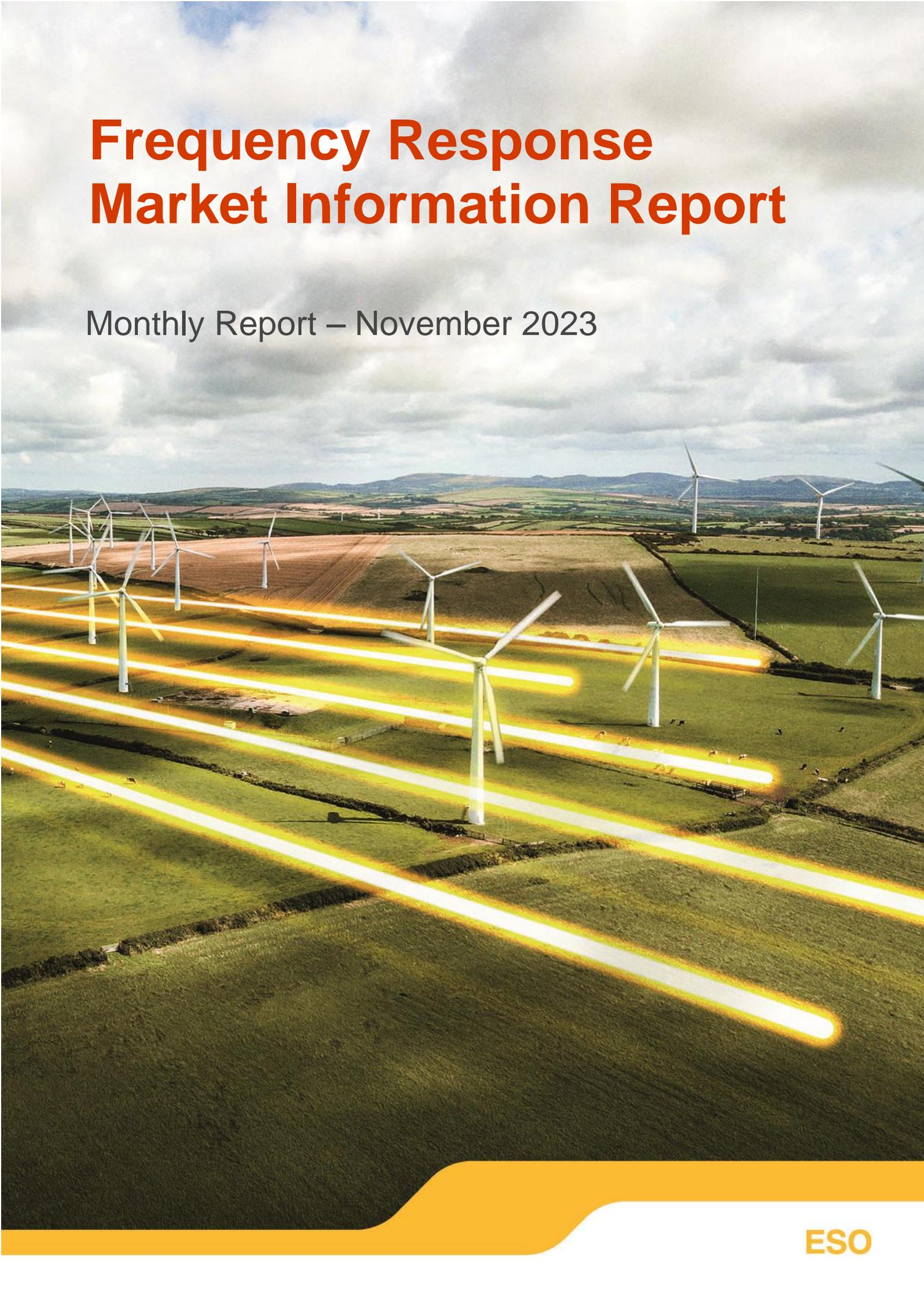


Frequency Response Market Information Report

Monthly Report – November 2023



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Introduction

The report covers essential information related to procurement of frequency response products, such as:

- Day ahead auction for Dynamic Containment, Dynamic Moderation and Dynamic Regulation (all procured as low and high).
- Day ahead auction for Static Firm Frequency Response (SFFR).

We provide our forecast requirements for these products and give guidance on how to participate in the auctions. For longer-term requirements please take a look at our [Operability Strategy Report](#).

