EBR Article 18 Proposal - Summary of Changes

NGESO wishes to consult on a proposal to make amendments to the terms and conditions related to balancing, as required by Article18 of Commission Regulation (EU) 2017/2195 establishing a guideline on electricity balancing (as amended by the Electricity Network Codes and Guidelines (Markets and Trading) (Amendment) (EU Exit) Regulations 2019 to become part of retained EU law known as the Electricity Balancing Regulation, or EBR).

In scope of the proposal is the launch of a new combined auction platform (the “Enduring Auction Capability” or “EAC”) for the procurement of frequency response services: Dynamic Containment (DC), Dynamic Moderation, (DM) and Dynamic Regulation (DR). NGESO proposes that in due course the platform will extend to the procurement of new reserve services: Slow Reserve (SR) and Quick Reserve (QR). The proposal therefore is to create a new set of procurement rules, and simultaneously make consequential changes to the existing procurement rules and service terms currently in use for procurement of those frequency response services.

The documentation has been drafted on the basis that the new auction platform will only commence operations from the date notified by NGESO as the “effective date”, which will be the date when the auction will open for service days from and including what is termed the ‘EAC Go-Live Date’ Procurement of frequency response services for service days prior to the EAC Go-Live Date will continue under the existing frequency response procurement documentation, but with effect from the service day prior to the EAC Go-Live Date, auctions under the existing Frequency Response Procurement Rules will cease and that document will terminate. The existing frequency response service terms will continue in operation throughout this period, both before and after the EAC Go-Live Date, but with certain changes taking effect from the EAC Go-Live Date to reflect the creation of frequency response contracts under the new auction platform.

It is possible that for a temporary period after the launch of the EAC, product stacking across the three frequency response services will not be possible. In this case, the new Reserve/Response Procurement Rules envisage that NGESO will notify participants when this limitation is lifted, and at that point it is expected that some consequential changes to the Frequency Response Service Terms may be required, notably to address the disarming and re-arming of an asset on an individual service basis where there is product stacking.

Accompanying this proposal therefore are draft documentation comprising:

* New Reserve/Response Procurement Rules
* Consequential changes to the existing Frequency Response Procurement Rules
* Consequential changes to the existing Frequency Response Service Terms,

together also with:

* An update to the existing Article 18 ‘mapping document’ for the frequency response services
* A ‘destination table’ showing where provisions currently found in the existing frequency response procurement rules and service terms appear in the proposed new and updated documentation

These proposed consequential changes to the Frequency Response Service Terms are confined to those relevant to the new auction platform and are independent of the regular review cycle for the frequency response procurement documentation.

In the Annex below, we summarise the key changes to the procurement and delivery of the frequency response services to which this consultation pertains.

NGESO is inviting responses to this consultation by **17:00 Friday 14 July 2023**. The responses to the specific consultation questions or any other aspect of this consultation can be provided by completing the form at the end of this document. Please note that responses submitted after this time may not be considered.

**ANNEX**

## Single Market for Frequency Response and Reserve

We plan to procure frequency response services (DC, DM, DR) and the new reserve services (QR, SR) in a single, simultaneous, day-ahead, pay-as-clear auction.

**What’s changing?**

All services will be cleared in a simultaneous auction, with market welfare being maximised across all services.

Frequency response services can be co-optimised with the new reserve services. Where a unit can provide both frequency response services and reserve services, a provider can make alternative offers to the auction. The clearing algorithm will allocate the unit to either frequency response or reserve to best optimise the market clearing.

**Why are we doing this?**

We are harmonising operational processes across more balancing ancillary services to reduce operational complexity and make future changes easier.

The improved market design will result in more efficient market clearing, lower procurement costs, and lower risks for providers.

**More info:**

The new market will begin initially with frequency response services (DC, DM, DR). QR and SR will be added to the new market at a later date.

The procurement rules have been modified and generalised so that one document will apply to DC, DM, DR, QR, and SR.

Different service terms will apply to frequency response services and reserve services. We will consult on the Reserve Service Terms as the development of these services progresses.

## Integrated Market Platform

Procurement of DC, DM, and DR will move from the EPEXSPOT auction platform to NGESO’s Single Markets Platform (SMP). We plan to add QR and SR to the platform when NGESO begins procurement of these new services. All workflow processes related to these services (unit management, order submission, etc.) will be available with a single login.

