

# **Monthly Balancing Services Summary**

2006/2007

December 2006

**nationalgrid**

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# Monthly Balancing Services Summary

## 1. Introduction

National Grid procures Balancing Services to operate the transmission system in an efficient, economic and co-ordinated manner. A number of statements and market reports pertaining to the procurement and use of Balancing Services are already published on the industry information web site. National Grid has undertaken to publish on a monthly basis to increase the timeliness and visibility of the Balancing Service actions taken during the given month. This Monthly Summary provides information on the procurement of Balancing Services in twelve separate monthly publications.

### 1.1 Purpose of Monthly Balancing Services Summary Report

The purpose of the Monthly Balancing Services Summary Report is to provide information in respect of Balancing Services that National Grid has procured during the relevant month for the purpose of operating the electricity transmission system. This publication contains volume and cost information associated with these balancing services and is based on the latest data and information available at the time of publication. The data in this report is subject to revision post publication as reconciled information becomes available. This report, however, is intended only to give an indication of the balancing actions National Grid has undertaken and so the relevant months report will not be republished in light of any revisions .

### 1.2 Nature of information Provided in this report

The information provided for the relevant month is based upon preliminary data. As future monthly summaries are produced, information in the graphs and tables will be updated to reflect the latest information available at that time. Changes to preliminary data that occur after the publication of the relevant month's report will thus be visible in the graphs and tables of future reports. Each monthly report will report volume data on a monthly rolling basis. The cost values contained in this document are predominantly reported to 1 decimal place (£m) and have been rounded to the nearest £100,000. However where the category monthly spend has been significantly smaller than this the reporting resolution has been adapted accordingly. Due to confidentiality agreements in place within Balancing Services contracts and the resolution of utilisation on a monthly basis, some information cannot be published in relation to the provision of some of these services. Where there are only a limited number of providers in a given month, cost information will not be separately identified on a monthly basis against the relevant service.

### 1.3 Balancing Services

The Balancing Services National Grid has procured, either via market arrangements or bilateral contracts, throughout the period covered by the Report, are:

- Frequency Response
- Reactive Power
- Fast Start
- Black Start
- Reserve Services - Fast Reserve, Standing Reserve, Warming and Hot Standby / BM Start-up
- System to Generator Operational Intertripping Schemes
- Commercial Intertrip Service
- Ancillary Contracts to manage System Issues
- Maximum Generation Service
- All Other Services
- System to System Services
- Energy Related Products (including PGBT)

It is important to note that Balancing Services are procured from both Balancing Mechanism and Non Balancing Mechanism Parties.

For further information regarding the type of providers of Balancing Services please consult the [Procurement Guidelines](#)

### 1.4 Structure of Report

This report presents the Balancing Services under three main titles –

- Services Procured via Market Arrangements
- Services Procured via Non-Tendered Bilateral Contracts
- A summary section providing the high level information for all services for the relevant month.

### 1.5 Services not included in the report

This monthly total costs in this document intentionally do not include the acceptance of Bids or Offers in the Balancing Mechanism. However where the structure of ancillary services include a utilisation component exercised through the Balancing Mechanism those Bid and Offer volumes and costs have been included in the relevant graphs to better inform participants of the costs in those areas. Further information on Bid and Offer acceptances is contained within the [Balancing Principles Statement Report](#). All Bid and Offer information is available by clicking the following link to the NETA web site - [Balancing Mechanism Reporting System \(BMRS\)](#).