Future Requirements and New Services

We know that a successful transition relies on clear and timely signals to facilitate growth and competition in our new markets and to support this we are committed to continuing to improve transparency of both how and when we communicate our future needs. We have just completed the transition from FFR Primary/Secondary/High (PSH) into new (DC, DM, DR) frequency response products. The dynamic pre- and post-fault frequency response needs will be met with the new suite of dynamic products (Containment, Moderation and Regulation) from 1st December 2023.

Phase out of Dynamic FFR (DFFR)

A key milestone in frequency response reform was the phasing-out of monthly Dynamic FFR (DFFR). The final tender round 166 took place in October with final month of delivery for November 2023. We therefore do not intend to procure any more FFR services.

Month of procurement	Month of Delivery	Dynamic FFR	Dynamic Regulation
July	August	200	200
August	September	200	230
September	October	150	260
October	November	100	290
November	December	0	350

Figure 1: Phasing out FFR with Dynamic Regulation requirements for December 2023

Please refer to historical data of FFR in previous [Frequency Report Market Information Reports](#).

Most deliverables under Response Reform Release 1 went live end of March 2023 and the teams are focusing efforts to deliver Release 2. Details have been shared through the webinar and Market Change Roadshows in May. The recording from the webinar is available [here](#) and the slides are available [here](#). For further updates please refer to our Future of Balancing Services Updates Newsletter – details in Guidance and Data.

DR Requirements for December 2023

The DR requirement for next month can be found in the [DR requirements](#) dataset and contains the Dynamic Regulation Caps less overholding of 20 MW.

DM Requirements for December 2023

The DM requirement for next month can be found in the [DM requirements](#) dataset and contains the Dynamic Moderation Caps less overholding of 20 MW.

DC Requirements short term

The DC forecasted requirement is under continuous review and is published daily in the [Dynamic Containment 4 Day Forecast](#) dataset.

The methodology uses forecasted demand, inertia, and response volumes as well as a view of the largest losses on the system to estimate the DC requirements.

The actual requirements day-ahead are likely to change based on optimisation carried out closer to real-time coupled with greater visibility of inertia, demand, and loss sizes. For example, changes to interconnector flows from our forecasted position can lead to either an increase or decrease in our requirements if the change impacts the largest loss we need to secure.

We will continue to review and revise our requirements in line with system conditions and proactively communicate any changes to the market via this publication and the 4 day rolling DC requirements forecast.

Firm Frequency Response Requirement

SFFR for day ahead auction for December 2023

This section provides information to SFFR providers on the requirement for the auctions for delivery in December 2023.

The requirement will maintain at 250MW for each EFA block in December 2023

Month	EFA block	Static Response Required (MW)
		Secondary
December 2023	EFA 1	250
	EFA 2	250
	EFA 3	250
	EFA 4	250
	EFA 5	250
	EFA 6	250

Figure 2: SFFR static requirements for December 2023

Market participants should note that the ESO has license requirements to operate the system economically and efficiently. This means that the SFFR volume advertised above will not always be procured through this daily SFFR market if the system need can be met through other response services or system actions at a lower overall cost to end consumers.

Dynamic Containment 12-month rolling indicative requirements

This section provides information on requirements for Dynamic Containment Low Frequency (DC-LF) and Dynamic Containment High Frequency (DC-HF). These requirements are indicative and subject to change.

In order to improve our view of anticipated level of procured volumes for DC-L and DC-H, from November 2022 we started publishing a new 12 month rolling forecast to determine the requirement for those services. The volumes are driven by actual forecast for demand, inertia, and infeed loss sizes (including progress in the ALoMCP) and reductions in the contracted volumes of legacy services (Enhanced Frequency Response), rather than relying on historical data when determining the requirement.

DC-LF Requirements for next 12 months

Figure 3 presents an indicative view of our expected requirements for the DC-L service. This is split into 200MW volume bands which can be seen in the top middle section of the graphic. For each month the % of time we expect the DC-L requirements to fall within the associated band (based on current assumptions) for each EFA block is represented by the shading of the associated cells as described at the bottom of figure 3.

