

Frequency Response Products Market Information Report

Monthly Report

Published June 2021



Contents

Preamble.....	2
Frequency Risk and Control Report	3
Firm Frequency Response Monthly Tender	4
Phase 2 Weekly Auction (DLH and LFS)	7
Dynamic Containment.....	8
New Suite of Products.....	9
Appendix 1.....	10

Preamble

The report covers all essential information related to procurement of frequency response products, such as month ahead tender (FFR), week ahead auction (Phase 2 Auction) and day ahead tender (DCL) where we will provide our forecast requirement for those products and give guidance on how to participate in tenders and auctions. We will also provide latest updates related to implementation of new suite of products.

Frequency Risk and Control Report

The Frequency Risk and Control Report has been introduced following the approval of Security and Quality of Supply Standards (SQSS) modification GSR027: Review of the NETS SQSS Criteria for Frequency Control that drive reserve, response and inertia holding on the GB electricity system.

The first edition of the FRCR focused on the following key areas:

- establishing a clear, objective, transparent process for assessing reliability compared with the cost to ensure the best outcome for consumers
- making the assessment of the risk from the inadvertent operation of Loss of Mains protection transparent
- identifying quick, short-term improvements for reliability vs. cost, including:
 - the delivery of the Dynamic Containment and Accelerated Loss of Mains Change programmes,
 - assessing the frequency standard that different size loss risks are held to, and
 - the impact of transmission network outages on radial connection loss risks

This was published on 1st April 2021, and informs our future requirements for frequency response services. Please use [this link](#) to access the report and methodology documents. Ofgem [approved](#) the FRCR in May and phase one of the recommendations were implemented at end May 2021.

We have recently published our [Markets Roadmap to 2025](#) which sets out our vision for response and reserve markets to support the transition to net zero carbon emissions.



Key Points - FFR

This section of Market Information Report is relevant for tenders submitted in July 2021 for delivery in **August 2021**.

Tenders from eligible service providers for Firm Frequency Response should be submitted on **Thursday 1st July 2021** (1st business day) for all tenders.

National Grid will notify service providers of the outcome of the tender assessment, and preliminary nominations, by **Friday 16th July 2021** (12th business day).

From January 2018, non-compliant tenders will be rejected prior to assessment.

Providers must use the template provided in the **Coupa** system to tender in for FFR. Use of any other template or submissions via e-mail will not be accepted.

In line with the standardisation outlined in the Product Road Map, procurement of FFR will only take place across the standard 6 EFA blocks. Tenders must therefore only start, and end, at the following times: 2300, 0300 0700 1100 1500 1900. Submitted tenders must have a minimum window availability of 4 hours in line with EFA blocks.

Please note that this is a month ahead only tender. Tenders should therefore be submitted for August 2021 delivery. A presentation that summarises the FFR results can be found [here](#).

Real-time data i.e. demand and frequency data, over the last 60 minutes can now be found on the [Realtime Extranet](#) section on the National Grid website. [Historic frequency data](#) as far back as 2014 can also be accessed for GB data at 1 second resolution.

For further information please contact your account manager or:
Andy Rice

- Andrew.Rice@nationalgrideso.com

Firm Frequency Response Monthly Tender

This section provides information to FFR providers on the requirement for the tender (TR 139) for delivery in August 2021.

Requirements for August 2021 (TR 139)

Primary Response:

A dynamic primary requirement exists in all EFA blocks.

Secondary Response:

A dynamic secondary requirement exists in all EFA blocks.

There is a non-dynamic secondary requirement in EFA 3 to 6.

High Response:

A dynamic high requirement exists in all EFA blocks.

Image 1: Requirement for 2021.

Month	Settlement Period	Dynamic Response Required (MW)			Static Response Required (MW)
		Primary	Secondary	High	Secondary
AUG-2021	EFA 1	450	450	350	0
	EFA 2	450	450	350	0
	EFA 3	450	450	350	144
	EFA 4	450	450	350	153
	EFA 5	450	450	350	116
	EFA 6	450	450	350	116
SEP-2021	EFA 1	450	450	350	0
	EFA 2	450	450	350	0
	EFA 3	450	450	350	120
	EFA 4	450	450	350	135
	EFA 5	450	450	350	78
	EFA 6	450	450	350	72
OCT-2021	EFA 1	450	450	350	0
	EFA 2	450	450	350	0
	EFA 3	450	450	350	52
	EFA 4	450	450	350	66
	EFA 5	450	450	350	0
	EFA 6	450	450	350	0
NOV-2021	EFA 1	450	450	350	0
	EFA 2	450	450	350	0
	EFA 3	450	450	350	0
	EFA 4	450	450	350	0
	EFA 5	450	450	350	0
	EFA 6	450	450	350	0
DEC-2021	EFA 1	650	650	550	0
	EFA 2	650	650	550	0
	EFA 3	650	650	550	11
	EFA 4	650	650	550	6
	EFA 5	650	650	550	0