## 2. Services Procured Via Market Arrangements

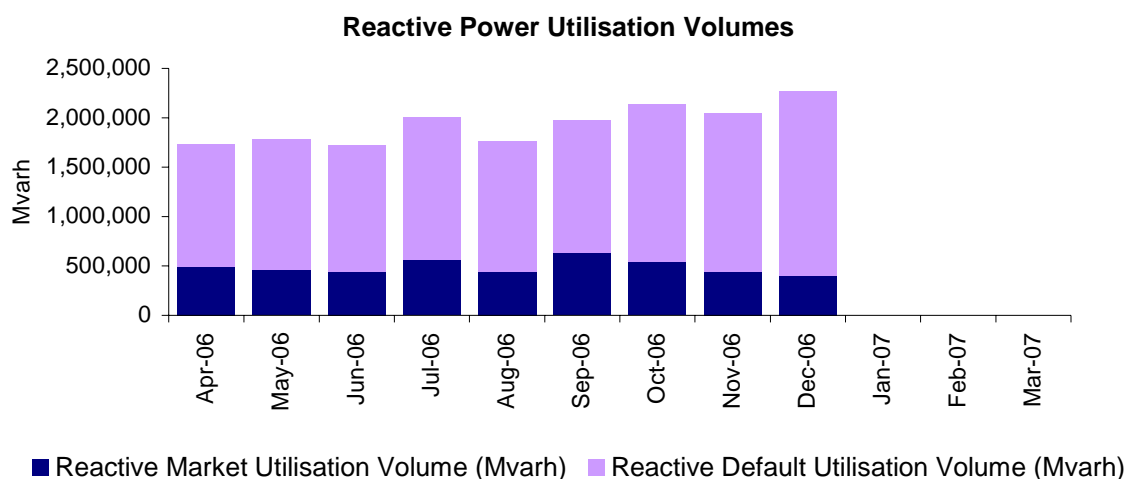
### 2.1 Reactive Power

National Grid manages voltage on the transmission system within statutory limits to ensure quality of supply. In doing this we ensure that reactive power resources are provided on a localised basis to meet the constantly varying needs of the system, and that there is sufficient reactive power reserve available to meet contingencies.

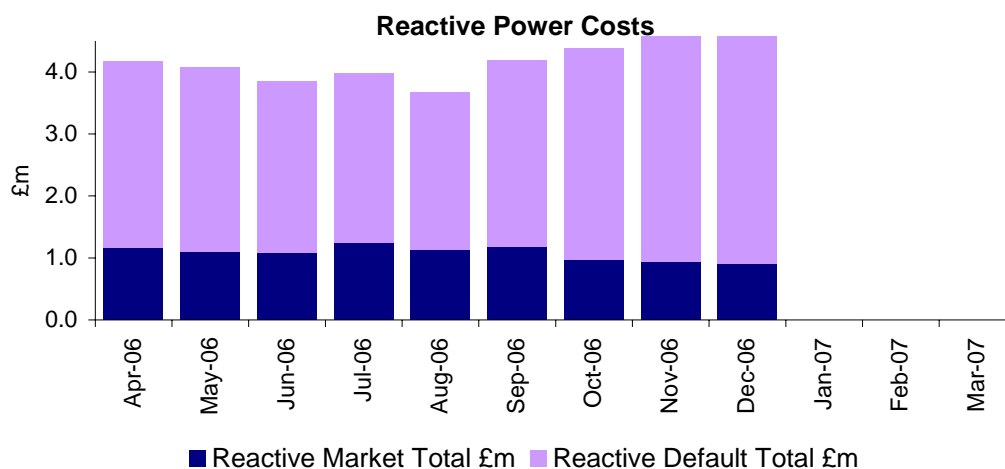
#### Market Arrangements for Reactive Power

All contracts awarded via tender round 18 (TR18) commenced on the 1<sup>st</sup> October 2006. Further information regarding the nature of these contracts can be found in the [Reactive Market Report TR18](#).

Utilisation of Reactive Power under market and Default arrangements for the relevant month is detailed in the chart below.



Utilisation costs of Reactive Power under market and Default arrangements over the relevant period are detailed in the chart below.



Over this period, the total spend relating to the capability and utilisation costs of reactive power procured via market arrangements was **£0.9m**.

Further information is contained on the National Grid Industry information Web Site, please click on the following link to be re-directed to the relevant information on the [Reactive Power Market](#).

