

Firm Frequency Response (FFR)

Market Information for Tenders for August 2009

National Grid wishes to highlight to participants its requirement for Firm Frequency Response. Participants are invited to note the inclusion of Figures 7 and 8 for this purpose, as well as the enhancement to the Price breakdown table on page 7.

Total Frequency Response Requirements

Our indicative daily Total Requirement for Frequency Response for the above month is shown by Settlement Period for weekdays, in Figure 1 and for Saturdays, Sundays and Bank Holidays, in Figure 2. The graphs show the requirement to a maximum frequency deviation of 0.5Hz for Primary for a 1000MW loss and 0.5Hz for Secondary for a 1320MW loss and 0.5Hz for High Response for an 840MW demand loss.

Indicative Total Response Requirement - Weekday

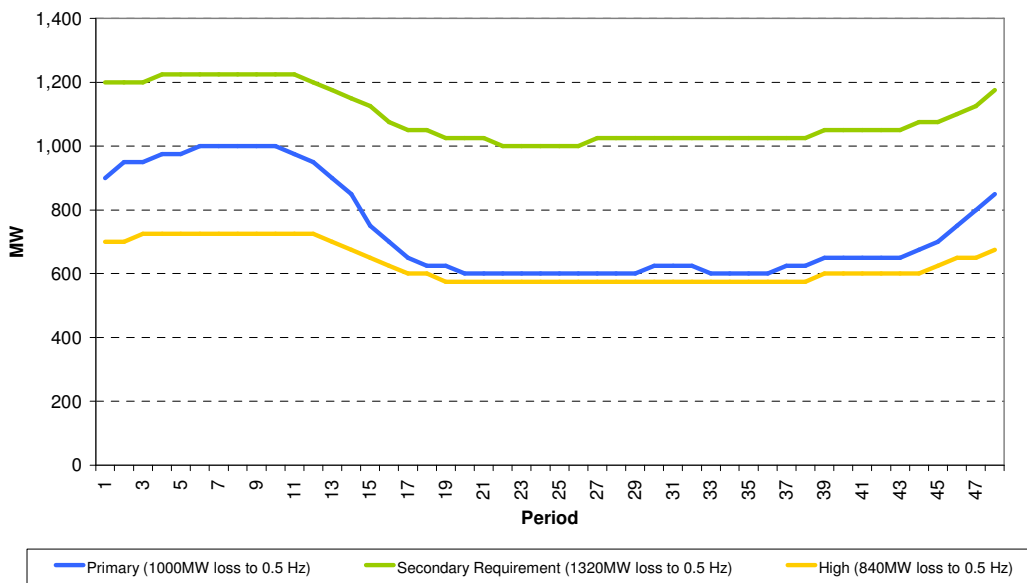


Figure 1

Indicative Total Response Requirement - Weekend

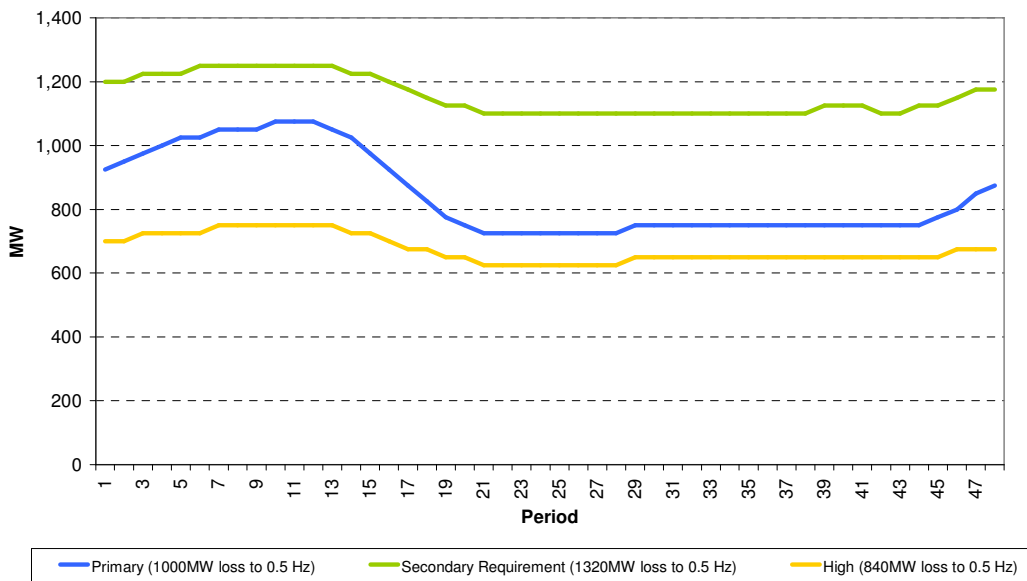


Figure 2

Minimum Dynamic Response Requirement

The indicative minimum required levels for Dynamic response are shown for Weekdays, Figure 3, and Saturdays, Sundays and Bank Holidays, Figure 4. The levels are shown for delivery at 0.5 Hz deviation, although 0.2 Hz is the largest frequency deviation within normal operational range. The total amount of response delivered by Dynamic providers contributes to meeting the Total Response Requirement, Figures 1 and 2, above.