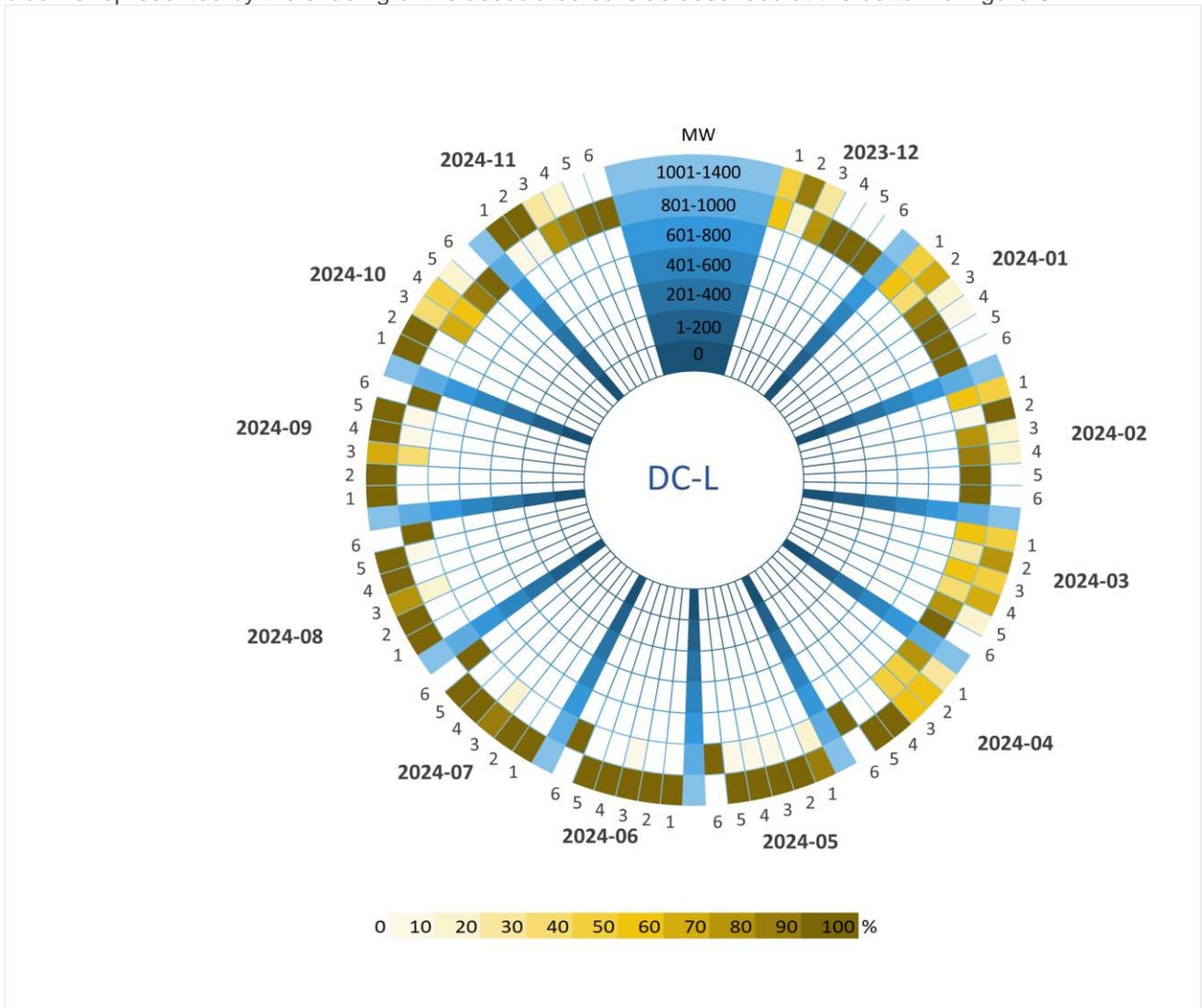


Figure 3: Indicative DC-L Requirements for next 12 months

DC-HF Requirements for next 12 months

Figure 4 presents an indicative view of our expected requirements for the DC-H service. This is split into 200MW volume bands which can be seen in the top middle section of the graphic. For each month the % of time we expect the DC-H requirements to fall within the associated band (based on current assumptions) for each EFA block is represented by the shading of the associated cells as described at the bottom of figure 4.

The DC-H requirements in Figure 4 are indicative requirements based on our actual forecast for demand, inertia, and outfeed loss sizes in next 12 months. We aim to buy enough DC-H to manage the largest outfeed losses on the system. The peak requirement generally occurs during lower demand/inertia EFA blocks.

