

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

Published Feb-18

## Key Points

This Market Information Report is relevant for tenders submitted in Mar-18 for delivery between **Apr-18** and **Sep-20**.

Tenders from eligible service providers for Firm Frequency Response should be submitted **Thu 01-Mar-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 **Fri 16-Mar-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.

We will be limiting contracts to 6 months ahead of tender month only and a maximum of two years in duration. Therefore tenders should not start later than **Sep-18**.

This Market Information Report provides information to FFR providers on the requirement for the Mar-18 tender (TR 98).

## Requirements for Mar-18 FFR tender round (TR 99)

### Dynamic Response:

There is no daytime primary or secondary requirement. A large overnight requirement remains to be satisfied.

A full 24 hour requirement still exists for high dynamic response.

### Non-Dynamic Response:

A Non-Dynamic secondary requirement exists across the entire daytime period.

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.
- **Restrictions to the number of tenders per unit:** We are looking to restrict the number of tenders a unit can offer over the same period.

## Feb-18 FFR Tender Round (TR 98) results

87 FFR tenders were received from 22 providers. 39 tenders were for dynamic FFR and 48 tenders were for the Non-Dynamic service. TR 98 marked the second month ahead only tender round. Providers were able to submit volume for March 2018 delivery only. 31 contracts were awarded.

For further information please contact your account manager or:

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**New!**

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Firm Frequency Response (FFR) service overview

December 2017  
For further information, please contact: commercial.operation@nationalgrid.com

Main Menu

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- 1) FFR: an overview
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- 5) Payments, performance and penalties
- 6) Market information

FFR guidance videos | Key documents | FAQs

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Product Roadmap  
The Frequency Response and Reserve

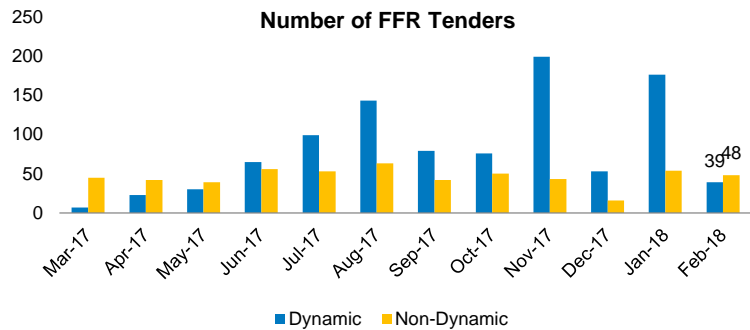
December 2017

[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



**Key messages**

*Tender rejection codes*

The table below provides guidance as to the reasons that 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, but requirement already satisfied	While the price submitted was considered beneficial, on this occasion this tender was not accepted for one of the following reasons:  1) The outstanding requirement has already been satisfied by more beneficial tenders 2) There was no outstanding requirement 3) The desired volume against the National Grid procurement strategy for future tender months 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 <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 the first EFR battery has 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 1 MW 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 period. How much is bought ahead of time will be influenced by a number of factors including current market conditions, tender liquidity etc.

## Appendix 1: Apr-18 Requirements

### Dynamic

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

The blue bars represent existing contracted service provision including any optional non-FFR services routinely used that NG forecast to be cost effective for the month ahead. The green shaded area represents the Minimum Dynamic Requirement.

The grey shaded area is the remaining volume to contract. This volume can be met from Dynamic or Non-Dynamic providers. As such, this volume also appears on the frequency set point for the Non-Dynamic charts.

Please note that the top line is not necessarily the total response requirement because volumes of Non-Dynamic services have been removed.

