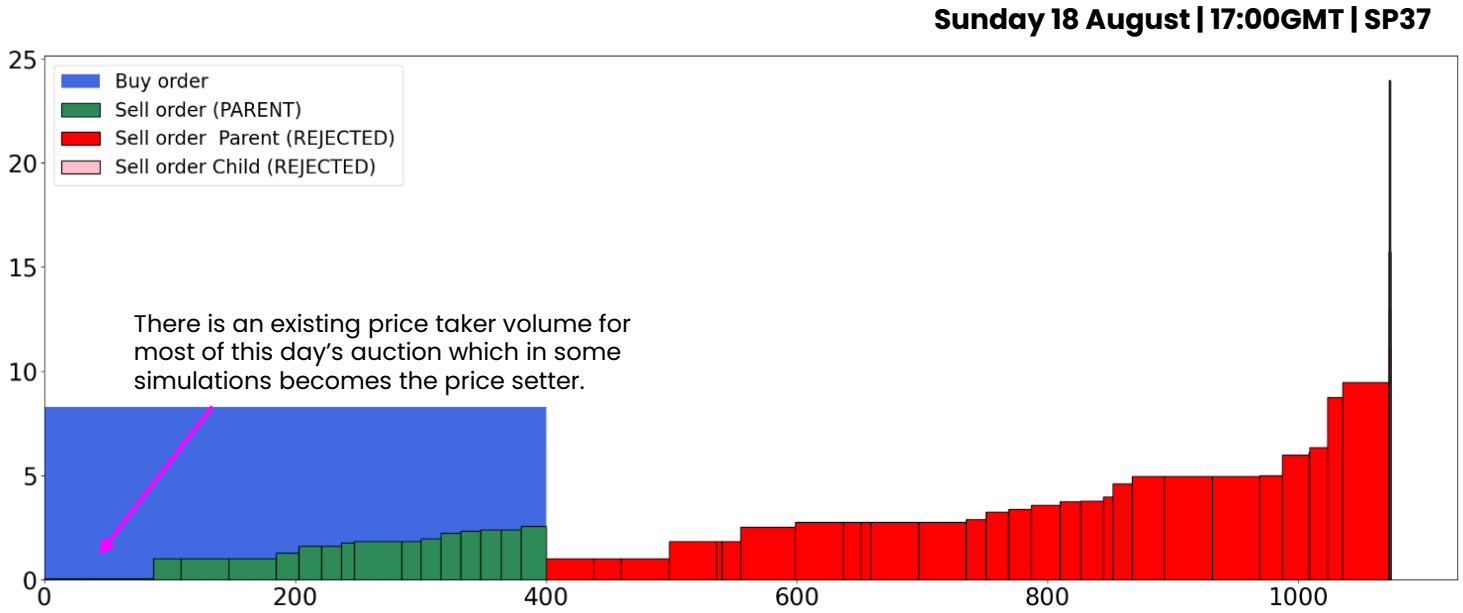


- First, we tried to identify the extent of the barrier to entry that the dispatch flexibility rules are creating.
- Second, we identified a set of options for change to take forward into quantitative analysis.

Option	Largest indivisible volume allowed (for delivery of PBR from 0MW, SEL must be ≤ X MW)	Longest allowable run time (for delivery of PBR from 0MW, MNZT must be ≤ X minutes)	PBR potential market depth
1 – status quo	1MW	1 minute	~15GW
2 + pink shaded box	25MW	15 minutes	+ 300MW (17 BMUs)
3 + green shaded box	25MW	30 minutes	+ 670MW (48 BMUs)
4 + yellow shaded box	150MW	30 minutes	+ 1331MW (19 BMUs)

NESO National Energy System Operator

Step 2: Run BR market simulations



0MW @ £0/MW/hr

75MW @ £0/MW/hr

250MW @ £0/MW/hr

350MW @ £0/MW/hr

- Selected 5 consecutive simulation delivery days from mid-August (18 – 22).
- Consider two NESO PBR buy volumes of 400MW (Base Case) and 800MW (High Case) at the same prices as were on those days.
- Include a £0/MW/hr priced fully curtailable sell order for:

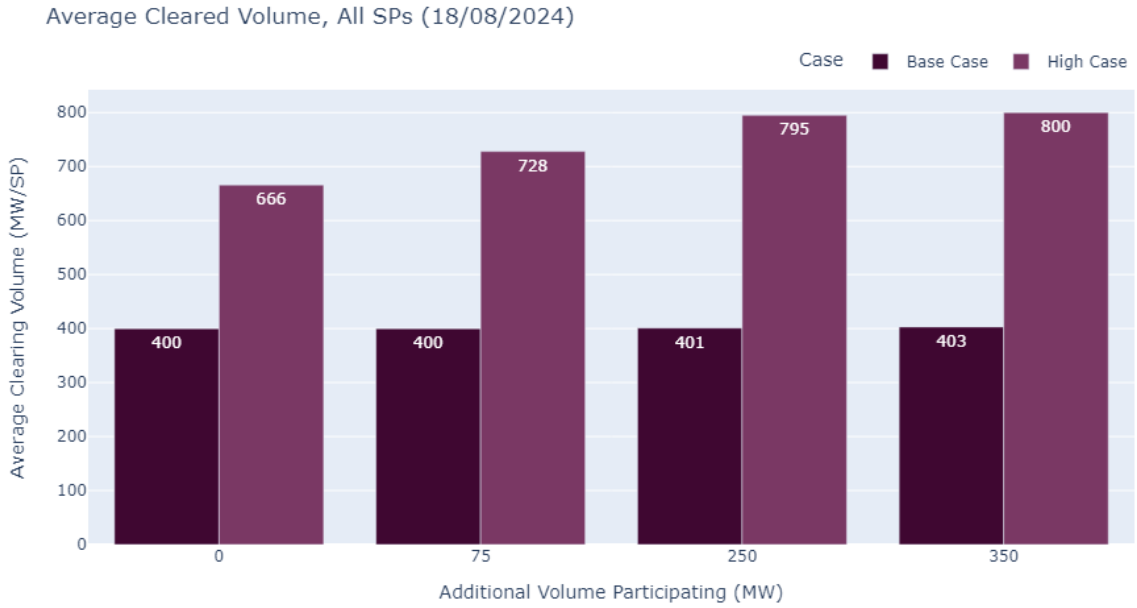
Option 2 : 75MW

Option 3: 250MW

Option 4: 350MW

Not all eligible volume will participate.

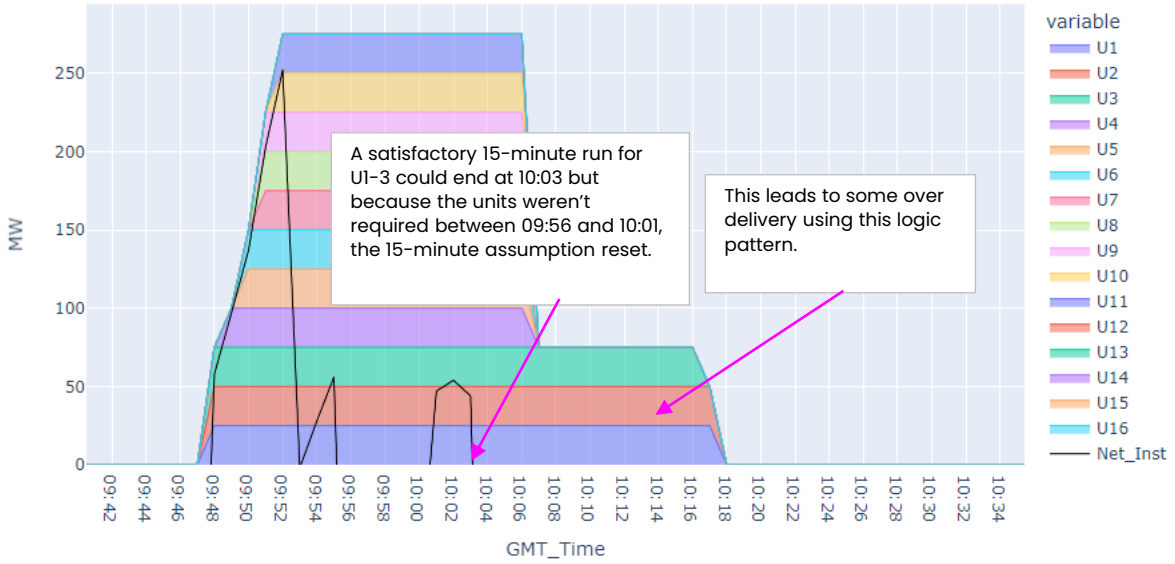
Step 2: Run BR market simulations



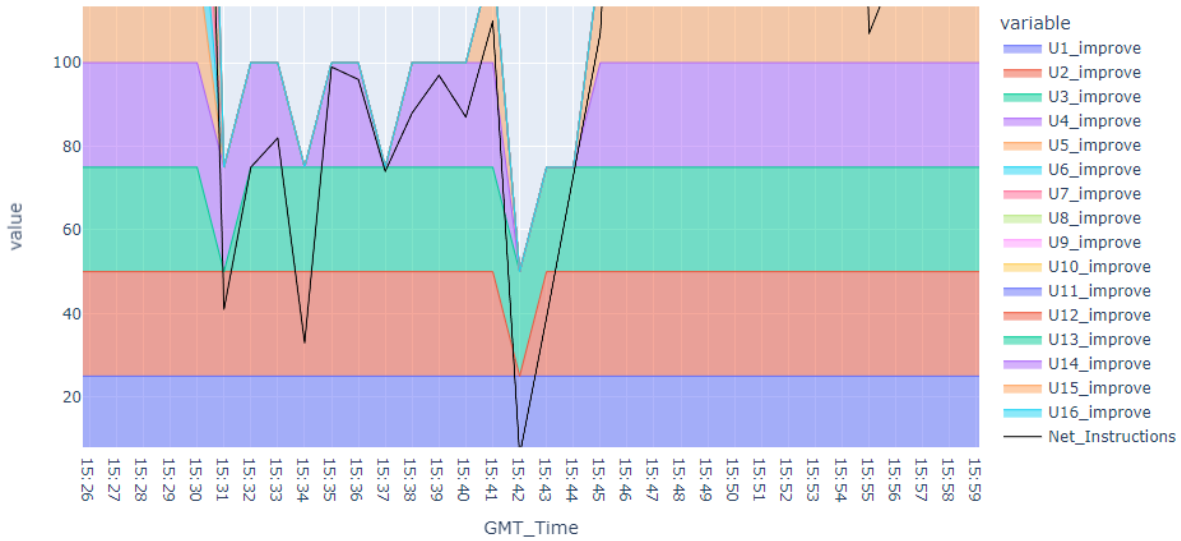
- This day of simulation shows an increasing impact as the additional volume enabled into the BR market increases – this is to be expected.
- The impact on the average clearing price from an extra 75MW is almost negligible.

