

Response to initial design proposal for the NESO's Slow Design service (Jan 2025)

About Energy UK

Energy UK is the trade association for the energy industry with over 100 members – from established FTSE 100 companies right through to new, growing suppliers, generators and service providers across energy, transport, heat and technology. Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for 28 million UK homes as well as businesses. The sector invests £13bn annually and delivers nearly £30bn in gross value - on top of the nearly £100bn in economic activity through its supply chain and interaction with other sectors. The energy industry is key to delivering growth and plans to invest £100bn over the course of this decade in new energy sources. The energy sector supports 700,000 jobs in every corner of the country. Energy UK plays a key role in ensuring we attract and retain a diverse workforce. In addition to our Young Energy Professionals Forum, we are a founding member of TIDE, an industry-wide taskforce to tackle Inclusion and Diversity.

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Context and proposal summary

Slow Reserve (SR) aims at reacting to post-fault disturbances to restore energy imbalances to +/- 0.2Hz within 15 minutes of a loss event (generation or demand). For Negative Slow Reserve (NSR), units are instructed to increase demand or decrease generation in full within 15 minutes. The inverse is true for Positive Slow Reserve (PSR).

Slow Reserve is open to any technology with the ability to provide a net change in demand/generation of at least 1MW and will replace the current STOR service.

Summary of Energy UK response

We welcome the intent to provide a more technology-agnostic service. The design choices (Q1) on metering (1% accuracy at the aggregated level), lower minimum capacity, 2-hr minimum commitment and removal of the maximum ramp rate for changing baselines (Q5) will all make the service more accessible to DSR than STOR, the service that it will replace.

Further changes on operational metering (latency and metering frequency) and the removal of the maximum ramping limits on crossovers for subsequent settlement periods, would increase the feasibility for DSR providers.

We do not support the proposals for providers to submit data on a 24/7 basis. Whilst we agree the need to improve NESO visibility (and by extent, demand forecasting capability), the proposal is not proportional to the service's operational requirements, and creates a new barrier for providers using non-electricity system dedicated assets ('non-dedicated assets').

Members thank the NESO team for its engagement to date and would welcome further opportunities to work together to refine the proposals in ways that can work for both participants and the control room, before the design is agreed

Response to Consultation Questions

1. Do we agree to the proposed service design?

We generally support the proposals but note that some aspects will be challenging for DSR providers.

Positive changes

We support and welcome the following changes. These will support more DSR than STOR:

- i) Lower minimum capacity – from 3MW to 1MW
- ii) The ability to meter at the aggregated unit rather than asset level
- iii) The relaxed metering requirements
- iv) 2-hour minimum commitment, the ability to extend this in multiples of 30-minutes and option to start from any appropriate Settlement Period
- v) The removal of the maximum ramp rate for changing baselines (Q5)
- vi) The option for negative SR (demand Turn-down as well as demand Turn-up)
- vii) The allowance of non-zero baselines (to support non-dedicated assets)

Scope to go further

We note that further change in this or future services would further increase accessibility

- i) Further reduce minimum bid size to sub 1MW (and ability to bid in 0.1 MW, or finer)
- ii) Allow bids in decimals of 1MW (ideally 0.1MW) as opposed to whole MW increments
- iii) A further shift from 2-hr blocks to 1hr or below (especially for domestic DSR).
- iv) Operational metering - see further comments below here
- v) The 24/7 data collection
- vi) The maximum ramping limits on crossovers to subsequent settlement periods.

We further note that the reduction in response time from STOR (20 minutes) to SR (15 minutes) will exclude some existing STOR customers (e.g. BtM gas-fired generation that takes 16-19 minutes to respond). See below for.

Operational metering

- *Requirement set at once per 15s (0.0667 Hz), with a latency of no greater than 5 seconds.*
- *Crucial for accurately monitoring maximum allowable ramp rate, which must not exceed 50% of total contracted volume over any 30s period. To monitor this, NESO will require 2x samples per 30s period (once every 15s) – aligns with STOR metering requirements.*
- *All operational metering, including active power and system frequency data, to be provided at an accuracy according to relevant Code of Practice (e.g., 1.0% for assets >10MW & ≤100MVA).*

Operational metering is the key design parameter for DSR providers, especially those working with aggregated domestic assets. As above, we strongly support the move to allow metering at the aggregated unit level rather than requiring it at a per asset level. We note that NESO and DNV's operational metering study suggests that reducing metering error to below 1% should be feasible with an aggregated portfolio of 100+ assets

Latency: However, the requirement for data at a latency of no more than 5-seconds will significantly increase costs for DSR providers who typically do not use conventional SCADA systems (trade-offs between performance and cost are different to those for centralised resources). Delivering data from distributed resources with 5-second latency is much more expensive than 30 to 60-second latency (5 seconds would require having to pass it through a special pipeline whereas 30-60 second latency could be achieved with a database).

