

# Firm Frequency Response (FFR) Market Information Report for May-18

Published Mar-18

## Key Points

This Market Information Report is relevant for tenders submitted in Apr-18 for delivery in **May-18**.

Tenders from eligible service providers for Firm Frequency Response should be submitted on **Tue 03-Apr-18** (1<sup>st</sup> business day) for all tenders.

National Grid will notify service providers of the outcome of the tender assessment, and preliminary nominations, by **Wed 18-Apr-18** (12<sup>th</sup> business day).

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

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

Please note that this is a month ahead only tender. Tenders should therefore be submitted for **May-18** delivery.

This Market Information Report provides information to FFR providers on the requirement for the Apr-18 tender (TR 100) for delivery in May-18.

## Requirements for May-18 (TR 98)

### Primary Response:

This is a primary requirement across the majority of the day. Appendix 2 displays this as a non-dynamic requirement. With no primary non-dynamic market in existence, this volume will instead be opened up to the dynamic market.

### Secondary Response:

The secondary requirement found to exist during the daytime window is for non-dynamic response. In the instance where this cannot be filled in the non-dynamic market, the volume will be opened back up again to be satisfied in the dynamic market. A breakdown of this can be found in Appendix 2. There is however an overnight specific dynamic requirement left to satisfy for the majority of the window.

### High Response:

A high response requirement is present for the entire duration of the day.

Please note that submitted tenders must have a minimum window availability of 4 hours.

## Market Updates

### Simplification of FFR

As indicated in the Product Roadmap, National Grid is introducing changes to the way in which FFR is procured. From the tender submission deadline of 1st May 2018, we will be moving to:

- **Standardised with-in day windows:** Daily windows will be aligned with EFA blocks.
- **Standardised duration of contracts:** Tenderers will be able to submit for fixed monthly, quarterly and seasonal durations.

A webinar will be held on Tuesday 27<sup>th</sup> March explaining these changes and how they will be implemented. If you require additional information in the meantime, please contact your Account Manager.

### Testing

From TR 100, providers will be required to have successfully passed FFR testing of their asset prior to tendering for month ahead requirements. For example if

For further information please contact your account manager or:

**Andrew Rice**  
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**New!**



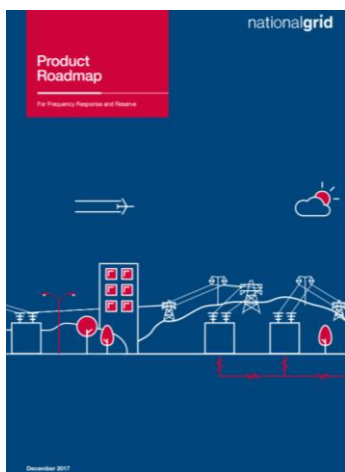
Main Menu

Select icons to navigate to relevant sections of this document:

- 1) FFR: an overview
- 2) Technical requirements
- 3) How to participate
- 4) Assessment principles
- 5) Payments, performance and penalties
- 6) Market information

FFR guidance videos    Key documents    FAQs

[FFR service Overview – interactive guidance document](#)



[Product Roadmap](#) – This document sets out the actions to be taken forward for frequency response and reserve markets and details the principles that will govern the way that balancing services are procured in future.

**Coming soon**



LOOK OUT for our new YouTube channel where we will be uploading a series of videos explaining how the FFR service works

tendering in to provide a FFR service starting on 1st May, the unit must have passed testing prior to the tender round closing 1st business day in April (tender closing date).

**Limiting tenders**

From TR 100, providers will be limited to submitting 2 tenders per unit, per tender period. A tender period would be; month ahead, quarter ahead and per season. All or nothing bids will be considered as 1 tender submission.

**Mar-18 FFR Tender Round (TR 99) results**

336 FFR tenders were received from 28 providers. 208 tenders were for dynamic FFR and 128 tenders were for the non-dynamic service. TR 99 represented a full tender round giving providers the opportunity to tender in volume to be accepted for delivery between Apr-18 and Sep-20. 85 contracts were awarded to 31 units owned by 15 providers.

**Key messages**

*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. Please note that reason 1 has been updated. The new commentary will apply from TR 98 onwards.

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: <ol style="list-style-type: none"> <li>1) The outstanding requirement has already been satisfied by more beneficial tenders</li> <li>2) There was no outstanding requirement</li> <li>3) The desired volume against the National Grid procurement strategy for future tender months had already been satisfied</li> <li>4) This tender formed part of an all-or-nothing group which did not collectively deliver enough benefit to be considered</li> </ol>
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 <a href="https://www.nationalgrid.com/uk/electricity/balancing-services/frequency-response-services/firm-frequency-response">https://www.nationalgrid.com/uk/electricity/balancing-services/frequency-response-services/firm-frequency-response</a>
4	Multiple tenders received for the same unit	Only the most valuable tender(s) of the total group of submitted tenders was considered.