Indicative Minimum Dynamic Response Requirement - Weekday

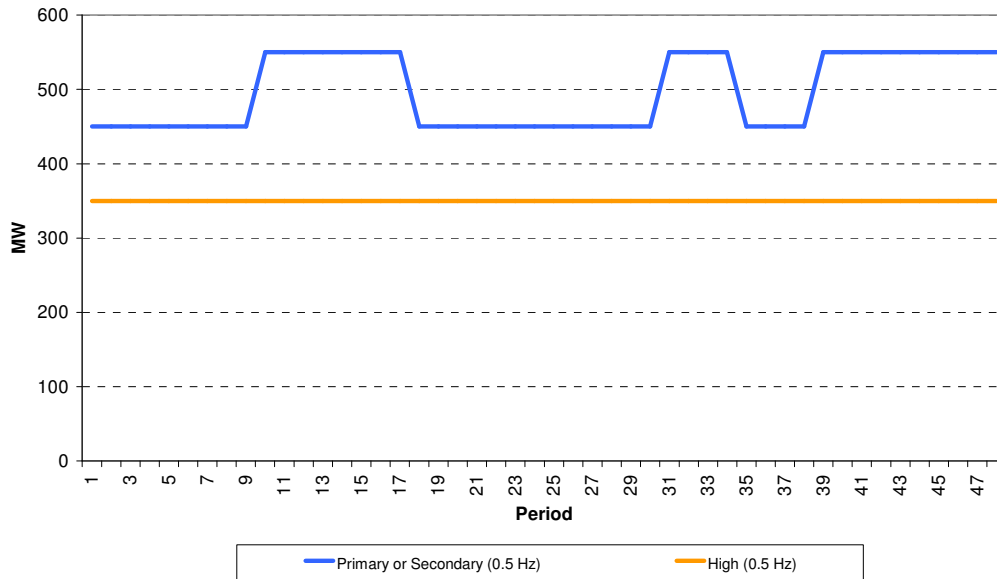


Figure 3

Indicative Minimum Dynamic Response Requirement - Weekend

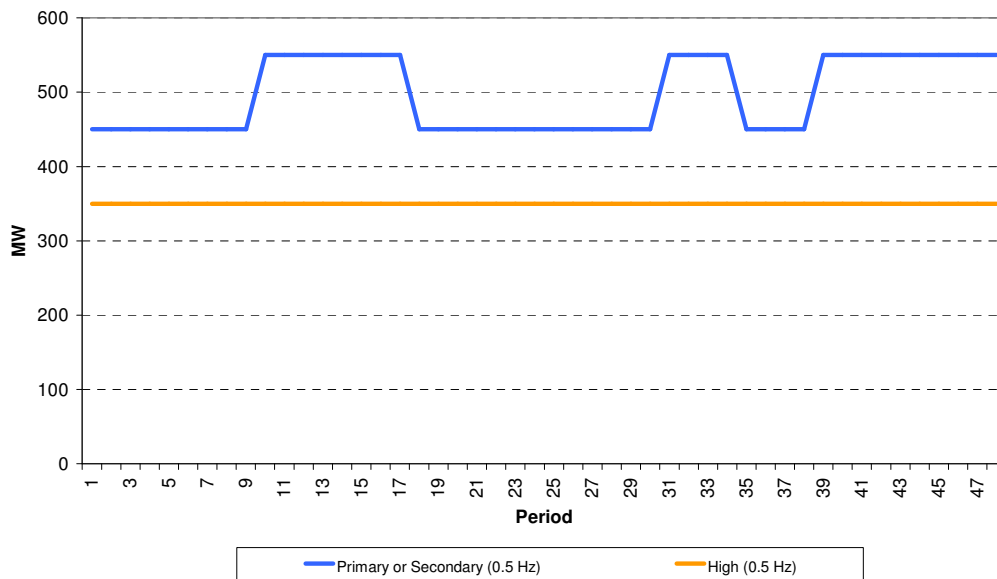


Figure 4

Maximum Non-Dynamic Response Level

The expected maximum level of Non-Dynamic Response is shown below for Weekdays, Figure 5, and for Saturdays, Sundays and Bank Holidays, Figure 6. The maximum level of Non-Dynamic Response achievable is the Total Response Requirement (at 0.5Hz) less the Minimum Dynamic Response Requirement delivery (at 0.5Hz as appropriate).

