Frequency response products
Market information report

Monthly report

Published November 2021

Contents

Preamble

The report covers essential information related to procurement of frequency response products, such as month ahead tender for Firm Frequency Response (FFR) and day ahead auction for Dynamic Containment Low and High Frequency (DC-LF and DC-HF). We provide our forecast requirements for these products and give guidance on how to participate in the tenders and auctions. We will also provide the latest updates related to our new suite of response products.

Key Points - FFR

This section of Market Information Report is relevant for tenders submitted in December 2021 for delivery in **January 2022.**

Tenders from eligible service providers for Firm Frequency Response should be submitted on **Wednesday 1st December 2021**

(1st business day) for all tenders.

National Grid ESO will notify service providers of the outcome of the tender assessment, and preliminary nominations, by **Thursday 16th December 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 January 2022 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.

Firm Frequency Response monthly tender

This section provides information to FFR providers on the requirement for the tender (TR 144) for delivery in January 2022 and onwards.

Requirements for January (TR 144)

As System Operator, we are required to operate the system economically and efficiently. The liquidity in the FFR market has initially decreased following the introduction of Dynamic Containment (DC). In TR143 we accepted all the dynamic FFR which cost us less than the alternative actions, please refer to paragraph below regarding changes to our published requirement. In TR143 static volume was accepted which cost us less than the alternative actions.

Our minimum dynamic requirement for FFR dynamic is 550MW. This can be met by monthly FFR dynamic (PSH) or MFR in real-time.

During October we published a Market Information Report of response setting out our FFR requirements was 550MW for all periods during December.

Since publishing of the FFR requirements there has been a change in the DC requirement as NSL will now be available to higher import and export volumes than anticipated at the time of publishing.

Therefore, although the published requirement for FFR was 550MW for all periods, we only procured 300MW for dynamic FFR during EFA 1-4 and up to 550MW during EFA 5-6.

The last auction for DLH and LFS will be on the 26th November for service delivery until the 3rd December. We will continue to meet our requirements through the monthly FFR tender until we launch our other new response and reserve services.

Image 1: Requirement for 2021 - 2022.

Month	EFA block	Dynamic Response Required (MW)			Static Response Required (MW)
		Primary	Secondary	High	Secondary
DEC 2021 onwards	EFA 1	300	300	300	250
	EFA 2	300	300	300	250
	EFA 3	300	300	300	250
	EFA 4	300	300	300	250
	EFA 5	550	550	550	250
	EFA 6	550	550	550	250

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 January 2022, the unit must have passed testing prior to the tender submission window closing on the 1st business day in December 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.

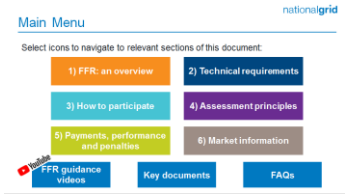
The minimum requirement across each specific EFA block will determine how much volume will be procured for each of the 6 daily 4-hour blocks.

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

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.

Results Publication – TR140 onwards

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.

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 consist of the first 4 characters of the postcode for single units that are 1 MW or greater. We will be sending out further clarity regarding how assets that are 1 MW or greater that are part of aggregated units will be reported.

Enhanced Frequency Response (EFR)
100% of EFR is included in the requirements from July 2018.

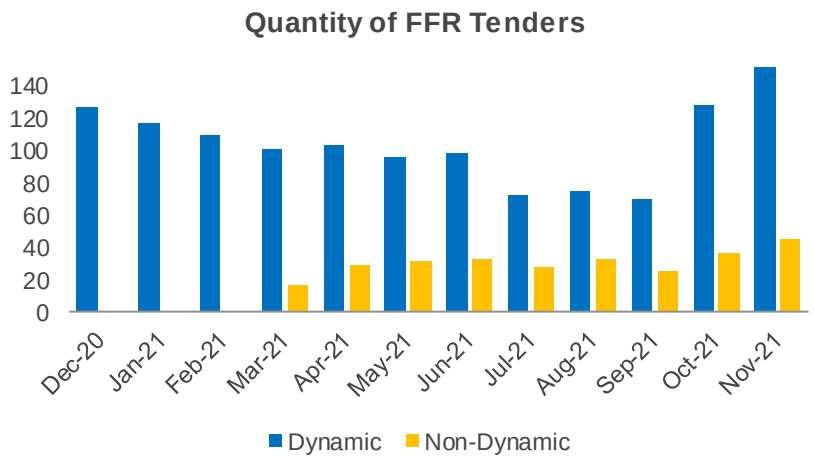
December 2021 FFR Delivery

203 active FFR contracts are due to provide FFR in December 2021. These contracts are made up of:

- **158** dynamic contracts
- **45** non-dynamic contracts

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

Image 2: Quantitiy of FFR Tenders



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.