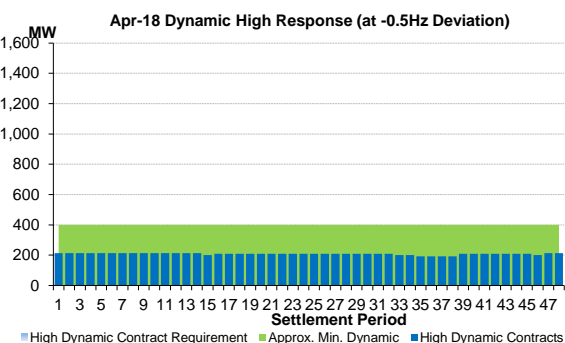
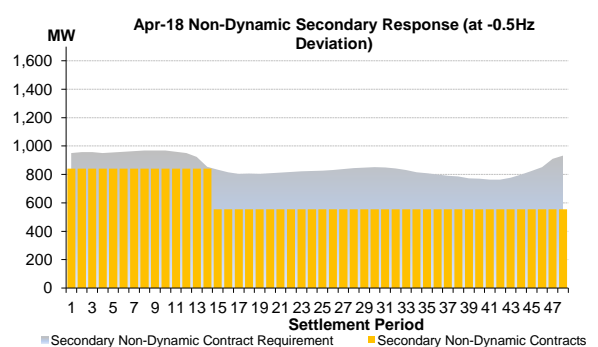
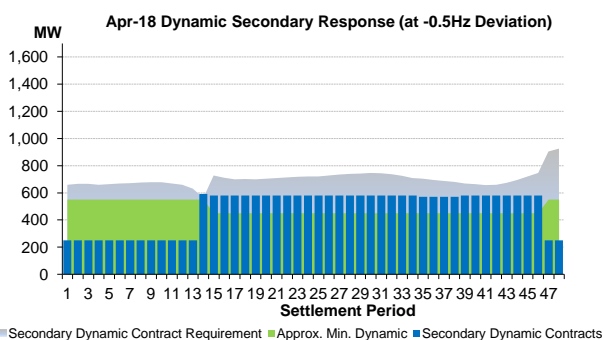
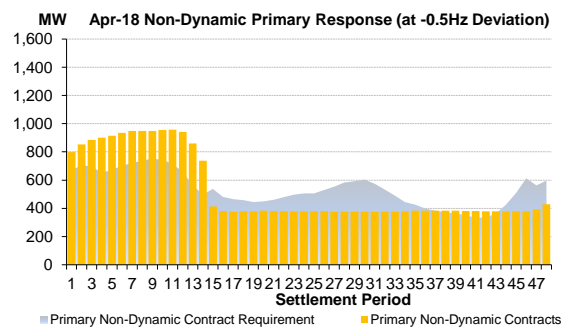
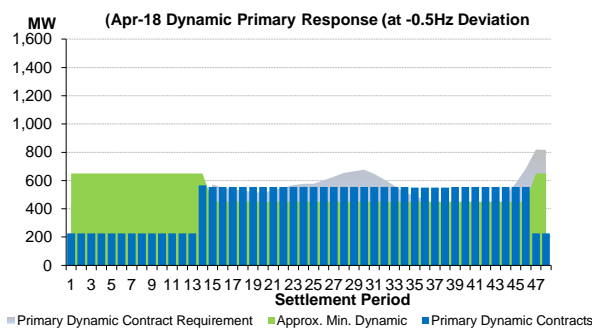
### Non-Dynamic

The two charts below display the volume of frequency response left to contract for the month ahead for Non-Dynamic response.

Non-Dynamic, or post-fault, response can be used to displace the remaining response requirements once the Minimum Dynamic proportion has been satisfied.

The orange bars represent the existing contracted volume including any routinely used optional services that NG expects to be in merit in the stack for the month ahead.

The volume to contract represented by the blue/grey shaded area is the same volume that is displayed on the Dynamic service charts above as either service can provide this volume.