Indicative Maximum Non-Dynamic Response Level - Weekday

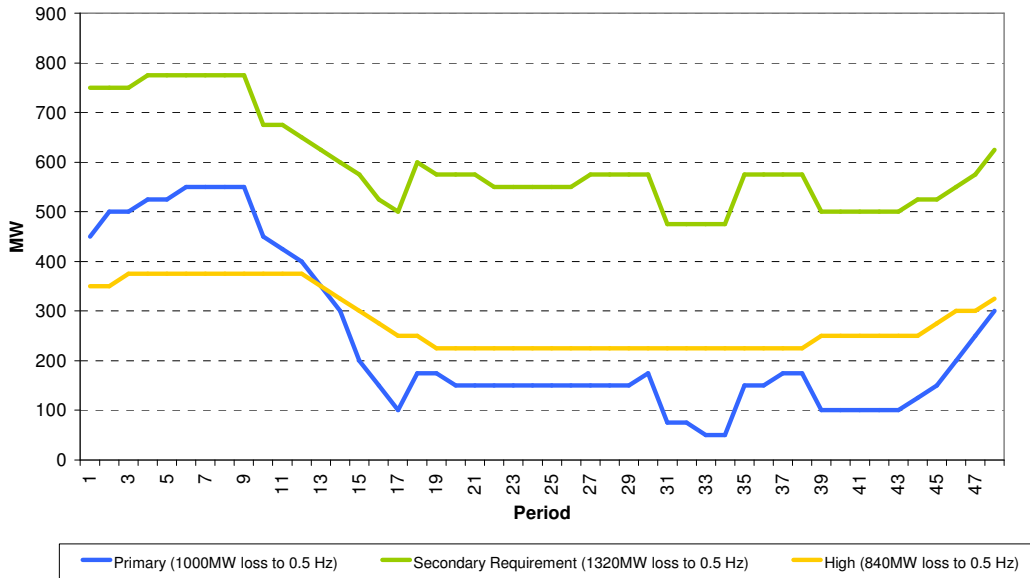


Figure 5

Indicative Maximum Non-Dynamic Response Level - Weekend

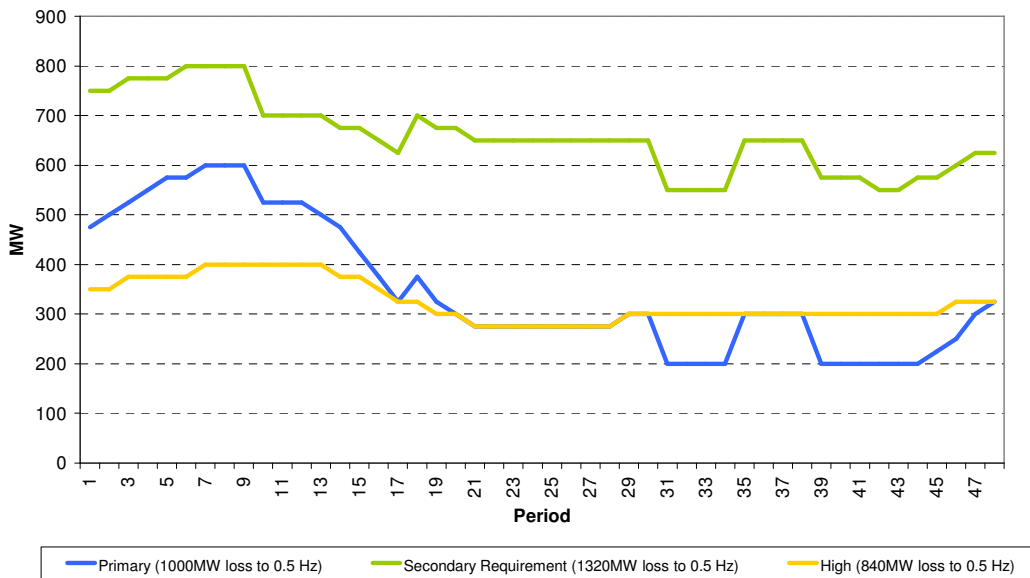


Figure 6

Balancing Mechanism instructions on Frequency Responsive plant

Figure 7, below, shows a post-event analysis of the volume of Bid Offer Acceptances instructed on Balancing Mechanism Units that were, in conjunction with the delivery of the BOA energy, also providing Frequency Response. This analysis covers **May 2009 and June 2009** on a daily basis. This data gives an indication of periods during which National Grid takes balancing actions which also contribute to the optimisation of the response holding across the system. However, readers should be aware that this is only indicative and actions may have been required for other reasons apart from (or as well as) Frequency Response optimisation (such as resolving energy imbalance or transmission system constraints).

Response BOA Summary for June 2009

Total Response Bid Cost	= £ 1,099,460
Total Response Bid Volume	= -133,436 MWh
Total Response Offer Cost	= £ 4,094,286
Total Response Offer Volume	= 197,636 MWh

Where

Response Offer Cost = Volume_Offers x (Offer_Price – Energy Reference Price)

Response Bid Cost = Volume_Bid x (Bid_Price – Energy Reference Price)

Note: To produce the above numbers for publication by business day 18 the last few days of the month have been calculated using estimates.

Energy Reference Price

The Energy Reference Price is the volume weighted average of the submitted bids or offers available to resolve NIV ignoring plant dynamics. This also does not include non-BM standing reserve prices, trades, PGBTS or SO-SO trades. The Energy reference Price is calculated for each settlement period individually as follows:

Short Market: All submitted Offers up to the value of NIV, Capped by MEL, unconstrained by dynamic parameters

Long Market: All submitted Bids on synchronised plant down to zero, includes Demand Side Bidders and unsynchronised units (e.g. DINO/FFES pumps), unconstrained by dynamic parameters