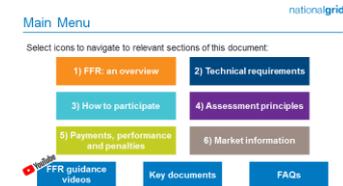
Key Points - FFR

Response BOA and Holding Volume and Cost

This information is in Appendix 7 of the adjoining excel file.

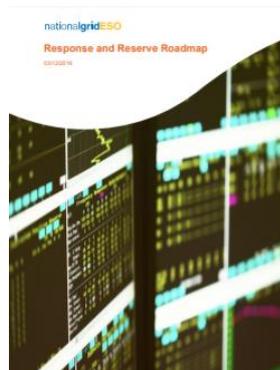


FFR service Overview



Product Roadmap

This document sets out the actions to be taken forward for frequency response and reserve.



	EFA 6	650	650	550	0
JAN-2022 –	EFA 1	650	650	550	0
	EFA 2	650	650	550	0
JUNE 2022	EFA 3	650	650	550	0
	EFA 4	650	650	550	0
	EFA 5	650	650	550	0
	EFA 6	650	650	550	0

We evaluate the requirement on a regular basis and should the requirement change, we will communicate it via MIR. This does not signal the end of the Static Secondary Response service, though in accordance with *Frequency Response Reserve Roadmap*, we have communicated our intent to transition away from existing response services as we implement the new product suite.

Procurement Rules

Testing

Providers are required to have successfully passed FFR testing of their asset by the National Grid Generator Compliance Team prior to tendering in for month ahead delivery. If tendering to provide an FFR service starting on 1st August 2021, the unit must have passed testing prior to the tender submission window closing on the 1st business day in July 2021. Tenders that do not meet this requirement will be deemed non-compliant and automatically rejected.

Limiting tenders

Providers are limited to submitting 3 tenders per unit, per tender period. A tender period is considered to be; month ahead, quarter ahead and per season. All-or-nothing bids will be considered as 1 tender submission.

EFA Block Procurement

For providers wishing to start a tender on the last day of the previous month, these tenders cannot start earlier than 2300 or they will be deemed as non-compliant.

The minimum requirement across each specific EFA block will determine how much volume will be procured for each of the 6 daily 4-hour blocks.

Any outstanding shape will be satisfied, where necessary, closer to real time by the Electricity National Control Centre.

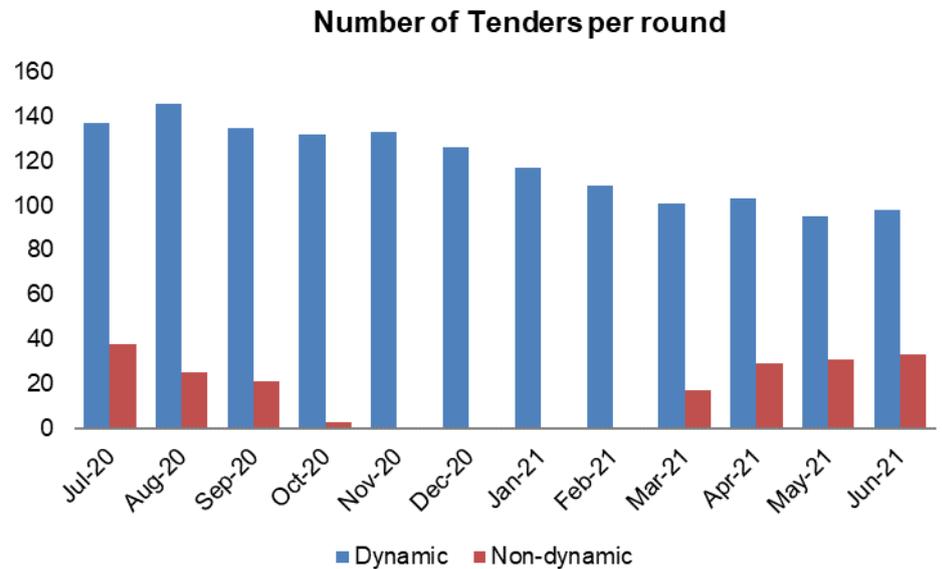
Results Publication – TR140 onwards

From TR140 onwards the unit location will be detailed as part of the results that are published in the FFR Post Tender Report. The locational details that will be publishing will consist of the first 4 digits of the postcode for single units that are 1MW or greater. We will be sending out further clarity regarding how assets that are 1MW or greater that are part of an aggregated units will be reported