We ask if this requirement is necessary for a service that has a 15-minute response time - given the cost increase it represents for DSR providers? Opening up the market to non-traditional and non-dedicated assets will require network operator to require data provision and data quality only at the level needed to operate the service to avoid new barriers.

Our preference here would be for non-real-time delivery since this would provide higher-quality data at a lower cost (devices can be re-queried to fill any gaps resulting from communication outages or other transient issues). If this is not possible, we recommend the NESO consider relaxing the latency requirement to 30-seconds (costs increase sharply after this) to avoid deterring DSR. We thank the NESO team for speaking to members on this and for the commitment to review the requirement.

Metering frequency: We welcome the reduction in metering frequency to 15 seconds but would welcome further discussion on whether this could be relaxed further given the increased costs that this frequency would incur for providers. We understand that the requirement has been proposed as a means of verifying that no more than 50% of the ramp occurs in 30 seconds. We note though, that if this will be done via an ex-post compliance check, that there could be alternative ways to do this (for example, such as submitting the data the next day to avoid the costs of submitting the data at high latency).

We understand that moving the operational metering requirement to the aggregated, rather than the asset level, means that it will be the central signal that counts. As such, aggregated meters can be updated less often, providing that a central signal is sent every 15 seconds, is 1% accurate and reflects what is happening statistically. However, it is our understanding that this requirement will still create barriers to participation.

We would welcome further discussion on whether the requirement is needed for near-real-time operations or for ex-post settlement and compliance, and if the latter, whether there is scope for change. SR is a service with 15-minute response times, rather than a fast service with fast-paced operational decisions made on the data. Given this, a reasonable requirement for operational data could be 1-minute resolution with 1-minute latency, with higher resolution settlement and compliance-checking delivered later.

We note that in other European countries, the requirements are less onerous. In Belgium, for example, Elia's mFRR product requires only 15-minute energy data (kWh) and power variations (kW) within the 15-minute intervals are not monitored (providers are contractually required to follow a specific profile with a linear ramp in one direction, stable delivery, followed by a linear ramp in the opposite direction).

1-minute metering would support the inclusion of sub-MW assets as the resolution is typical for smaller sites. Members would be interested in discuss ways to allow this whilst still providing the assurance that NESO needs that the maximum ramp rate has not been exceeded. For example, if a unit of aggregated small assets ramps over several minutes, it would still be clear from 1-minute data that the maximum ramp rate had not been breached.

2. Do we agree to the proposed Operational Data Requirements (dynamic parameter) for non-BM providers and the proposed publication of this data?

No comments received from members

3. Do we agree to proposed requirements for the submission of operational metering and baselines' (including future proposals for 24/7 submission)?

- Participants to provide PNs to provide operational visibility, performance assessment/ Settlements.
- BMU already required to submit PNs (Grid Code) - therefore not an additional requirement.
- NBMUs once prequalified required to submit operational metering and PNs (operational baselines) continuously 24/7, 365 days/yr (even if don't hold SR Contract/ offering Optional Service or unavailable)
- NESO consider this a practical way to improve DER visibility rather than a barrier to market access
- No penalties for inaccurate operational metering or baselines outside of contracted service periods (participants will be deemed unavailable if no operational data / baselines submitted).
- Acceptable submission rate is 80% of the time, measured on a rolling 28-day assessment period.

- If a provider has not submitted data for at least 80% of the time across 28 days prior to a particular service day, sell orders submitted for that unit on that service day shall not be valid.
 - Submission rate for each set of data (operational metering and baselines) calculated separately.
- Future proposals: NESO proposed introducing rules for all pre-qualified NBM providers to submit operational metering and PNs at all times, rather than just during contract service periods.
- Included performance penalties for both BM and NBM parties, inc. suspension from auctions
 - Rejected by Ofgem (lack of implementation date) but, when have IT system capability, will implement

EUK response

Data submission: More clarity is needed on the options that NESO might find acceptable from DSR providers/ aggregators of smaller assets.