Average volume of BOAs on Frequency Responsive BM Units

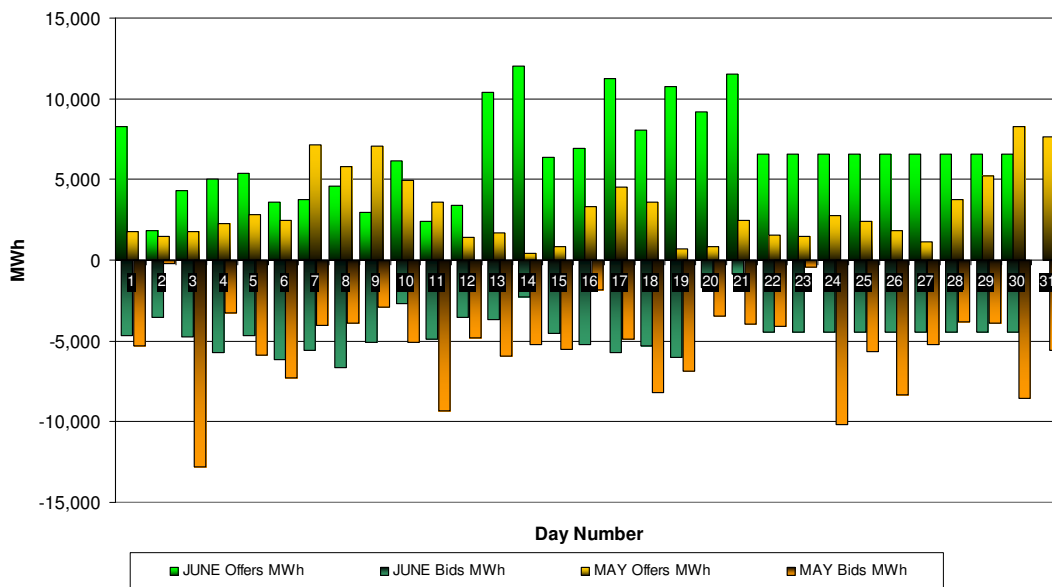


Figure 7

Figure 8 represents this data on a settlement period basis.

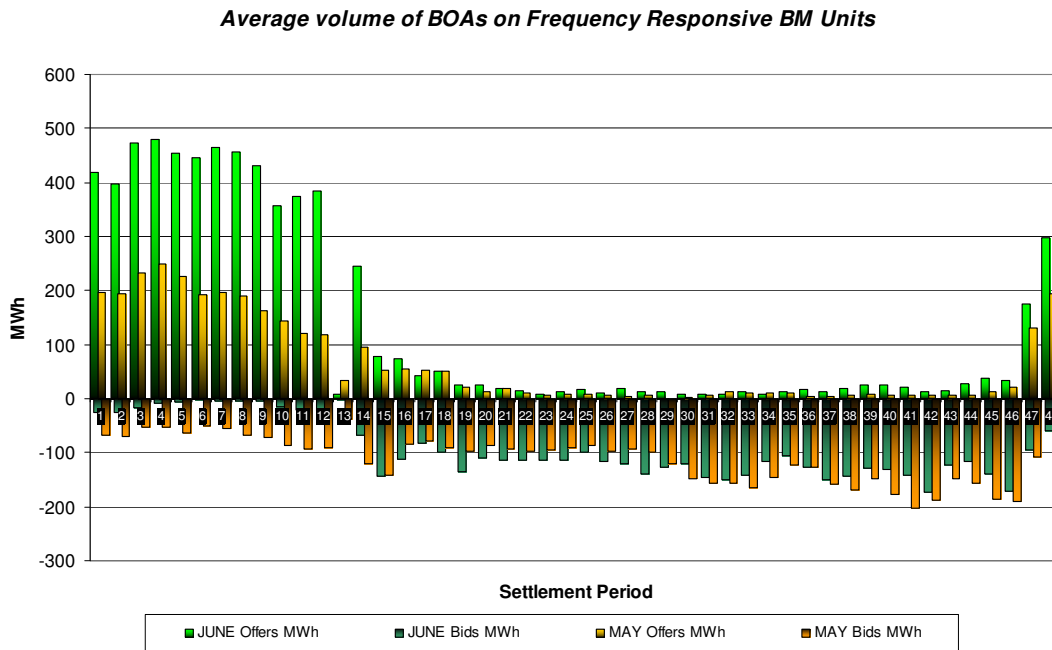


Figure 8

Note: To produce the above charts for publication by business day 18 the last few days of the month have been calculated using estimates.