Enhanced Frequency Response (EFR)

100% of EFR is included in the requirements from July 2018.

Image 2: Quantity of FFR Tenders



July 2021 FFR Delivery

96 active FFR contracts are due to provide FFR in July 2021. These contracts are made up of:

- 69 dynamic contracts
- 27 non-dynamic contracts
- 1 contract by BMU providers
- 95 contracts by NBMU providers

The chart below displays the number of tenders submitted in the FFR market for the last 12 months by service type.

Tender rejection codes

The table below provides guidance as to the reasons why a tender has been rejected. They can be matched against the numbers in the 'Reason Code' section of the Post Tender Report.

No.	FFR Reason Code	Comment
1	Beneficial	While the price submitted was considered beneficial, on this occasion this tender was not accepted for one of the following reasons: 1.2. There was no outstanding requirement 1.3. The desired volume against the National Grid procurement strategy for future tender months had already been satisfied 1.4. This tender formed part of an all-or-nothing group which did not collectively deliver enough benefit to be considered
2	Price not beneficial across tendered period	The price submitted was too high and did not provide any contract benefit against alternative actions including the mandatory and optional market.
3	Does not meet tender prerequisites	Please refer to the 'Technical Parameters' section using the following link to determine the criteria necessary to participate in the FFR market https://www.nationalgrid.com/uk/electricity/balancing-services/frequency-response-services/firm-frequency-response

4	Multiple tenders received for the same unit	Only the most valuable tender(s) of the total group of submitted tenders was considered.
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Key Points – Weekly Auction

For latest news and updates please refer to homepage for the weekly auction:
Phase 2 Auction Trial

The auction trial is an innovation project which is procuring Low Frequency Static (LFS) and Dynamic Low High (DLH) frequency products through the EPEX SPOT Auction Platform on a weekly basis.

Auction Results are published on DataPortal:
nationalgridESO



Weekly Auction – Phase 2

This section provides information to Weekly Auction providers on the requirement for Dynamic Low High and Low Frequency Static Products

As promised in the Response and Reserve Roadmap issued in December 2019, we would share with you our initial findings and learnings about the Auction Trial project in a project evaluation report. The [evaluation report](#) (provided by ESP Consulting) and the [ESO response letter](#) are now available.

Procured Volume (FFR and Weekly Auction)

The buy order in the weekly auctions in July will be at least 200 MW in each EFA block. We will seek to procure any unfilled volume in the FFR monthly tender through the weekly auction in order to meet our requirements for minimum dynamic response.

The auction will cease at the end of November 2021 and the volume currently allocated to the auction will be move into the FFR monthly tender from December 2021 onwards.

Dynamic Containment

This section provides information on requirement for Dynamic Containment and gives an insight of product procurement.

The first few months of Dynamic Containment delivery have been a success and the ESO are now able to share future DC requirements. The requirements given in Image 3 outline the expected Dynamic Containment LF requirements for the remainder of 2021.

The volumes in Image 3 are assumed to be available 24/7. These will be procured daily and will allow the ESO to secure large losses on a low inertia system without the need to take more expensive alternative actions.

These values are dependent on multiple factors. These include forecast demand, inertia, loss sizes including Loss of Mains (LoM) loss groups and the FFR and stability pathfinder procurement strategies. These requirements are subject to change as any of the factors listed above are updated. Please note these requirements are over and above current response holdings from non-DC products. As we transition to the new response services, we expect more volume to move to DC, which may increase these requirements.

Requirements for 2021

Image 3: Minimum and Maximum forecast LF DC requirements for 2021 per month.