*Enhanced Frequency Response (EFR)*

Now that EFR batteries have become operational, the volume of response that will be provided from units with an EFR contract will be included in the amount of already procured dynamic response. EFR will be considered on a 1 for 1 basis where 1MW of EFR is equal to 1MW of dynamic FFR. These contracts begin delivering between October 2017 and March 2018. The MW provided from EFR contracts will be phased in in the information provided in the MIR charts. Between now and July 2018 EFR contracts have been assumed to provide 50% of their contracted volume. From July 2018, this assumption is amended to reflect all contracts delivering 100% of their contracted volume.

*Procured Volume*

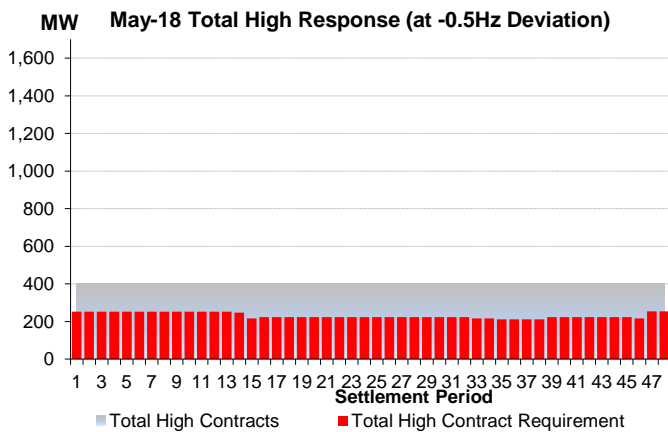
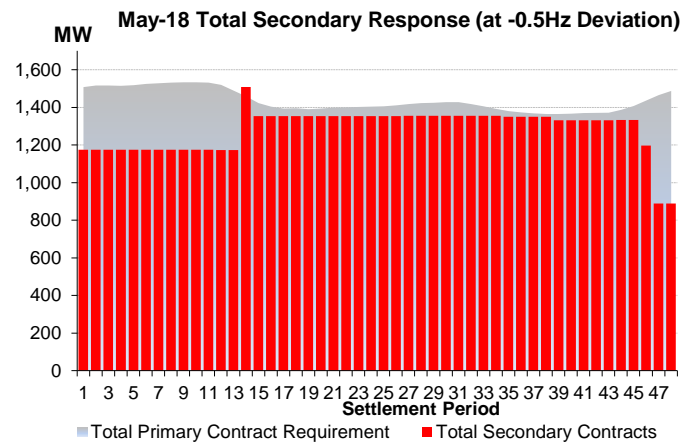
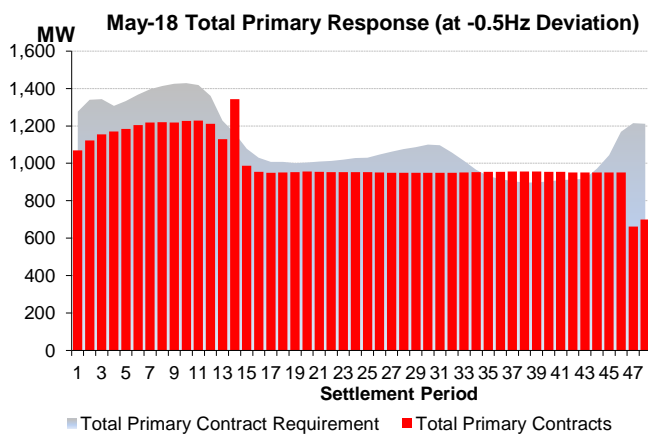
When determining which tenders to accept, National Grid will take account of its planned procurement strategy. In general, a measured approach is taken to determine the appropriate volume to procure throughout the duration of the tendering.

## Appendix 1: May-18 Requirements

The three charts below display the volume of frequency response left to contract for the month ahead against the total response requirements.

The red bars represent existing contracted service provision (both dynamic and non-dynamic) including any optional non-FFR services routinely used that NG forecast to be cost effective for the month ahead. The grey shaded area is the remaining volume to contract.

As this is a month ahead tender, volume to fill the requirement will be taken from either dynamic or non-dynamic providers where deemed economic to do so. The breakdown of the requirement against dynamic and non-dynamic response can be seen in the tables in appendix 2.