**What’s changing?**

The EPEXSPOT CTS++ platform used for the current frequency response auction trial will be discontinued. Submission of participant sell orders and retrieval of results will move onto NGESO’s SMP.

An API will allow provider systems to connect directly to NGESO’s SMP to automatically submit sell orders and retrieve auction results.

A new User Interface will enable providers to submit, edit, and cancel sell orders directly on the SMP.

**Why are we doing this?**

End-to-end use of the SMP for procurement of balancing ancillary services will allow NGESO to better integrate procurement with other internal processes.

The new solution will facilitate integrated workflow processes for providers (e.g., management of assets and market units), with a single login and a “common look and feel” for all balancing ancillary service markets.

Providers have requested an API to connect to the auction functionality.

We expect lower costs to operate and maintain the new platform.

## New Auction Clearing Algorithm

Our strategic partner, N-SIDE, is developing a new, bespoke market clearing algorithm to enable a new market design.

**What’s changing?**

The market design for balancing ancillary services has been enhanced to enable stacking of frequency response services (i.e., simultaneous delivery of more than one service), co-optimisation across frequency response and reserve services (optimising over multiple offers from the same unit), negative auction clearing prices, overholding (excess procurement of NGESO’s requirements) and other new features.

The HELENA algorithm, currently used to clear the daily frequency response auction, will be replaced with a new clearing algorithm that has been custom built for this new market.

EPEXSPOT currently acts as the Operator and Auction Administrator for the frequency response auctions. These functions will be taken in-house by NGESO. N-SIDE will provide a support service to market participants.

**Why are we doing this?**

The new market design for balancing ancillary services requires a new auction clearing algorithm.

NGESO plans to integrate this new auction clearing algorithm into its SMP. The current frequency response auction is run on a stand-alone platform that was built specifically for the Frequency Response Auction Trial project.

## Updates to Procurement Rules Documents

We are consulting on proposed changes to the contractual documentation that enables the frequency response auctions. We invite responses on these changes from service providers and other interested parties.

**What’s changing?**

We are proposing a new document which combines the Procurement Rules for DC, DM, DR, QR, and SR into a single document (Reserve/Response Procurement Rules).

We have updated these new Reserve/Response Procurement Rules in line with the new market design.

We are proposing a small change to the existing frequency response procurement rules, so that they cease to apply when the new auction starts.

**Why are we doing this?**

Because frequency response and the new reserve services will be procured in a single auction, we are proposing a single document to avoid repetition, to reduce the burden on industry when reviewing and acceding to the documentation, and to make the document easier to maintain in the future.

We are proposing changes to the exiting Frequency Response Procurement   
Rules to enable a smooth cutover to the new Reserve/Response Procurement Rules.

**Links:**

[Existing Frequency Response Procurement Rules](https://www.nationalgrideso.com/document/267921/download)

[Reserve/Response Services Procurement Rules](https://www.nationalgrideso.com/document/281721/download)

## Updates to Frequency Response Service Terms

We are consulting on proposed changes to the existing Frequency Response Service Terms that govern the delivery and settlement of frequency response services. We invite responses on these changes from service providers and other interested parties.

**What’s changing?**

Specification of the service delivery for frequency response has been extended to cover service stacking (simultaneously delivery of more than one service).

We propose changes to the performance monitoring regime to facilitate service stacking.

We propose changes to the settlement process to accommodate negative clearing prices.

We propose changes to the calculation of settlement adjustments for non-performance to create a meaningful incentive in case the auction clearing price is small or negative.

**Why are we doing this?**

Immediate updates to the Frequency Response Service Terms are necessary to enable some of the proposed changes to the market design: service stacking and negative clearing prices.

**More info:**

We have not yet proposed updates to the paragraphs in the Frequency Response Service Terms relating to disarming codes and disarming of service delivery, but we plan to amend these based on feedback from this consultation (see below)

We expect to solicit responses on further changes to the Frequency Response Service Terms as part of another consultation later this year.

**Links:**

[Frequency Response Service Terms](https://www.nationalgrideso.com/document/281711/download)

## Co-optimisation

The auction clearing algorithm will be able to select between alternative provider offers and alternative NGESO requirements to better optimise the overall market clearing.