### **Default Arrangements for Reactive Power**

The total amount spent on Reactive Power under the default arrangements during this reporting month was **£4.1m**

For this month, the combined total spend on reactive power was **£5m**

For further information regarding the default payment arrangements please click on the following the link - [Obligatory Reactive Power Service \(ORPS\) Default Payment Arrangements](#)

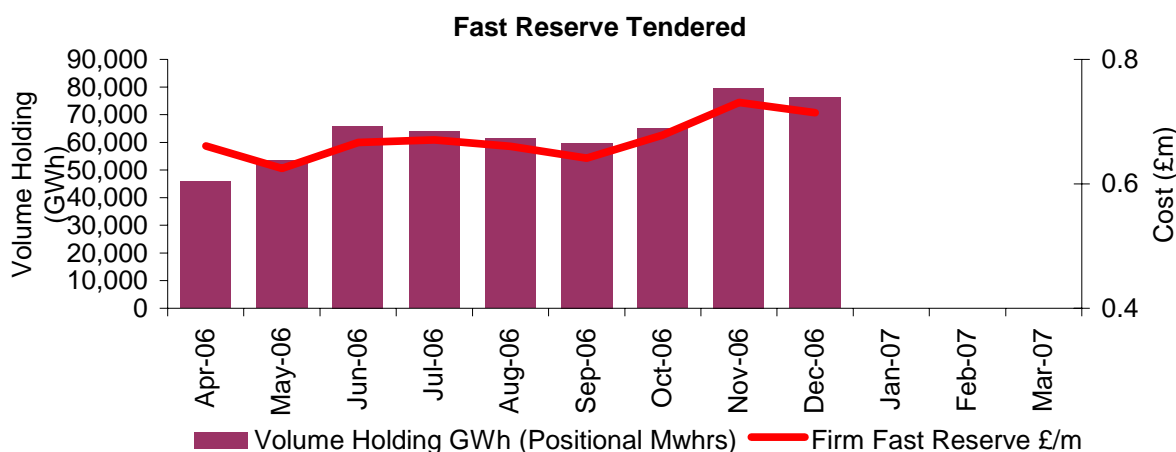
## 2.2 Fast Reserve (Tendered)

Further information explaining the service and assessment criteria of tenders for this Balancing Service can be found by clicking the following link for [assessment principles for firm fast reserve](#).

The table detailed below lists the tender details for the relevant month.

|        | Eligible companies | Eligible units | Units tendered in previous months | Units tendered this month | Units accepted from previous months | Units accepted from this month | Total MW tendered | Total MW contracted | Max GWh tendered | Max GWh contracted |
|--------|--------------------|----------------|-----------------------------------|---------------------------|-------------------------------------|--------------------------------|-------------------|---------------------|------------------|--------------------|
| Apr-06 | 6                  | 18             | 3                                 | 0                         | 3                                   | 0                              | 278               | 278                 | 111.81           | 111.81             |
| May-06 | 6                  | 18             | 2                                 | 0                         | 2                                   | 0                              | 180               | 180                 | 87.12            | 87.12              |
| Jun-06 | 6                  | 18             | 2                                 | 0                         | 2                                   | 0                              | 180               | 180                 | 84.96            | 84.96              |
| Jul-06 | 6                  | 18             | 2                                 | 0                         | 2                                   | 0                              | 180               | 180                 | 87.48            | 87.48              |
| Aug-06 | 6                  | 18             | 2                                 | 0                         | 2                                   | 0                              | 180               | 180                 | 87.48            | 87.48              |
| Sep-06 | 6                  | 18             | 2                                 | 0                         | 2                                   | 0                              | 180               | 180                 | 84.96            | 84.96              |
| Oct-06 | 6                  | 18             | 2                                 | 2                         | 2                                   | 0                              | 587               | 180                 | 194.18           | 87.48              |
| Nov-06 | 6                  | 18             | 2                                 | 2                         | 2                                   | 0                              | 597               | 180                 | 191.07           | 84.96              |
| Dec-06 | 6                  | 18             | 2                                 | 1                         | 2                                   | 1                              | 638               | 355                 | 208.48           | 138.30             |
| Jan-07 | 6                  | 18             |                                   |                           |                                     |                                |                   |                     |                  |                    |
| Feb-07 | 6                  | 18             |                                   |                           |                                     |                                |                   |                     |                  |                    |
| Mar-07 | 6                  | 18             |                                   |                           |                                     |                                |                   |                     |                  |                    |

The following graph shows the variation in Fast Reserve capacity contracting by month.