Month 2021	Min DC LF Requirement (MW)	Max DC LF Requirement (MW)
July	1100	1300
August	1200	1400
September	1100	1400
October	1100	1100
November	800	1000
December	800	1100

The DC procurement changes consultation closed on 27 May. With go-live date planned for August, this will introduce EFA block granularity procurement of LF DC on EPEX through a Pay as Clear Auction. When DC High is launched in October, providers will have the option to link bids by products. More granular procurement will enable NGENSO to optimise the requirement across a day based on the size of loss risks and system conditions and as a consequence the requirement will not always be the same across all EFA blocks and may vary on a day by day basis. The methodology and results of this analysis will be shared in due course. The EFA block DC LF requirement volume will depend on a combination of factors, including:

- Generation and demand loss risk sizes
- Inertia
- The price and capability of other actions, including other response holding and
- Our over-arching Frequency Risk and Control Policy

The EBGL Article 18 Consultation for changes to contractual terms as we introduce Dynamic Containment (DC) High Frequency is now live. The consultation closes on **19 July 2021**. The suite of consultation documents can be accessed via [the link](#).

Future requirements for 2022 and beyond

The amount and type of response the ESO procure is continually under review in order to be most cost efficient. As the Accelerated Loss of Mains Change Program (ALoMCP) progresses and the FFR procurement and stability pathfinder procurement strategies are shaped by the Frequency Risk and Control Report, the ESO will update the requirements accordingly.

Future large losses due to connect over the next few years are likely to increase DC requirements. These include:

- Interconnector NSL link at 1400 MW scheduled to connect in October 2021
- Interconnector Viking link at 1400 MW scheduled to connect in 2023
- Hinckley-C at 1800 MW scheduled to connect in 2023
- More generation capacity is being added to the Dumfries & Galloway and Ayrshire loss groups, which will run at 1800MW
- The first of several large offshore wind farms scheduled due to connect within next few years.

New Suite of Products

This section provides information on developments related to our new suite of products (Dynamic Moderation and Dynamic Regulation).

Please refer to [Dynamic Containment page](#) for details related to the new suite of products.

In order to implement the new product suite and avoid overholding of response volumes, it will be necessary to gradually reduce our long-term procurement of the existing P, S and H products. We will continue to hold monthly FFR tenders for month ahead volume and we will communicate how we will manage the transition from the existing mix of products into the new product suite. Please sign up for [updates](#) for future balancing services.

Response Requirement for DM and DR

Detailed modelling to determine the exact volume requirements for the new products is ongoing as we co-create with industry and finalise the product designs. Our overall response requirement is driven by the frequency risks on the system which are changing with new large generation connecting to the network in the next few years. The FRCR reviews these risks, ultimately enabling the ESO to transparently agree with industry the appropriate cost-risk balance for frequency control for consumers in that year.

Dynamic Regulation (DR) will allow us to offset the use of existing products (Primary, Secondary and High dynamic (PSH)) to meet our current minimum dynamic requirement of 550MW which we currently seek to procure through our month-ahead FFR tender and weekly DLH auction. 550MW is based on current system conditions and has remained an almost constant requirement for the last 3 years, although at times there are operational conditions (such as during periods of higher uncertainty) where this volume is increased to better manage small frequency deviations close to 50Hz. As a better product, the requirement for Dynamic Regulation is likely to be less than the current 550MW of PSH used to meet this system need.

Dynamic Moderation (DM) is designed to manage sudden imbalances which cause frequency deviations (for example, arising from changing weather fronts and forecasting errors) which is a system need that will evolve as the system further decarbonises. At this stage we expect to procure smaller volumes of DM than DR as we launch the products and expect this to grow in the future. Detailed volume requirements will be published in due course as part of the response reform programme. As the system evolves and markets for these new products become liquid we will seek to deliver consumer value through cost optimisation across products.

Appendix 1 FFR August 2021 Requirement

The three charts below display the volume of frequency response left to contract at month ahead.

For month ahead only, except for circumstances where there is a specific dynamic requirement, the requirement will be taken from either dynamic or non-dynamic providers where deemed economic to do so. This means that any requirement found in the non-dynamic market may be procured in the dynamic market if considered more beneficial. With no primary non-dynamic market in existence, procurement of this volume across any EFA block will instead be taken from the dynamic market.

In the move to standard EFA block window durations, the minimum of the total requirement across each EFA block outlines the level to be procured. In light of this transition, the minimum dynamic requirement remains a key component to be satisfied and outstanding volume against this will continue to be procured for operational purposes. For August 2021, this is shown in the table in FFR section of this document.