**What’s changing?**

When a unit has capability to provide more than one of the services, the provider may wish to place multiple, alternative offers in the auction and let the auction clearing algorithm allocate the unit to the service that will clear the market most efficiently (i.e., best maximise market welfare, subject to the constraints). In contrast, without co-optimisation the provider has to choose in advance which of the various services to offer into the auction.

The new market design for frequency response and reserve implements co-optimisation by two different auction features: “mutually-exclusive baskets” and “substitutable families”.

Sometimes there are different combinations of balancing ancillary services that will secure the electricity system equally. NGESO can submit “substitutable buy orders” into the market and the auction clearing algorithm will find the most efficient solution.

**Why are we doing this?**

Co-optimisation reduces risk for market participants, by helping to avoid a participant’s offer is not accepted for an oversupplied service while there are unfulfilled requirements for other services.

Units can offer their capacity in multiple services, increasing the market liquidity for all products in the auction. This will allow for more efficient market solutions and reduced procurement costs.

**Links:**

[EAC Market Design Explainer](https://www.nationalgrideso.com/document/277671/download)

## Service Stacking for Frequency Response

Participants may offer to deliver more than one frequency response service (DC, DM, DR) simultaneously from the same market unit.

**What’s changing?**

The current market for frequency response services allows for only a single service to be delivered in any one EFA period. For example, if a unit is delivering DC (either DCL, DCH, or both) then the unit cannot also deliver DM.

The new market design allows for a unit’s capacity to be split across different frequency response services simultaneously (assuming the unit has the technical capacity to do so). For example, a unit could be awarded contracts for DCL, DML, and DMH in the same EFA period.

An important note: if a unit is stacking DR alongside another, faster response service (DC or DM), then the DR service must be delivered at the same speed as the other product or products (1 second to full delivery).

**Why are we doing this?**

Service stacking has been requested by market participants.

**More info:**

The changes required to facilitate service stacking for frequency response services have been detailed in the market design, auction platform, auction clearing algorithm, Reserve/Response Procurement Rules, and Frequency Response Service Terms. We are therefore consulting on our proposed design of service stacking for frequency response at this time.

There is currently only one disarming code for all frequency response services. NGESO proposes to implement separate disarming codes for each of the services and their corresponding products.

If necessary, changes to the core systems in NGESO’s control room are not ready for Day 1, it is possible that the new platform and market will launch without service stacking. Providers may therefore be prevented on Day 1 from submitting offers where there is more than one service included in a sell order or in a basket. In this case, NGESO will give notice to the market when stacking of frequency response services will be available.

**Links:**

[[EAC Market Design Explainer](https://www.nationalgrideso.com/document/277671/download)](https://www.nationalgrideso.com/document/277671/download)

## New Design for Sell Orders

The construction of sell orders is changing to enable the new features of the market design, such as co-optimisation and stacking.

**What’s changing?**

One or more sell orders can be grouped together in “baskets”. Baskets are mutually exclusive – if two baskets are specified on the same (or overlapping) time periods, then only one of them can be cleared by the auction.

A single sell order can contain more than a single product (e.g., DCH and DCL) in potentially different quantities. This replaces the “looping” feature (C88 blocks) in the current auction.

A new order type is introduced: Substitutable Child. This facilitates the algorithm to co-optimise a unit’s capability by allocating it to the service that clears the auction most efficiently.

A participant can loop together baskets defined on different time periods (to structure their offers into longer delivery periods than just a single EFA period). This feature replaces the “multi-period block” in the current frequency response auction.

**Why are we doing this?**

A new order structure is required to enable co-optimisation and stacking.

**Links:**

[EAC Market Design Explainer](https://www.nationalgrideso.com/document/277671/download)

## Overholding

The auction clearing algorithm may clear a quantity of service in excess of NGESO requirements if this better optimises the market.

**What’s changing?**

NGESO will be able to specify that some buy orders may be “paradoxically accepted”. This means they can be matched with a sell order whose offer price is higher than NGESO’s bid price (i.e., the sell order costs more than NGESO is willing to pay).

NGESO may submit buy orders for additional requirements, in excess of their actual requirements, with very low bid prices (i.e., bid prices equal to or less than £0/MW/h).

**Why are we doing this?**

The current auction clearing algorithm may neglect a larger but low-priced sell order in favour of a smaller or high-priced sell order if the larger order doesn’t fit within NGESO requirements.

By allowing overholding, the clearing algorithm can select a lower-priced sell order if this better optimises overall market welfare, even if the total procured quantity exceeds NGESO’s requirements.