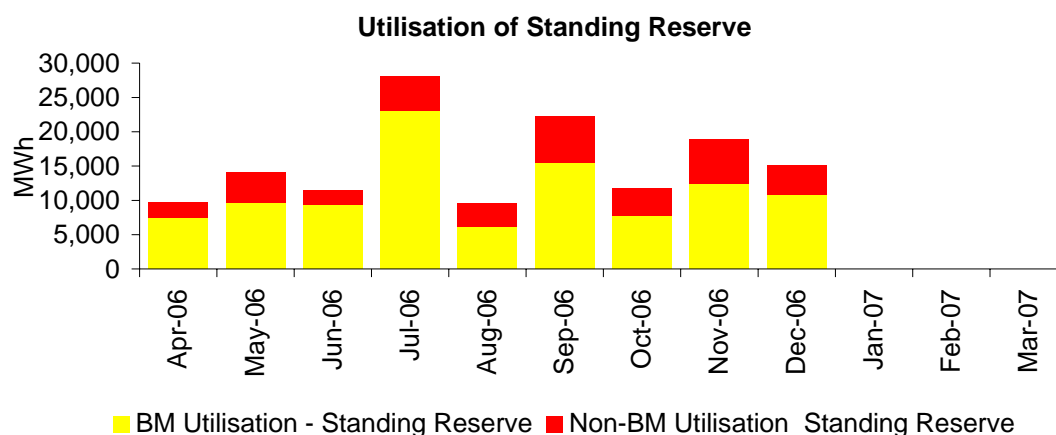
A total of **355MW** of capacity was contracted during the month. The total spend on availability and utilisation excluding bids and offers was **£0.7m**.

For more information on [Fast Reserve](#) please click the link. Fast Reserve Contracts placed through non-tendered bilateral agreements are detailed in section 3.6 of this report.

## 2.3 Standing Reserve and Supplemental Standing Reserve

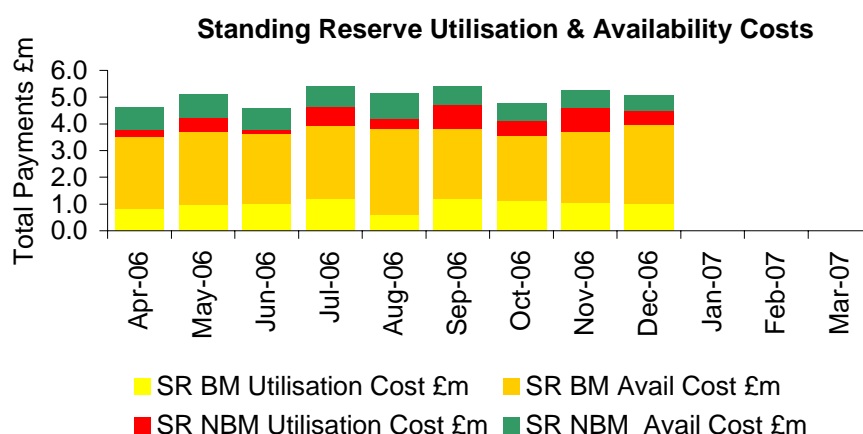
### Standing Reserve

The following chart shows the utilisation of Standing Reserve.



The average availability payment for Standing Reserve during this period was **£5.49/MW/h** for non-working days, and **£5.51/MW/h** for working days.

The following chart shows the cost of availability and utilisation of Standing Reserve.





The total spend on availability payments, plus utilisation payments to NBM providers, in the month was **£4.1m**.

For further information on the nature of this service please see the [Standing Reserve Introduction document](#) or the [Standing Reserve Market Report](#)

### **Supplemental Standing Reserve**

National Grid initiated a tender process for SSR in order to enable the economic procurement of an increased level of firm ex-ante reserve above that previously procured via the annual Standing Reserve tender for 2006/07. SSR contracts were struck for the period 2<sup>nd</sup> October 06 – 27<sup>th</sup> March 2007 for working-day windows only.