Indication of Firm Contract Position

Figure 9a below shows the aggregated firm position that National Grid has already procured, and expects to be available, for weekdays for the month ahead through a combination of static and dynamic providers. Figure 9b shows the same for the year ahead.

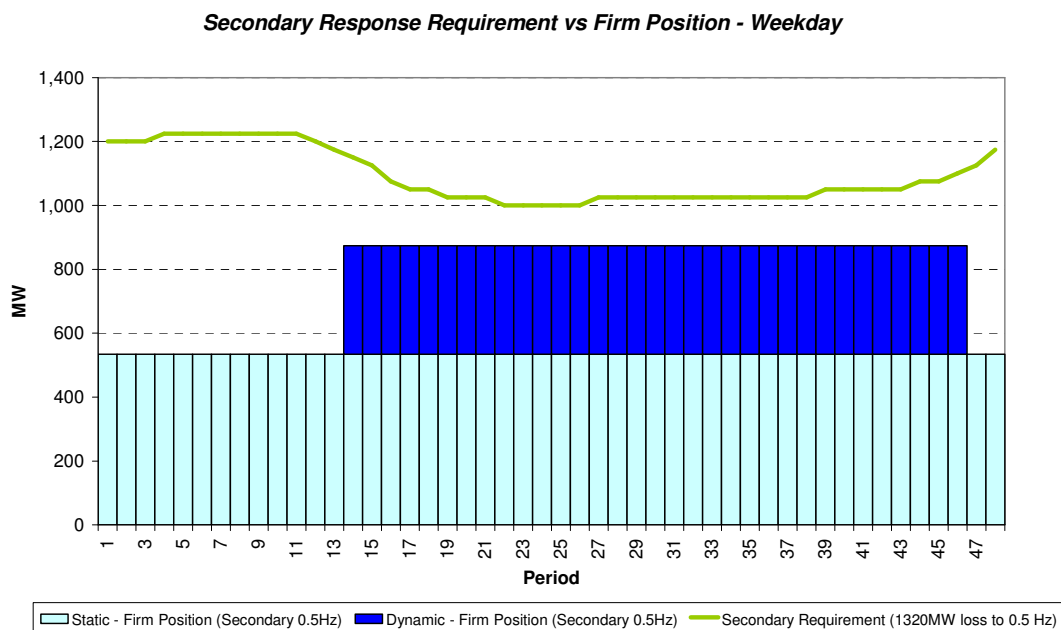


Figure 9a

* Two FFR contracts shown in graphs 9a, 9b, 10a & 10b were agreed on bilateral terms. In line with the Procurement Guidelines if we consider that there is insufficient competition in the provision of a Balancing Service we shall contract for such provision on a negotiated bilateral basis. Full details are available on the National Grid website.