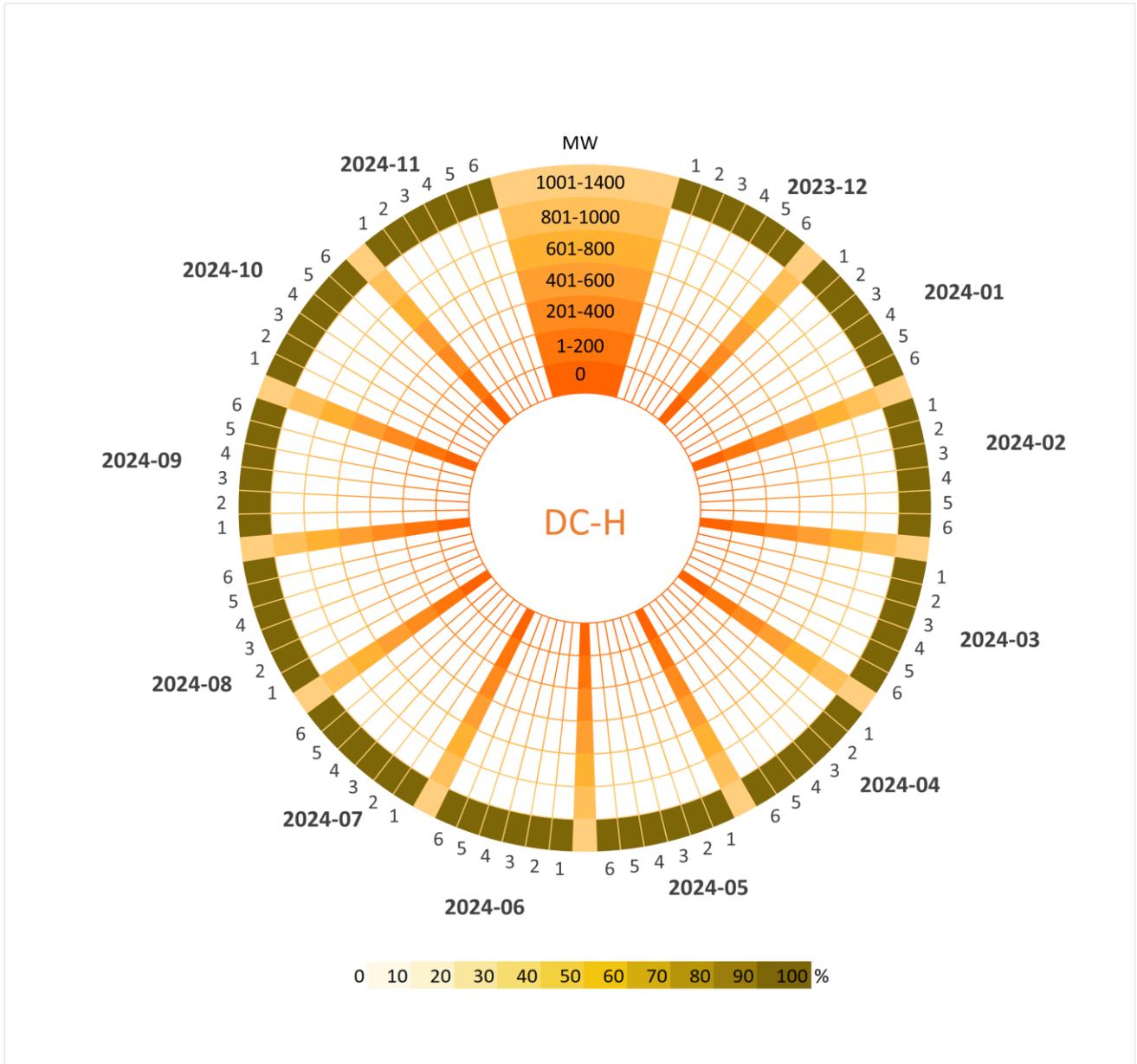


Figure 4: Indicative DC-H Requirements for next 12 months

4 Day Ahead Forecast

You can find daily updates [on the ESO Data Portal](#).

Related Data & Information

Information related to the service including how to participate can be found on the [Dynamic Containment page of the ESO website](#).