## Appendix 2: May-18 Requirement Volume Tables

*Dynamic FFR requirements for TR 100*

Settlement Period	Dynamic response required (MW)		
	Primary	Secondary	High
1	398	265	164
2	398	265	164
3	398	265	164
4	398	265	164
5	398	265	164
6	398	265	164
7	398	265	164
8	398	265	164
9	398	265	164
10	398	265	164
11	398	265	164
12	398	265	164
13	398	265	164
14	64	0	170
15	0	0	201
16	0	0	193
17	0	0	193
18	0	0	193
19	0	0	193
20	0	0	193
21	0	0	193
22	0	0	193
23	0	0	193
24	0	0	193
25	0	0	193
26	0	0	193
27	0	0	193
28	0	0	193
29	0	0	193
30	0	0	193
31	0	0	193
32	0	0	193
33	0	0	201
34	0	0	201
35	0	0	205
36	0	0	205
37	0	0	205
38	0	0	205
39	0	0	193
40	0	0	193
41	0	0	193
42	0	0	193
43	0	0	193
44	0	0	193
45	0	0	193
46	0	0	201
47	397	264	164
48	397	264	164

*Non-Dynamic FFR requirements for TR 100*

Settlement Period	Non-Dynamic response required (MW)		
	Primary	Secondary	High
1	0	84	0
2	0	93	0
3	0	94	0
4	0	91	0
5	0	95	0
6	0	101	0
7	0	105	0
8	0	108	0
9	0	110	0
10	0	110	0
11	0	108	0
12	0	98	0
13	0	67	0
14	0	0	0
15	108	85	0
16	93	67	0
17	75	56	0
18	74	58	0
19	66	54	0
20	66	57	0
21	73	61	0
22	78	64	0
23	84	65	0
24	94	67	0
25	95	69	0
26	113	74	0
27	129	79	0
28	143	84	0
29	154	86	0
30	167	89	0
31	163	89	0
32	124	80	0
33	79	67	0
34	30	54	0
35	0	46	0
36	0	39	0
37	0	34	0
38	0	32	0
39	0	50	0
40	0	52	0
41	0	55	0
42	0	56	0
43	0	57	0
44	37	70	0
45	110	92	0
46	236	256	0
47	171	329	0
48	133	352	0

## Appendix 4: Historical Profile of Firm Frequency Response (FFR) Value

The following information provides a historical overview of FFR value variation during the last two years. A breakdown of the relative values of Primary, Secondary and High Response over the same two years is also provided. This study is based on historical data taken from **1 October 2015** to **30 September 2017**. It is the same data used to calculate the costs reported within the Monthly Balancing Services Summary and for the avoidance of doubt is not a forecast of future value variation.

The FFR assessment principles document highlights that the main economical assessment of the value of individual FFR tenders is based upon the following costs:

- Cost of alternative service holding fees
- Cost of alternative utilisation (Bid Offer Acceptances)
- Cost of alternative margin services (BM Offers)

As the profile across the day is different across these three alternative actions, the costs have been combined for reasons of simplicity. It is important however, to note that the assessment has to use forecasts for some of these alternative costs. The assessment therefore has to take account of the associated uncertainty with using forecasts when considering the value of any tender for any time period. From this point, the document will refer to the value of FFR.

The relative values shown in Figures 1 and 2 provide a comparison of every settlement period relative to each other.

The lower, average and upper relative values for each of the 48 settlement periods that make up daily cost have been calculated and plotted in Figure 1 (summer) and Figure 2 (winter). Periods of low and high value are highlighted in Figure 1. Higher value periods are typically a result of the use of alternative margin services, especially notable in the winter during Settlement Periods **33-39**.

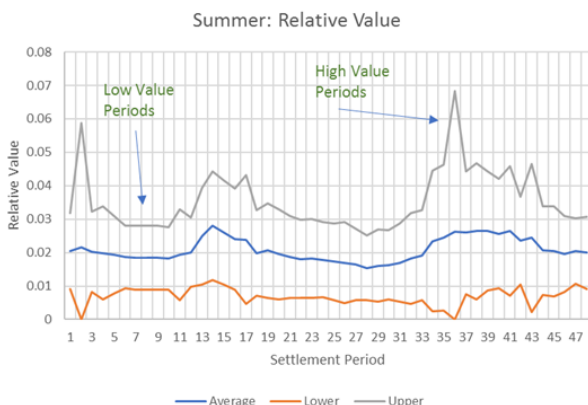


Figure 1: Proportional Value of FFR by Settlement Period (Summer)

The following is an example of how FFR values are assessed. In Figure 2, for Settlement Period 17, the average relative value is approximately **2%** while for Period 35, the proportional value is approximately **4%**. The interpretation is therefore that period 35 is **2** times more valuable than Period 17.