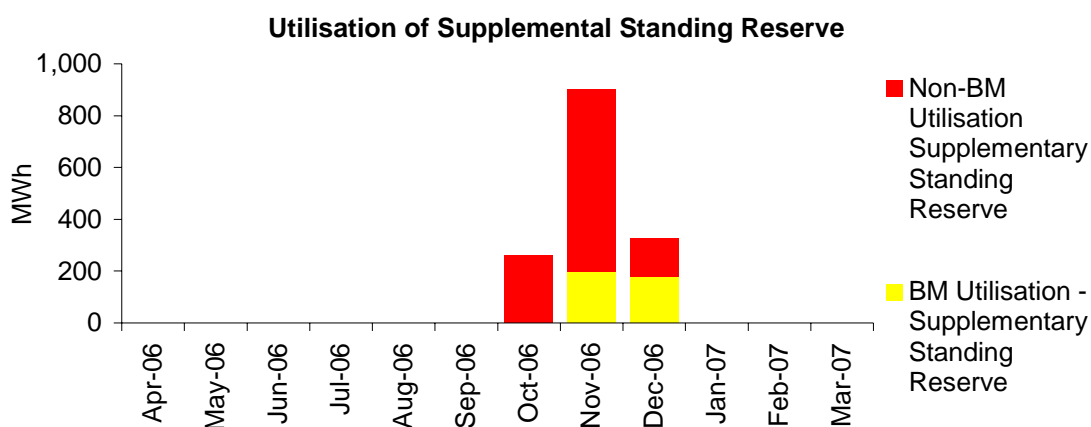
The volume tendered was as follows:

- 934MW from BM Participants
- 496MW from Non-BM Participants

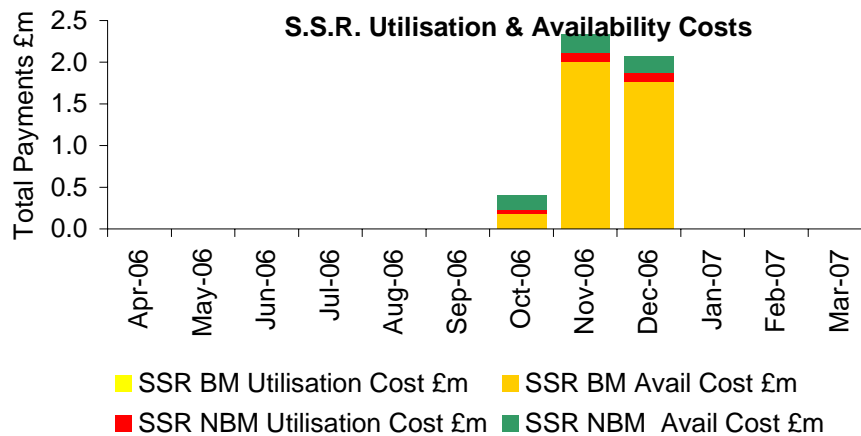
The volume which was assessed as economic and which proceeded to contract was

- 334MW from BM Participants
- 408MW from Non-BM Participants

Hence an additional 742MW was procured through SSR for winter 06/07.



The average availability payment for Supplemental Standing Reserve during this month was **£12.68 /MW/h** for working days.



The total spend on SSR availability payments, plus utilisation payments to NBM providers, in the month was **£2m**.