## Appendix 2: Apr-18 Requirement Volume Tables

Dynamic FFR requirements for TR 99

Settlement Period	Dynamic response required (MW)		
	Primary	Secondary	High
1	425	300	188
2	425	300	188
3	425	300	188
4	425	300	188
5	425	300	188
6	425	300	188
7	425	300	188
8	425	300	188
9	425	300	188
10	425	300	188
11	425	300	188
12	425	300	188
13	425	300	188
14	85	0	188
15	0	0	200
16	0	0	192
17	0	0	192
18	0	0	192
19	0	0	192
20	0	0	192
21	0	0	192
22	0	0	192
23	0	0	192
24	0	0	192
25	0	0	192
26	0	0	192
27	0	0	192
28	0	0	192
29	0	0	192
30	0	0	192
31	0	0	192
32	0	0	192
33	0	0	200
34	0	0	200
35	0	0	207
36	0	0	207
37	0	0	207
38	0	0	207
39	0	0	192
40	0	0	192
41	0	0	192
42	0	0	192
43	0	0	192
44	0	0	192
45	0	0	192
46	0	0	200
47	425	300	188
48	425	300	188

Non-Dynamic FFR requirements for TR 99

Settlement Period	Non-Dynamic response required (MW)		
	Primary	Secondary	High
1	0	109	0
2	0	117	0
3	0	116	0
4	0	110	0
5	0	114	0
6	0	119	0
7	0	123	0
8	0	127	0
9	0	129	0
10	0	128	0
11	0	120	0
12	0	109	0
13	0	82	0
14	0	15	0
15	124	280	0
16	100	262	0
17	87	251	0
18	82	252	0
19	65	251	0
20	67	255	0
21	79	260	0
22	100	265	0
23	118	269	0
24	127	271	0
25	127	272	0
26	152	278	0
27	177	285	0
28	205	291	0
29	216	294	0
30	227	297	0
31	197	296	0
32	156	289	0
33	114	277	0
34	65	261	0
35	43	255	0
36	16	245	0
37	0	238	0
38	0	232	0
39	0	220	0
40	0	216	0
41	0	209	0
42	0	210	0
43	0	224	0
44	48	246	0
45	133	271	0
46	235	298	0
47	170	356	0
48	168	378	0

### Appendix 3: 12-Month Total Requirement

The following charts provide a breakdown of the Dynamic and Non-Dynamic requirements over the next 12 months. These are displayed by settlement periods within each month. The Minimum Dynamic requirement is represented by the green line and maximum Non-Dynamic is represented by the black line. Any Non-Dynamic requirement can be met by either a Dynamic or Non-Dynamic service depending on which is more economical.

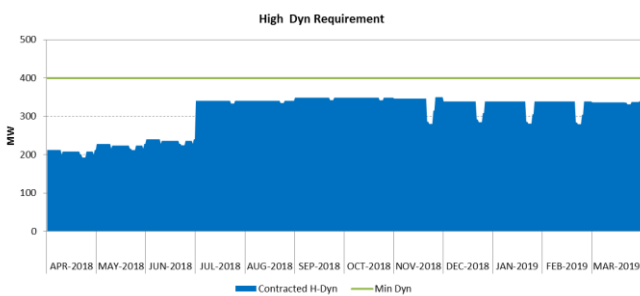
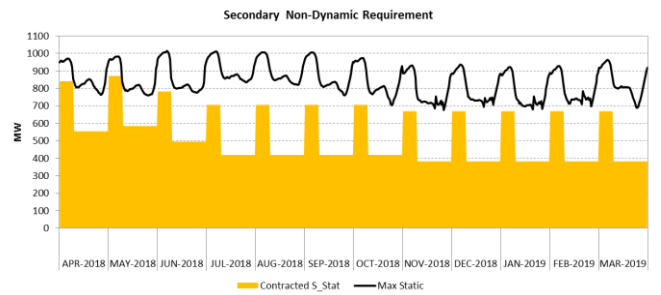
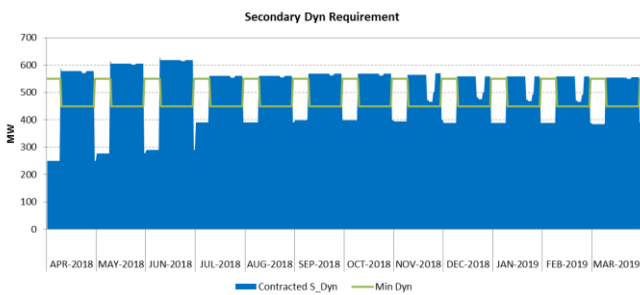
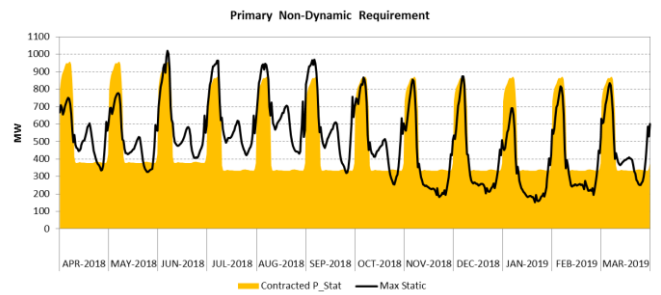
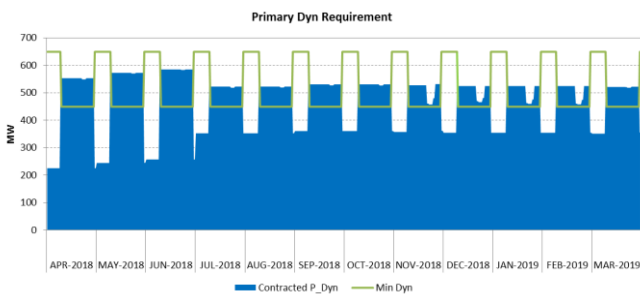
The area under each graph displays the total volume of contracts currently in place. This incorporates both firm and optional services procured through bilateral contracts. Historically they have been the lowest cost option compared to most tenders therefore they are instructed and also included in this report.