DC Block Orders Master Data, DC Results by Unit Master Data, DC Results Summary Master Data and DC Linear Orders are updated daily with day-ahead results on the [ESO Data Portal](#).

We have published the data for the DC charts above [here](#).

Response Dashboard

The current suite of Response services (DC, DM, and DR) is being procured via the Enduring Auction Capability (EAC) platform. The [previous results page](#) will no longer be updated but will retain the historical data.

An [interactive Power BI response dashboard](#) which is refreshed daily provides an accessible way to explore the auction results for DC, DR and DM.

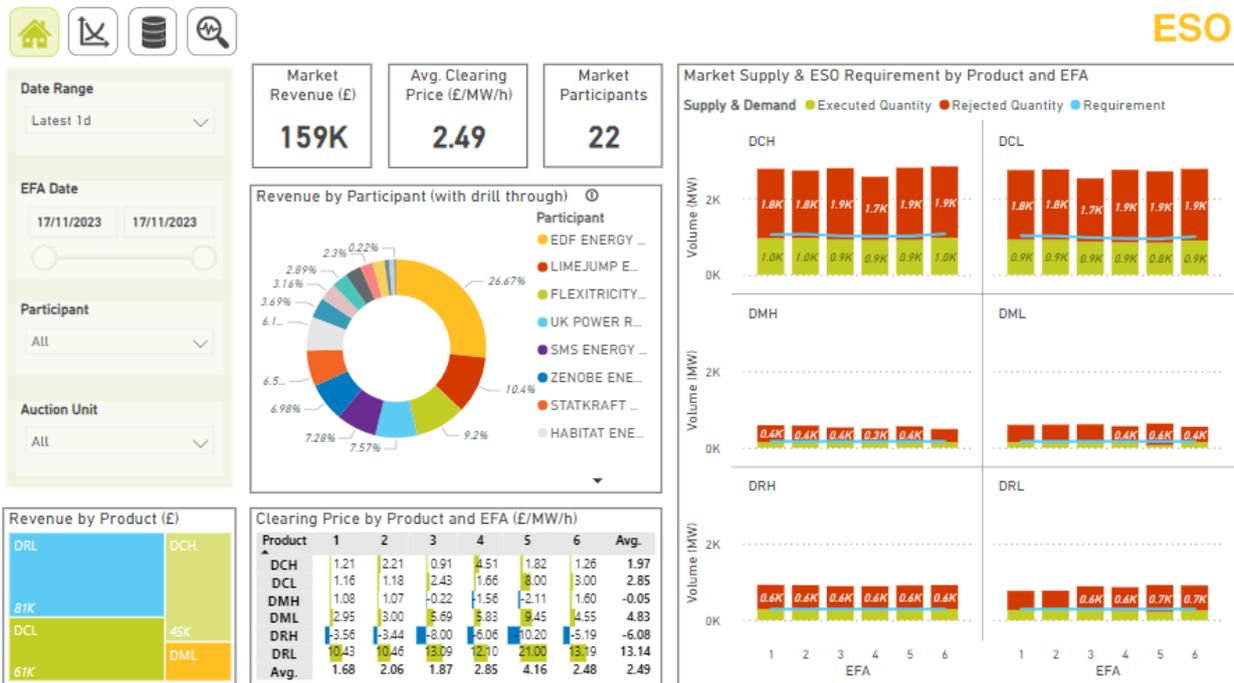


Figure 5: Interactive DC, DM, and DR dashboard

Appendix 1: SFFR Supporting Information

Procurement Rules

The Procurement Rules for the Static FFR service can be found on the ESO website.

Submissions and Results

Procurement of SFFR takes place across the standard 6 EFA blocks. Bids must therefore only start, and end, at the following times: 2300, 0300, 0700, 1100, 1500 and 1900. Submitted bids must have a minimum window availability of 4 hours in line with EFA blocks.

Please note that the gate opens 14 days before Service Day and bids can be submitted during that time until gate closure at 11:00 am on the EFA day immediately preceding the Service Day.

The below graphic shows the definitions related to Auction Timings as contained within the Procurement Rules.

The Auction Results Time is defined in the Procurement Rules as 17:00, this is a 'no later than' expectation.



Figure 6: SFFR timeline

*All times are UK local times (BST or GMT)

The full set of SFFR results and Buy Orders are published daily after auction is cleared and can be found on the ESO Data Portal. We endeavour to publish the results promptly after auction clears at 11:00.