This will increase overall market welfare, decrease procurement costs, and reduce the number of sell orders that are paradoxically rejected.

## Negative Prices

Provider offer prices (in sell orders), NGESO bid prices (in buy orders), and market clearing prices may be less than zero, to enable providers to offer to pay NGESO for offering an ancillary service.

**What’s changing?**

Currently, the minimum market price for the frequency response auction is £0/MW/h.

The new market design will allow negative prices. This change applies to buy orders, sell orders, and market clearing prices.

A negative price means that the participant will pay NGESO for providing the service.

**Why are we doing this?**

We have observed that in the case of certain high-frequency (HF) frequency response services (DRH in particular), participants, who are not settled for utilisation energy, will offer to provide the service for £0/MW/h. When the quantity of the service offered by participants at £0/MW/h exceeds the volume of NGESO requirement, there is no way to select between the various sell orders.

## Updates to Performance Measurement for Frequency Response

The rules for performance measurement for frequency response will be extended to accommodate service stacking.

**What’s changing?**

Currently the performance monitoring rules assume that only one frequency response service will be delivered at one time. We therefore propose new performance monitoring rules for frequency response to accommodate service stacking (i.e., the simultaneous delivery of more than one frequency response service).

Performance bounds will be calculated considering the contracted quantities of each contracted services (i.e., performance bounds will be calculated per unit and not per service.) The performance bounds will reflect how a unit delivering multiple services should respond, given the technical requirements of the various services.

**Why are we doing this?**

The current performance monitoring rules and the formulae for calculation of the K-factor do not consider simultaneous delivery of multiple services.

**More info:**

A single K-factor will be calculated for all HF services, and a different K-factor for all LF services. Each contract (i.e., each auction product) will be settled separately.

The requirements for submission of performance data are not changing (i.e., data interfaces will remain the same as at present). If a unit is providing DR together with another service simultaneously, then the performance data must be provided at 20 Hz. If DR is provided separately, then performance data may be provided at 20 Hz or 2 Hz.

We will issue separate guidance at a later date for State of Charge Management for energy-limited assets providing more than frequency response service simultaneously.

## Revised Application of Settlement Adjustments for Non-Performance

We are proposing an amendment to the settlement formula for the availability payment for frequency response based on performance, to accommodate a settlement adjustment (in favour of NGESO) to be applied when the market clearing price is very low or negative.

**What’s changing?**

Currently, in case of poor performance by a unit delivering frequency response, availability payments are scaled by a K-factor (between 0 and 1). The settlement adjustment for poor performance is therefore proportional to the market clearing price.

We plan that the new market design should admit negative prices. In case of a negative market clearing price, we propose that the settlement adjustment should be proportional to the absolute value of the clearing price (i.e., for the purposes of determining a settlement adjustment, a negative clearing price should be multiplied by -1).

Furthermore, we also propose to introduce a settlement adjustment different than zero in the case the market price is zero or close to zero (positive or negative).

**Why are we doing this?**

Presently, when the market clearing price is close to zero or zero, the settlement adjustment for poor performance is very small or null. Also, when the market clearing price is negative, the existing approach leads to less money paid to NGESO in case of poor performance.

**More info:**

If the market clearing price is greater than £ x2 /MW/h, then the settlement adjustment will be proportional to the market clearing price. If the market clearing price is less than £ x1 /MW/h, then the settlement adjustment will be proportional to -1 times the market clearing price. If the market clearing price is between £ x1 /MW/h and £ x2 /MW/h inclusive, then the settlement adjustment will be proportional to £ X /MW/h.

NGESO proposes a minimum settlement adjustment of £1/MW/h (for K=0). This implies that x1 = -1, x2 = 1, and X = 1.

## New Disarming Codes

We plan to introduce new disarming codes so that each service or product can be disarmed separately in case a unit is providing more than one frequency response service.

**What’s changing?**

Currently, if the control room wants a unit to stop providing frequency response, a disarming code can be sent to the unit. There is only a single code for frequency response, as a unit currently provides only one service at a time.

We propose to allow a unit to provide more than one frequency response service simultaneously. In this case, the control requires the capability to disarm each service separately (e.g., to require the unit to cease provision of DR while continuing to provide DC).

**Why are we doing this?**

The capability to disarm each frequency response service or product separately is necessary to ensure secure system operation.