#### Dynamic

There is no daytime primary and secondary Dynamic requirement against our Minimum Dynamic requirement. There still remains an overnight requirement to satisfy in both markets across the full 12 months. A Dynamic high requirement remains across the whole day. Overnight tenders would be considered where more value is observed.

#### Non-Dynamic

Non-Dynamic response can be contracted up to the black line. There is a non-dynamic static requirement for the entire daytime period.



## 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**.

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.

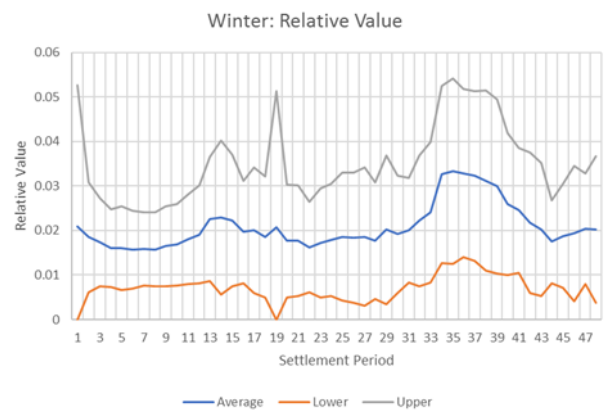


Figure 2: Relative Value of FFR by Settlement Period (Winter)

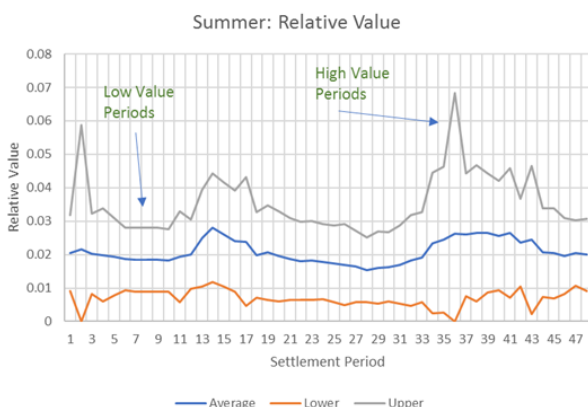


Figure 1: Proportional Value of FFR by Settlement Period (Summer)

## Appendix 5: Proportional Response value by component

Table 1: Summer (Nov – Mar)

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 (Apr – Oct)

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%