The breakdown of the Primary, Secondary and High Response values over the same time period are included in the Appendix in Table 1 (summer) and Table 2 (winter).

This breakdown shows that during the winter overnight settlement periods (33-41) there is a larger share of value in Secondary Response with 70-75% which reflects the value provided from margin.

Contrast this to the summer, during overnight settlement periods (3-12) there is a significant proportion of value in High Response (40-45%). This is because demand is likely to be low, resulting in a greater requirement and hence value of high response.

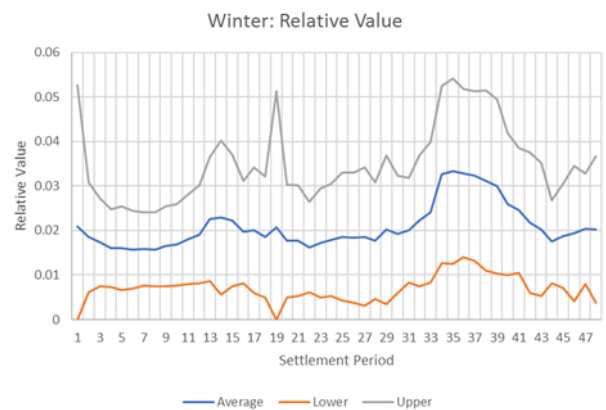


Figure 2: Relative Value of FFR by Settlement Period (Winter)

## Appendix 5: Proportional Value of FFR by Settlement Period

The tables below provide the background data to figures 1 and 2 above.

Table 1: Summer (Apr – Oct)

Settlement Period	Summer		
	Proportional Value		
	Average	Lower	Upper
1	0.020433	0.0090568	0.03181
2	0.021533	0	0.058754
3	0.02018	0.0081317	0.032229
4	0.019801	0.0058907	0.033711
5	0.019361	0.0078785	0.030843
6	0.018686	0.0094367	0.027936
7	0.018457	0.0088851	0.028029
8	0.018504	0.0089619	0.028047
9	0.018507	0.0089062	0.028107
10	0.018245	0.0088284	0.027662
11	0.019289	0.0056872	0.032892
12	0.020073	0.009725	0.030422
13	0.025019	0.0105523	0.039486
14	0.02808	0.0118922	0.044268
15	0.026033	0.0104737	0.041593
16	0.023951	0.0088068	0.039096
17	0.023892	0.0046278	0.043156
18	0.019869	0.0070425	0.032696
19	0.020594	0.0063904	0.034798
20	0.019489	0.006019	0.032959
21	0.018779	0.00655	0.031007
22	0.018075	0.0063674	0.029783
23	0.018244	0.0063993	0.030089
24	0.017886	0.0066154	0.029157
25	0.017239	0.0056884	0.02879
26	0.017	0.0048734	0.029127
27	0.016449	0.0058103	0.027087
28	0.015408	0.0056937	0.025122
29	0.01612	0.0052163	0.027023
30	0.016342	0.0059913	0.026693
31	0.016994	0.0052611	0.028727
32	0.018199	0.0046871	0.031711
33	0.019186	0.0056874	0.032684
34	0.023452	0.0024111	0.044493
35	0.024541	0.0027122	0.046369
36	0.02634	0	0.068389
37	0.025958	0.0075351	0.04438
38	0.026383	0.0060569	0.046709
39	0.026555	0.0087153	0.044395
40	0.025606	0.0092317	0.041981
41	0.026448	0.0070774	0.045819
42	0.023572	0.0103709	0.036773
43	0.024375	0.0022737	0.046476
44	0.02059	0.0073474	0.033834
45	0.020356	0.0068297	0.033882
46	0.019532	0.0082147	0.03085
47	0.020451	0.0106712	0.03023
48	0.019923	0.0091385	0.030707

Table 2: Winter (Nov – Mar)