Step 3: Estimate the costs of reduced flexibility

Approach 1: Some overdelivery, MNZT always met



Approach 2: No overdelivery, but some MNZT violations



- Modelling run to assume the first 400MW of upwards flexibility is held and dispatched on units at the very limit of the proposed dispatch flexibility relaxations.
- This is tricky to build logic for so have used two approaches that create an upper and lower bound.
- All assume instantaneous recovery and instantaneous ramping.

NESO National Energy System Operator

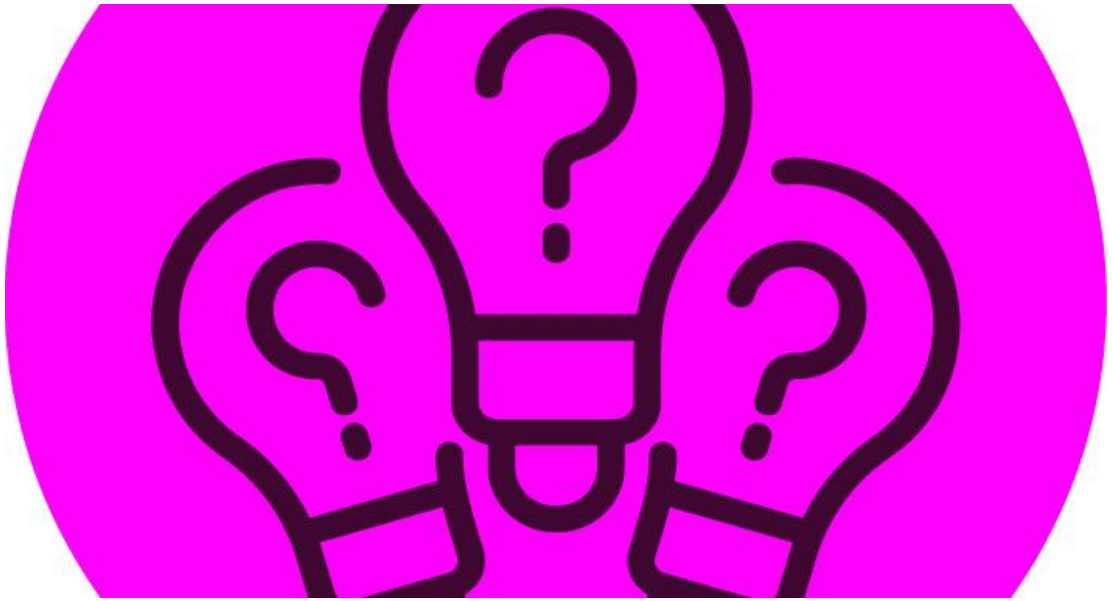
Early results from a single day

Day	Approach	Option	PBR positive dispatch	Perfect positive dispatch	Difference	Cost of over delivery	Benefit of additional volume
Sunday 18 August	Approach 1 (Upper Bound) (High Case)	Group 2	1893MWh	1286MWh	607MWh	£18, 350 / day	£4,152 / day
	Approach 2 (Lower Bound) (Base Case)	Group 2	1591MWh	1286MWh	306MWh	£9, 250 / day	£1,440 / day

- The benefit of lower clearing prices is outweighed by the higher costs of correcting over-dispatch.

Next steps:

- Finish the logic to study a 30-minute minimum dispatch.
- Complete analysis of the remaining 4 days in the study.
- Produce finalised results.
- Consider other options for change + any industry feedback



We hope you have found this series of reserve webinars useful. We are looking to carry on with these sessions, and would appreciate your feedback on any improvements or topics you would like us to cover.

We have also been holding a series of drop-in sessions for phase 1 of Quick Reserve over recent weeks. For those that have attended we would appreciate feedback also.

Feedback form

Q&A

NESO
National Energy System Operator

Thanks for joining us