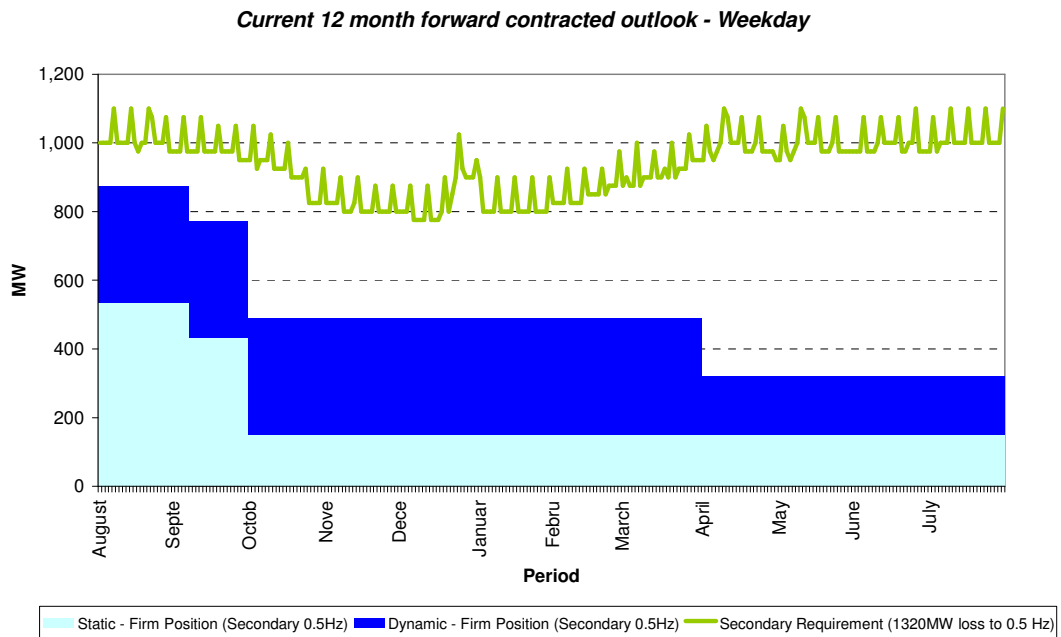


Figure 9b

Figure 10a below shows the aggregated firm position that National Grid has already procured, and expects to be available, for weekends for the month ahead through a combination of static and dynamic providers. Figure 10b shows the same for the year ahead.