Settlement Period	Winter		
	Proportional Value		
	Average	Lower	Upper
1	0.02098886	0	0.052636
2	0.01847584	0.0061735	0.030778
3	0.01731116	0.0074099	0.027212
4	0.01609112	0.0073866	0.024796
5	0.01599554	0.0066316	0.025359
6	0.01570355	0.0069584	0.024449
7	0.01583563	0.0075677	0.024104
8	0.01574464	0.0074063	0.024083
9	0.01646762	0.0074777	0.025458
10	0.0167957	0.0077324	0.025859
11	0.0180945	0.007994	0.028195
12	0.01912494	0.0081814	0.030069
13	0.02252939	0.0085995	0.036459
14	0.02292868	0.005685	0.040172
15	0.02227854	0.0075098	0.037047
16	0.01969832	0.0081764	0.03122
17	0.02009697	0.0060541	0.03414
18	0.01854429	0.0049941	0.032094
19	0.02077347	0	0.051282
20	0.01763538	0.0049166	0.030354
21	0.01775842	0.005324	0.030193
22	0.01627084	0.0060666	0.026475
23	0.01726167	0.0050217	0.029502
24	0.01789986	0.0053639	0.030436
25	0.01862037	0.0042198	0.033021
26	0.01841293	0.0038142	0.033012
27	0.01863923	0.0031333	0.034145
28	0.01770455	0.0045913	0.030818
29	0.02020937	0.0034979	0.036921
30	0.01915349	0.0059967	0.03231
31	0.02006174	0.0083366	0.031787
32	0.0221834	0.0075234	0.036843
33	0.02410633	0.0083769	0.039836
34	0.032578	0.0127633	0.052393
35	0.03334998	0.0124873	0.054213
36	0.03288638	0.0140503	0.051722
37	0.03228603	0.0132391	0.051333
38	0.03121332	0.0109266	0.0515
39	0.02992614	0.0103686	0.049484
40	0.0259286	0.009995	0.041862
41	0.02453442	0.0104726	0.038596
42	0.02176889	0.0060094	0.037528
43	0.02023719	0.0052538	0.035221
44	0.0174795	0.0081903	0.026769
45	0.01873756	0.0070827	0.030392
46	0.01935592	0.0042082	0.034504
47	0.02039713	0.0079027	0.032892
48	0.02023475	0.0038269	0.036643

## Appendix 6: Proportional Response value by component

Table 1: Summer (Apr – Oct)

Settlement Period	Summer		
	Share of Value		
	Primary	Secondary	High
1	29%	35%	36%
2	38%	41%	22%
3	27%	31%	42%
4	26%	28%	45%
5	25%	25%	49%
6	25%	25%	50%
7	24%	23%	53%
8	24%	23%	53%
9	24%	24%	52%
10	25%	25%	50%
11	25%	31%	44%
12	28%	33%	39%
13	31%	40%	30%
14	31%	43%	26%
15	28%	49%	23%
16	26%	51%	23%
17	25%	53%	21%
18	24%	52%	24%
19	22%	56%	22%
20	22%	54%	24%
21	23%	52%	24%
22	23%	52%	25%
23	23%	52%	25%
24	24%	51%	26%
25	24%	50%	27%
26	23%	50%	27%
27	23%	47%	30%
28	24%	44%	32%
29	21%	50%	29%
30	20%	53%	27%
31	20%	54%	25%
32	21%	55%	24%
33	21%	56%	23%
34	18%	65%	17%
35	19%	65%	16%
36	25%	62%	13%
37	17%	68%	15%
38	17%	67%	15%
39	18%	67%	15%
40	17%	67%	16%
41	19%	65%	16%
42	19%	64%	17%
43	19%	63%	18%
44	17%	62%	21%
45	18%	59%	23%
46	20%	55%	25%
47	29%	43%	28%
48	29%	40%	32%

Table 2: Winter (Nov – Mar)

Settlement Period	Winter		
	Share of Value		
	Primary	Secondary	High
1	26%	42%	32%
2	26%	41%	33%
3	27%	38%	35%
4	26%	35%	38%
5	26%	34%	40%
6	26%	32%	43%
7	25%	31%	43%
8	26%	31%	43%
9	27%	31%	42%
10	27%	32%	41%
11	29%	34%	37%
12	30%	36%	34%
13	28%	45%	28%
14	26%	46%	28%
15	27%	48%	25%
16	25%	49%	26%
17	23%	52%	25%
18	24%	50%	26%
19	25%	54%	21%
20	22%	52%	26%
21	22%	52%	26%
22	22%	52%	26%
23	18%	60%	23%
24	18%	61%	21%
25	18%	62%	21%
26	19%	60%	21%
27	19%	61%	19%
28	19%	60%	20%
29	14%	69%	17%
30	14%	69%	18%
31	14%	69%	17%
32	14%	70%	15%
33	14%	72%	14%
34	16%	73%	11%
35	16%	74%	10%
36	16%	73%	11%
37	18%	71%	11%
38	17%	71%	12%
39	19%	69%	12%
40	20%	65%	15%
41	21%	63%	16%
42	21%	60%	19%
43	22%	55%	23%
44	23%	52%	26%
45	22%	53%	25%
46	24%	48%	27%
47	27%	46%	27%
48	27%	43%	30%