Key Points – Weekly Auction

For latest news and updates please refer to homepage for the weekly auction:

Auction Results are published on DataPortal:

The weekly auction trial closes at the end of November this year and we will be moving the weekly auction volume into the monthly FFR tenders in the short-term, whilst the new response and reserve services are being developed (expected to deliver next spring).

Weekly Auction Trial – Phase 2

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

In summer 2020 we published findings and learnings about the Auction Trial project in a project **evaluation report**, which was independently created by ESP Consulting.

Procured Volume (FFR and Weekly Auction)

In the last month of the auction we will seek to procure any unfilled volume in the FFR monthly tender through the auction in order to meet our requirements for minimum dynamic response and secondary static response.

Dynamic Containment

This section provides information on requirements for Dynamic Containment Low Frequency (DC-LF) and Dynamic Containment High Frequency (DC-HF)

DC-LF Requirements for January 2022

Image 3 contains indicative requirements are based on our expectations for demand, inertia and infeed loss sizes in January.

The DC-LF requirements table presents the % of the time that there will be a need for the service. This is split into 300MW volume bands in the first two columns of the table, with the remaining columns in the table setting out the indicative % of the time that the requirement will be in that volume band for that respective EFA. The final column is the overall % of the time that the DC-LF will be in that volume band for the month of January.

For example, the first table shows that in January the indicative EFA 1 requirement is between 1MW and 300 MW for 6% of the month, between 301MW-600MW for 58% of the month and between 601MW-900MW for 35% of the month. We do not foresee any 0MW requirement EFA1 periods in January.

Image 4 contains the indicative requirements for Summer 2022. For example, EFA5 DC-LF Requirements for Summer 2022 are never zero, between 1MW and 300MW 19% of the time, between 301MW and 600MW 58% of the time, between 601MW – 900MW 3% of the time.

Image 3: DC-LF requirements for January 2022

DC-low		EFA						
From (MW)	To (MW)	1	2	3	4	5	6	All-day
0	0	0%	0%	42%	68%	84%	0%	32%
1	300	6%	10%	35%	19%	10%	52%	22%
301	600	58%	58%	10%	6%	6%	42%	30%
601	900	35%	32%	13%	6%	0%	6%	16%
901	1200	0%	0%	0%	0%	0%	0%	0%
1201	1500	0%	0%	0%	0%	0%	0%	0%

Image 4: DC-LF requirements for Summer 2022

DC-low		EFA						
From (MW)	To (MW)	1	2	3	4	5	6	All-day
0	0	0%	0%	0%	0%	0%	0%	0%
1	300	0%	0%	16%	16%	19%	0%	9%
301	600	3%	10%	35%	26%	58%	6%	23%
601	900	74%	74%	29%	29%	10%	84%	50%
901	1200	23%	16%	16%	26%	13%	10%	17%
1201	1500	0%	0%	3%	3%	0%	0%	1%

DC-HF Requirements for January 2022

These indicative requirements are based on our expectations for demand, inertia and outfeed loss sizes in Janary.

The minimum DC-HF requirement is 0MW, which will occur when demand and inertia are sufficiently high and/or interconnector exports are lower which results in adequate coverage of outfeed loss risks using EFR and FFR High. The peak indicative requirement of 300MW generally occurs during lower demand/inertia EFA blocks where DC-HF is required to manage large outfeed loss risks.

Image 5: DC-HF requirements for January 2022

DC-high		EFA						
From (MW)	To (MW)	1	2	3	4	5	6	All-day
0	0	55%	61%	90%	90%	90%	90%	79%
1	300	45%	39%	10%	10%	10%	10%	21%
301	600	0%	0%	0%	0%	0%	0%	0%
601	900	0%	0%	0%	0%	0%	0%	0%
901	1200	0%	0%	0%	0%	0%	0%	0%
1201	1500	0%	0%	0%	0%	0%	0%	0%

Dynamic Moderation and Dynamic Regulation

This section provides information on developments related to our new suite of products.

Please refer to **Dynamic Moderation page** and **Dynamic Regulation 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.

Appendix 1 FFR January 2022 Requirements

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 December 2021, this is 550 MW for all EFA blocks .

Month	EFA block	Dynamic Response Required (MW)			Static Response Required (MW)
		Primary	Secondary	High	Secondary
DEC 2021 onwards	EFA 1	300	300	300	250
	EFA 2	300	300	300	250
	EFA 3	300	300	300	250
	EFA 4	300	300	300	250
	EFA 5	550	550	550	250
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