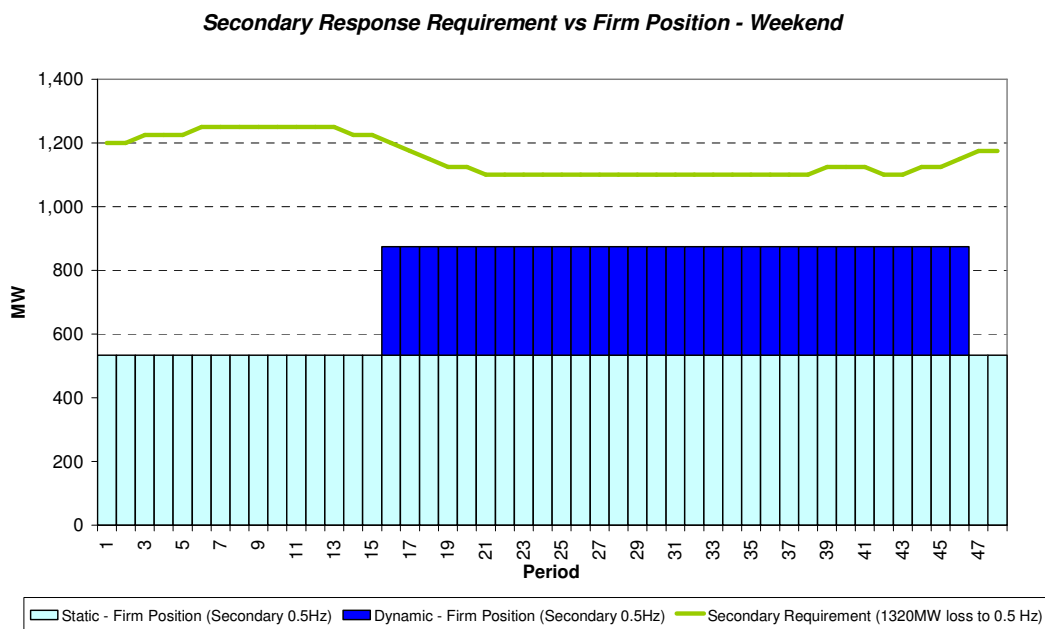


Figure 10a

Current 12 month forward contracted outlook - Weekend

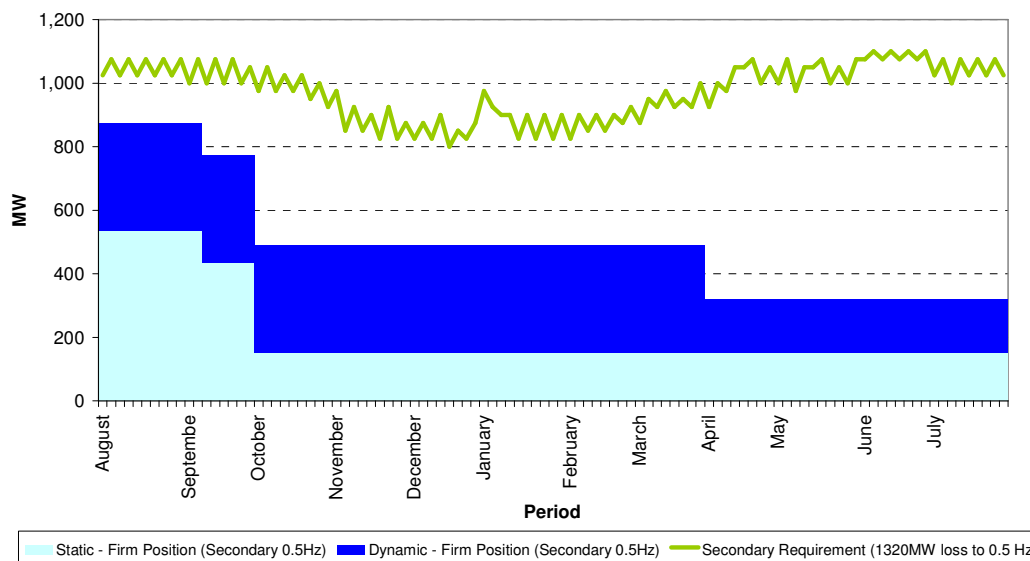


Figure 10b

The total volumes for Frequency Response holding on Mandatory service providers are **914 GWh** for **May 2009** and **891 GWh** for **June 2009**, and break down into price bands as follows:

may 2009	Primary	Secondary	High
Price band (£/MW/h range)	Volume (MWh)	Volume (MWh)	Volume (MWh)
Greater than 8	2,600	827	65,443
6 to 8	2,562	0	300,876
4 to 6	14,106	1,798	65,307
2 to 4	221,211	81,597	13,160
0 to 2	38,133	105,076	1,177
Totals	278.6 GWh	189.3 GWh	446.0 GWh
Costs	£0.86 m	£0.39 m	£3.22 m
Total Frequency Response Holding Volume			0,914 GWh
Total Frequency Response Holding Cost			4.47 £m

jun 2009	Primary	Secondary	High
Price band (£/MW/h range)	Volume (MWh)	Volume (MWh)	Volume (MWh)
Greater than 8	4,950	542	51,932
6 to 8	4,035	0	273,595
4 to 6	32,424	2,437	62,482
2 to 4	240,006	63,992	2,058
0 to 2	37,723	113,406	1,443
Totals	319.1 GWh	180.4 GWh	391.5 GWh
Costs	£1.58 m	£0.36 m	£2.50 m
Total Frequency Response Holding Volume			0,891 GWh
Total Frequency Response Holding Cost			4.44 £m

Note: To produce the above numbers for publication by business day 18 the last few days of the month have been calculated using estimates.

Please note that the MW/h units of payment are defined in the CUSC and do not relate to the units of 0.5Hz Primary, Secondary and High Response as quoted for the requirements, above.

For **August 2009**, Frequency Response Requirements are anticipated to be in line with the forecast Figures 1 – 6, above. National Grid will procure in line with the principles laid out in the Assessment Principles. Tenders from eligible Service Providers for Firm Frequency Response should be submitted by **1st July 2009** (1st business day – for Multi-month tenders) or **3rd July 2009** (3rd business day – for Single-month tenders). National Grid will notify Service Providers of the outcome of the tender assessment by **14th July 2009** (10th business day). For successful tenders, National Grid will notify nominated windows, following assessment, by the **21st July 2009** (15th business day).

Tenders should be sent for the attention of:

Bea Ennim
Network Operations
National Grid plc
National Grid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA

Tenders can be sent by email to Bea.Ennim@uk.ngrid.com