Current proposals: We do not support the requirement to provide data outside of contracted SR service windows. Whilst non-BMUs will need to have the ability to provide this data during contracted delivery, the proposal to require this outside of delivery windows (before a contract has even been secured) represents a new barrier to market for non-dedicated assets. Additional data requirements (especially 24/7) increase the cost of delivering the service and will be more challenging for non-dedicated assets (where the provider may have limited control outside contracted periods).

We acknowledge the issues with CER visibility and support the NESO in seeking to identify ways to improve this. However, the industry needs an approach that improves visibility across the board rather than imposing additional requirements/ costs for some assets/ services. The proposal is at odds with the intent to design SR as an accessible service.

Future proposals – We do not support the requirement to deliver operational metering and PNs 24x7 even when a unit is not participating. The NESO should only require data necessary for the operation of the service. Imposing additional requirements adds cost and deters customers.

We note the issue of inaccurate PNs but highlight that a drive here should start initially with assets that are best equipped to manage this requirement (dedicated assets in the BM). The risk of penalties for inaccuracy here could outweigh / reduce the benefits of this service for non-traditional assets/ providers.

4. Do we agree to the proposed cross-over rules?

Crossovers: The unit must be able to continue delivering dispatch instruction for next settlement period following end of SR Contract service window. The maximum in line with the unit's defined Minimum Activation Period.

- Providers to submit relevant data for crossover purposes, which include Availability, MNZT and Pricing for any immediately adjacent settlement periods outside of SR service.
- Units must also submit a PN for 1 settlement period after contracted/optional windows within op. day.
- For all contracted periods, NBMUs to provide a PN 60 minutes ahead of each settlement period/s.
- Some NBM technology types, may wish to discuss how this PN data should be derived/ presented.

EUK response on the proposed crossover rules

We would like the NESO to consider also removing the maximum ramp limits on cross overs to subsequent settlement periods. The proposed requirement feels unnecessary and would make it more challenging for providers to stacking services in adjacent settlement periods.

Our preference would be for SR crossovers to be handled in the same way as for Quick Reserve (QR). In QR, there is no ramp limitation but instead a more efficient clearing algorithm that ensures there are a sufficient number of units that clear for adjacent Settlement Periods. (QR Phase 1: *'the use of normal BM operations will facilitate management of crossovers past contracted windows'*.)

5. Do we agree to the proposed ramping rules?

Ramping design proposals: Time to Full Delivery - 15 minutes or less

- Notice to Start Ramping - no longer than 14 minutes from instruction receipt.
- Minimum Activation Period - between 1 and 30 minutes inclusive
- Recovery Period - up to 30 minutes (30 minutes before NESO can send another dispatch instruction).

Ramping Envelope proposals: Maximum ramp rate limit is set at $\leq 100\%$ contracted capacity per minute.

- For instantaneous ramping, unit cannot deliver <50% of contracted capacity in any 30-second period.
- Unit may not deliver at a rate of less than 100% per 15 minutes (for ramp-up and ramp-down periods).
- The unit may start delivery immediately after accepting a dispatch instruction.

Ramp rates for baselines for energy limited assets.: Max. Ramp Rate limits rate of change of power

- Previous Dynamic Response stated a Max. Ramp Rate of 5% of contracted MW/minute.
- NESO proposing to remove this for SR (opportunity cost)
- Max. Ramp Rate was to protect against cumulative effect (against effects of herded energy recovery).
- Benefits of removing it may outweigh cost of actions to protect against above risk so NESO will monitor
- SR ramp rates for baselines are aligned with the DR services so not required until these are updated.

EUK response to proposed ramping requirement

We support the removal of the maximum ramp rate for changing baselines. This puts SR in line with the Dynamic services (where the maximum ramp rate has been removed).

We further recommend that the NESO also remove the maximum ramp rate for ramping on instruction (proposed as 100% of contracted volume in 1 minute [with a further requirement that the unit cannot deliver <50% of contracted capacity in any 30-second period]) since no rationale is provided for retaining this.