## 2.4 Tendered Frequency Response.

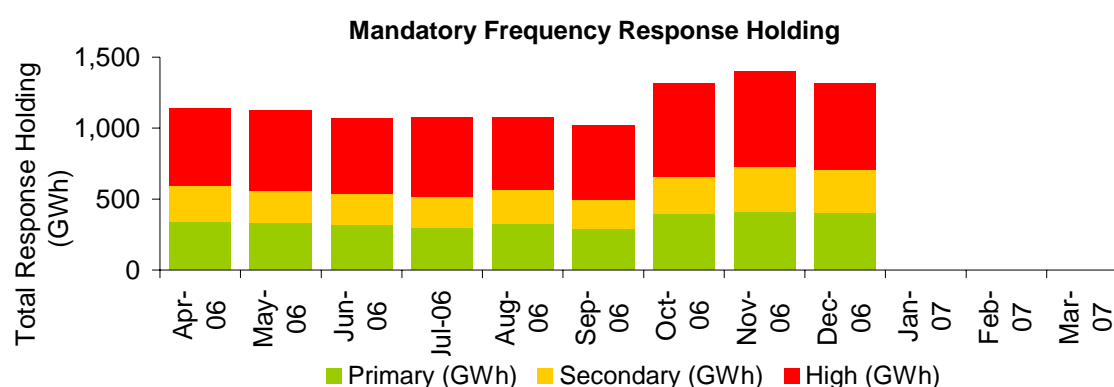
Please see Section 3.2

### 3 Services Procured via Non-Tendered Bilateral Contracts

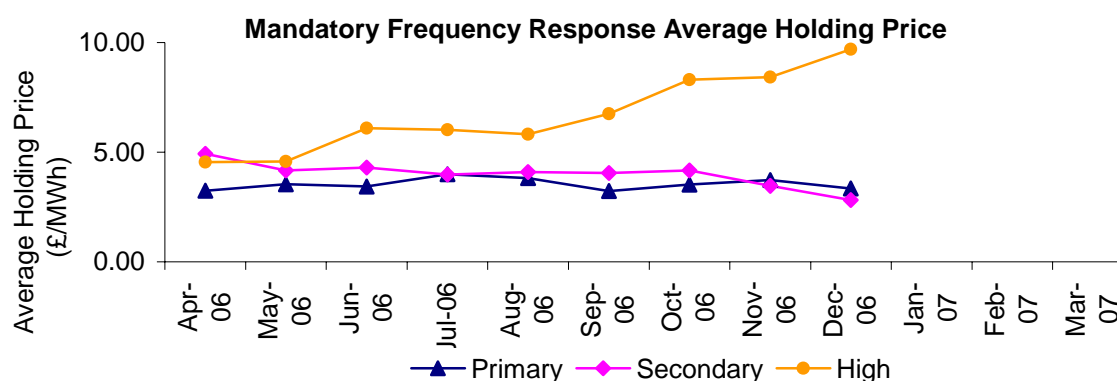
#### 3.1 Mandatory Frequency Response

Mandatory Frequency Response is a mandatory service provided by large generators (>100MW) to automatically change their active power output in response to a change in system frequency. The Grid Code Connection Condition 6.3.7 and 8.1 describe the technical requirements for this service.

Payments for Mandatory Frequency Response comprise a Holding Payment (£/MW/h) and a [Response Energy Payment](#) (£/MWh). Details on frequency response holding are given below.



The chart below shows the Average Holding cost of Mandatory Frequency Response.



The spend on Mandatory Frequency Response holding for the reporting month was **£8.1m**.

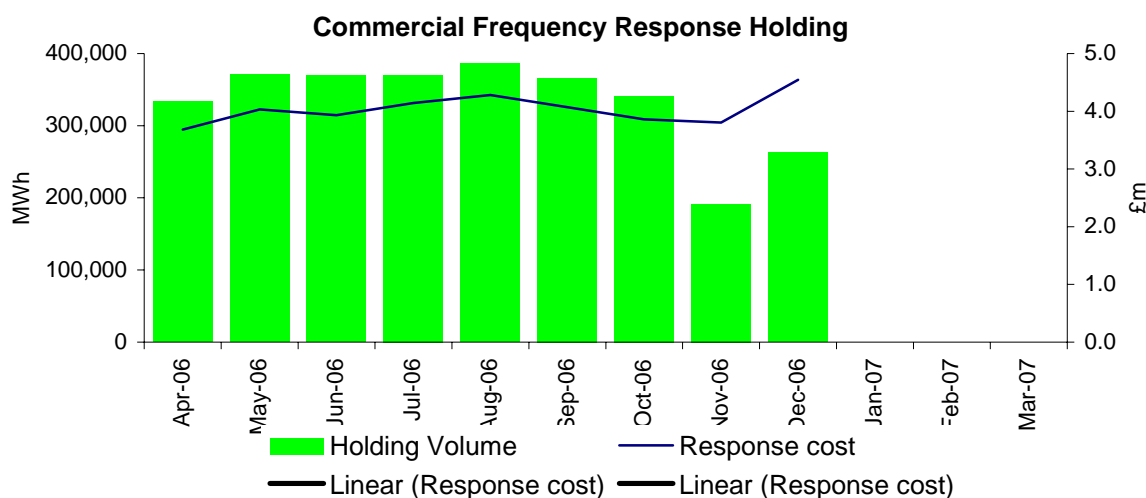
The spend on Response Energy Payments was **(£0.3m)<sup>1</sup>**. The methodology for calculating these payments is given in CUSC section [4.1.3.9 & 4.1.3.9A](#).

The total spend on Mandatory Frequency Response during the reporting month was **£7.8m**.