Guidance and Data

Related Data

The following information is published on the ESO Data Portal

- [Live System Data](#)
- [Historic Frequency Data](#)
- [Firm Frequency Response \(FFR\) Post Tender Reports](#)
- [Firm Frequency Response \(FFR\) Market Information](#)

Other Useful Links

- [Register for Future of balancing services updates](#)
- [ESO Operational Transparency Forum](#)

Appendix 2: Dynamic Containment 12-month rolling indicative requirements – detailed information.

The forecast is split into 200MW volume bands. For each month, EFA block and product, the % of time we expect the requirements to fall within the associated band (based on current assumptions).

Appendix 3 - % of probability of DC requirement existing in between ranges

DCL	-						DCH	-					
	200	400	600	800	1,000	1,200		200	400	600	800	1,000	1,400
2023-12													
EFA1	-	-	-	-	55	45	-	-	-	-	-	-	100
EFA2	-	-	-	-	16	84	-	-	-	-	-	-	100
EFA3	-	-	-	-	77	23	-	-	-	-	-	-	100
EFA4	-	-	-	-	100	-	-	-	-	-	-	-	100
EFA5	-	-	-	-	100	-	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-01													
EFA1	-	-	-	-	55	45	-	-	-	-	-	-	100
EFA2	-	-	-	-	32	68	-	-	-	-	-	-	100
EFA3	-	-	-	-	87	13	-	-	-	-	-	-	100
EFA4	-	-	-	-	97	3	-	-	-	-	-	-	100
EFA5	-	-	-	-	100	-	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-02													
EFA1	-	-	-	-	52	48	-	-	-	-	-	-	100
EFA2	-	-	-	-	3	97	-	-	-	-	-	-	100
EFA3	-	-	-	-	79	21	-	-	-	-	-	-	100
EFA4	-	-	-	-	83	17	-	-	-	-	-	-	100
EFA5	-	-	-	-	100	-	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-03													
EFA1	-	-	-	-	55	45	-	-	-	-	-	-	100
EFA2	-	-	-	-	26	74	-	-	-	-	-	-	100
EFA3	-	-	-	-	58	42	-	-	-	-	-	-	100
EFA4	-	-	-	-	39	61	-	-	-	-	-	-	100
EFA5	-	-	-	-	81	19	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-04													
EFA1	-	-	-	-	77	23	-	-	-	-	-	-	100
EFA2	-	-	-	-	47	53	-	-	-	-	-	-	100
EFA3	-	-	-	-	43	57	-	-	-	-	-	-	100
EFA4	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA5	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-05													
EFA1	-	-	-	-	13	87	-	-	-	-	-	-	100
EFA2	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA3	-	-	-	-	6	94	-	-	-	-	-	-	100
EFA4	-	-	-	-	3	97	-	-	-	-	-	-	100
EFA5	-	-	-	-	3	97	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-06													
EFA1	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA2	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA3	-	-	-	-	3	97	-	-	-	-	-	-	100
EFA4	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA5	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-07													
EFA1	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA2	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA3	-	-	-	-	16	84	-	-	-	-	-	-	100
EFA4	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA5	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-08													
EFA1	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA2	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA3	-	-	-	-	19	81	-	-	-	-	-	-	100
EFA4	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA5	-	-	-	-	6	94	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-09													
EFA1	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA2	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA3	-	-	-	-	33	67	-	-	-	-	-	-	100
EFA4	-	-	-	-	3	97	-	-	-	-	-	-	100
EFA5	-	-	-	-	7	93	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-10													
EFA1	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA2	-	-	-	-	-	100	-	-	-	-	-	-	100
EFA3	-	-	-	-	68	32	-	-	-	-	-	-	100
EFA4	-	-	-	-	52	48	-	-	-	-	-	-	100
EFA5	-	-	-	-	84	16	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100
2024-11													
EFA1	-	-	-	-	7	93	-	-	-	-	-	-	100
EFA2	-	-	-	-	3	97	-	-	-	-	-	-	100
EFA3	-	-	-	-	73	27	-	-	-	-	-	-	100
EFA4	-	-	-	-	87	13	-	-	-	-	-	-	100
EFA5	-	-	-	-	100	-	-	-	-	-	-	-	100
EFA6	-	-	-	-	100	-	-	-	-	-	-	-	100