Since SR has maximum time to full delivery of 15-minutes, and is designed to encourage participation from different technologies, it is likely to see diverse ramping behaviour. This suggests that any 'herding' of instantaneous ramps will be negligible. Since the proposed ramping limitation creates complications (for single instantaneous ramping units as well as aggregated ones), we would welcome consideration if it is necessary (given the decision to remove the Maximum Ramp Rate when changing baselines).

The possibility of instantaneous ramping for relevant assets is already part of normal BM operations. SR providers should be allowed to do the same where their assets can support it. This will support new technologies to deliver their full capabilities to the system, rather than constraining how they deliver according to legacy asset types.

6. Do we agree to the proposed procurement design?

Procurement Design: Daily day-ahead auctions to procure firm requirement for Positive and Negative SR.

- The indicative daily requirement for Positive and Negative SR is 1700MW.
- Co-optimised Auction –SR + QR, DC, DM, DR in a single, simultaneous, day-ahead, pay-as-clear auction.

Firm service: NESO will advertise volumes required per Settlement Period (23:00 to 23:00) for daily auction

- Providers can bid in for a minimum of 4 contiguous Settlement Period (2 hour minimum)
- Availability Payments (pay-as-clear) within Window, Utilisation Payment (pay-as-bid) if dispatched.

Optional service: SR units can submit utilisation-only bids for Optional Service (within-day for a minimum 2-hrs).

- If dispatched, service providers will receive a Utilisation Payment (pay-as-bid) only.
- BMUs should continue to offer reserve to NESO via the BM.

EUK response to proposed procurement design

No views received

7. Agree to proposed SR flexible service window design whereby provider can bid, in whole settlement periods, for more than minimum 2-hr commitment?

Linked windows: two types of linking: link by time (i.e., SR Windows) and link by products.

- Providers can submit different volume and price in each market; two markets cleared separately with different volume and price; and two contracts are produced.
- NESO submits the daily buy-order to the EAC platform which specifies a maximum volume (MW) that NESO is willing to procure at different price levels (£/MW/h) for each product and SR Window.

EUK response to proposed SR flexible window design

We support this change and encourage the NESO to monitor the financial impact of the change (now and in the future as dispatch functions become more automated via OBP).

The ability to submit different volumes and prices for different windows in a single day increases opportunities for DSR. It will allow providers to substitute different assets / volumes between the different contracted SR windows.

Whilst we acknowledge that shorter windows could lead to both a higher number of transactions (with associated costs), and increased window crossovers to be managed, we note that these associated costs could be outweighed by both the increased competition (with potential for lower prices), and reduced 'over-holding' caused by longer windows (providing more scope for ENCC to better match procurement to system requirement).

8. Support for/ views on the proposed auction timing?

Auction Timing: NESO required to procure most or all balancing services no earlier than day-ahead.

- Balance between as close to real time & buffer in case auction process fails – daily day-ahead auctions
- Enduring solution - auction will run in afternoon as a single, co-optimised auction with DR, BR, and QR

EUK response to proposed auction timing

We support the proposals

- Daily auctions provide more stable opportunities to build customer propositions
- The coordination of auctions will facilitate current/ future stacking.
- Day-ahead auctions are more accessible to DSR that needs notice to respond (manual I&C involving process interruption and households that need more notice)

9. Do we support revenue stacking rules (inc. future proposals for splitting)?

Stacking with other active power ancillary services limited initially. Stacking with CM and BM allowed.

Co-delivery: SR providers can Co-deliver with CM (providers protected from penalties if System Stress Event occurs). In some cases, it may also be appropriate for providers to Co-deliver SR with the BM.

Splitting: Splitting allowed between Positive and Negative SR where a different capacity from the asset is used for each service. Splitting is also allowed with the BM as well as Voltage and Stability services. However, Splitting is not allowed between the same polarity Reserve products, i.e. PSR & PBR.

Proposed Splitting Matrix:

Splitting Matrix		Response						Reserve					
		DC		DM		DR		BR		QR		SR	
		DCL	DCH	DML	DMH	DRL	DRH	PBR	NBR	PQR	NQR	PSR	NSR
Response	DC	█											
		DCL	█										
		DCH		█									
	DM	DML			█								
		DMH				█							
	DR	DRL					█						
	DRH						█						
Reserve	BR	PBR						█					
		NBR							█				
	QR	PQR								█			
		NQR										█	
	SR	PSR											█
		NSR											

█ Allowed
 █ Not applicable
 █ Not allowed

EUK response on stacking proposals

No response received.