**More info:**

The necessary changes to codes and systems that are required to implement separate disarming codes for each frequency response service and its corresponding products have not yet been designed.

Consequently, we have not amended the relevant paragraphs in the circulated draft update of the Frequency Response Service Terms.

We invite providers to advise us of any material restrictions or barriers that would result from the implementation separate disarming codes for each frequency response service and its corresponding products. We will consider these when implementing the new codes and revising the Frequency Response Service Terms.

It is possible that service stacking of frequency response services may be contingent on the implementation of a new solution for disarming codes.

We will update the relevant paragraphs of the Frequency Response Service Terms and notify industry before going live with the new disarming codes, but we do not expect to consult on this topic a second time unless we require additional industry guidance based on initial feedback.

## Enriched Reporting of Auction Results

After market clearing, rejected sell orders will be marked with a “rejection code” to give service providers better information about the clearing of their sell orders.

**What’s changing?**

We currently publish all sell orders after each auction on the NGESO data portal, as part of a market transparency data set. These sell orders are enriched with additional clearing information, including the clearing status of the order, cleared quantity, and clearing price. The clearing status of the order is currently either “Accepted” or “Rejected”.

We plan to publish a rejection code with each rejected order to provide additional information regarding the order’s rejection.

**Why are we doing this?**

Additional clearing information will provide greater transparency over market clearing.

**More info:**

Orders may be rejected because the offer price is above the market clearing price, because a parent order or looped order has not been accepted, or because a mutually exclusive order has been accepted.

Additionally, orders may be paradoxically rejected. If an order is paradoxically rejected, then it is priced below the market clearing price and satisfies all other clearing rules, but its acceptance would exclude one or more other sell orders with higher total surplus.

Please return the completed form (word version) to [box.futureofbalancingservices@nationalgrideso.com](mailto:box.futureofbalancingservices@nationalgrideso.com):

|  |  |
| --- | --- |
| Respondent |  |
| Company Name |  |
| Does this response contain confidential information? If yes, please specify. |  |
| 1 | Please share your feedback on NGESO’s overall strategy for frequency response and reserve, including the plan to move to a single, simultaneous, co-optimised auction, and the new market design and auction platform (please see sections A, B, and C above). |
| **Answer:** |
| 2 | Please share your feedback on the proposal to amend the existing frequency response procurement rules to enable a cutover to the new platform and auction clearing algorithm. |
| **Answer:** |
| 3 | Please share your feedback on the proposed design of co-optimisation in the new market clearing algorithm (please see section F above). |
| **Answer:** |
| 4 | Please share your feedback on the proposed design of service stacking for frequency response services (pleases see section G above). Do you expect any problems to comply with the requirement that the DR service must be delivered more quickly when stacked with faster-acting services? |
| **Answer:** |
| 5 | Please share your feedback on the proposed changes to the specification of sell orders (please see section H above). |
| **Answer:** |
| 6 | Please share your feedback on the proposed changes to the clearing algorithm to NGESO buy orders to be paradoxically accepted (“overholding”) to increase overall market welfare (see section I above). |
| **Answer:** |
| 7 | Please share your feedback on the proposal to allow negative prices for buy orders, sell orders, and market clearing prices (see section J above). Will there be impacts to provider settlement systems? Do you have any recommendations to NGESO? |
| **Answer:** |
| 8 | Please share your feedback on the proposed changes to performance monitoring for frequency response to accommodate stacked services (see section K above). |
| **Answer:** |
| 9 | Please share your feedback on the proposal to amend the settlement formula to accommodate negative prices, and to ensure a meaningful settlement adjustment in case the market clearing price is close to £0/MW/h (see section L above). What are your thoughts on NGESO’s proposal for the minimum settlement adjustment to be £1/MW/h, to ensure a meaningful incentive for good performance? |
| **Answer:** |
| 10 | NGESO plans to enable separate disarming codes for each frequency response service (DC, DM, DR). This is a prerequisite for enabling the stacking of frequency response services. What are the impacts of this change on providers (units providing frequency response, control technology, internal systems, etc.)? What recommendations and advice do you have for NGESO? |
| **Answer:** |
| 11 | Do you have any additional feedback on the proposed new Reserve/Response Procurement Rules? |
| **Answer:** |
| 12 | Do you have any additional feedback on the proposed amendments to the Frequency Response Service Terms? |
| **Answer:** |