<sup>1</sup> The Response Energy Payment can be both a positive or negative payment, dependant upon the relative volumes of high and low frequency response dispatched during the course of the relevant month.

### 3.2 Commercial Frequency Response

Commercial Frequency Response is a collection of services that can be provided by demand side participants and generation plant. The technical characteristics of these services are different to those required under mandatory service arrangements, and range from enhanced mandatory dynamic services through to non-dynamic services effected via LF relays. Part of the contract portfolio includes services provided by demand side participants through Frequency Control Demand Management (FCDM) and through the firm frequency response (FFR) tender rounds.

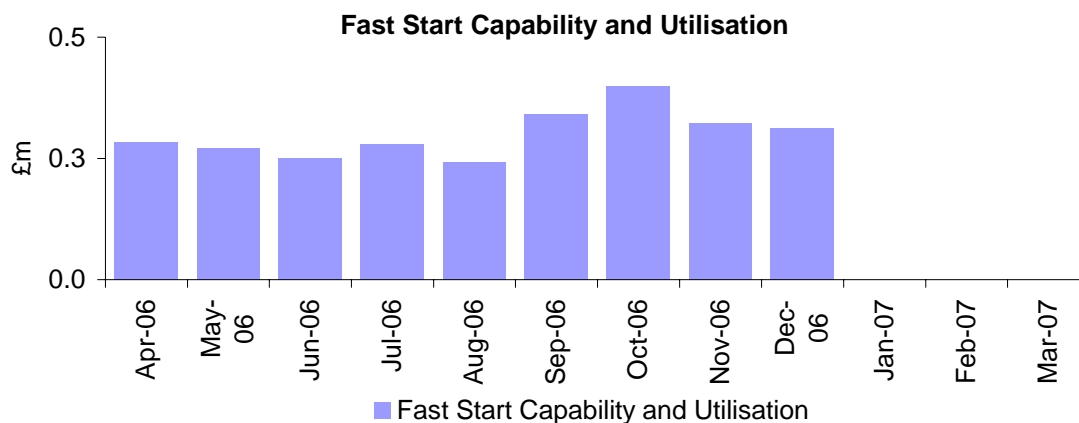


The total amount spent on Commercial Frequency Response holding during the reporting month was **£4.5m**.

Further information is available by clicking the [Commercial Frequency Response](#) link, or specifically on firm frequency response through the '[tenders and reports](#)' section of National Grid's Balancing Services website.

### 3.3 Fast Start

Fast Start is the ability of Open Cycle Gas Turbine (OCGT) plant to start rapidly from a standstill condition and to deliver its rated power output automatically within a defined time period. Fast Start details below;

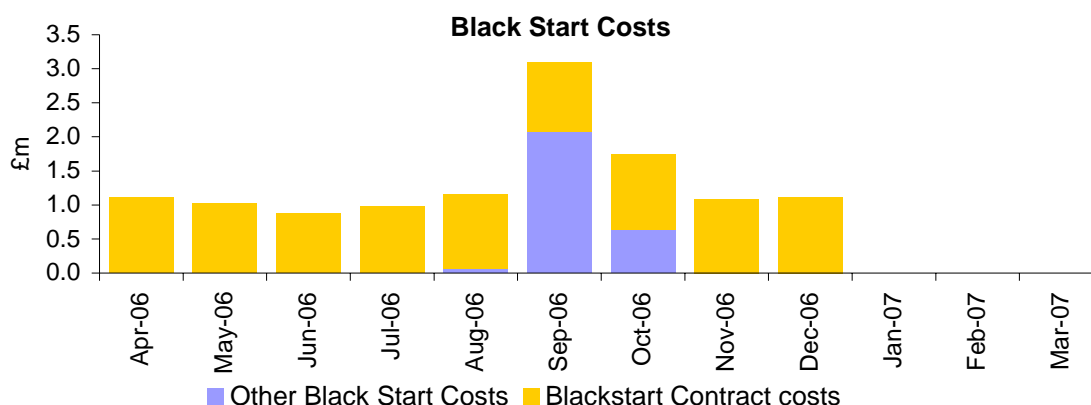


The total amount paid during the relevant reporting month for the availability and utilisation of the Fast Start service was **£0.3m**.

Further information is available by clicking the [Fast Start](#) link.

### 3.4 Black Start

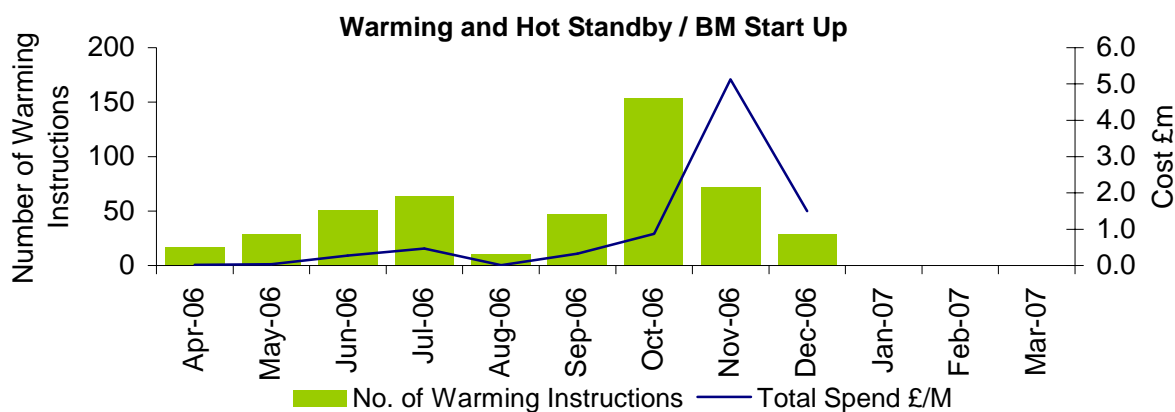
During the reporting month there were up to **23** stations with Black Start agreements in place. No new agreements were entered into during the period. The total amount paid during the relevant reporting month for the availability of the Black Start service was **£1.1m**.



Further information is available by clicking the [Black Start](#) link.

### 3.5 Warming & Hot Standby / BM Start up

The chart below contains information relating to the procurement of Warming and Hot Standby Balancing Services;

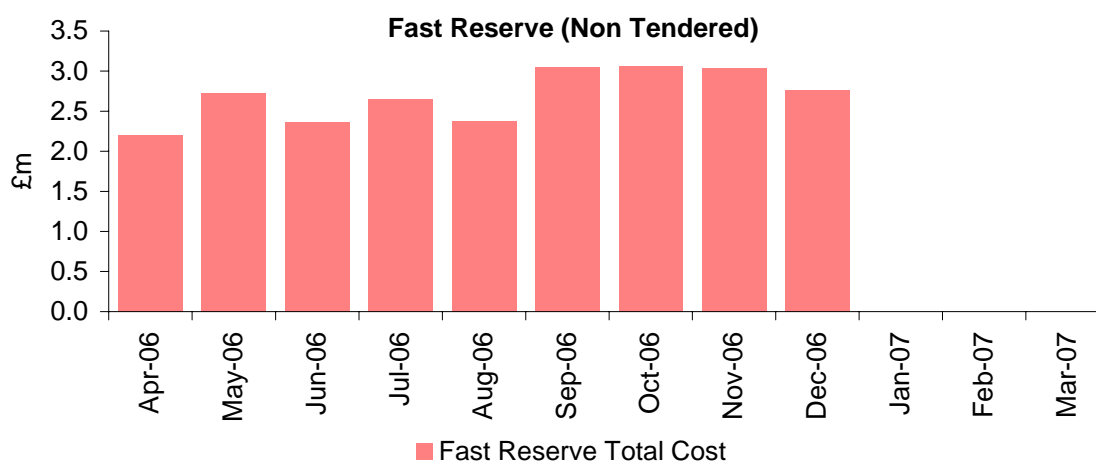


The total amount spent on Warming and Hot Standby during the reporting month was **£1.5m**.

Further details are available by clicking the [Warming & Hot Standby](#) link.

### 3.6 Fast Reserve (Procured on a Non-Tendered basis)

Non-Tendered Fast Reserve is a service that is contracted on a bilateral basis with service providers. The nature of the service is similar to the Firm Fast Reserve service although the payment and utilisation mechanisms differ for each service.

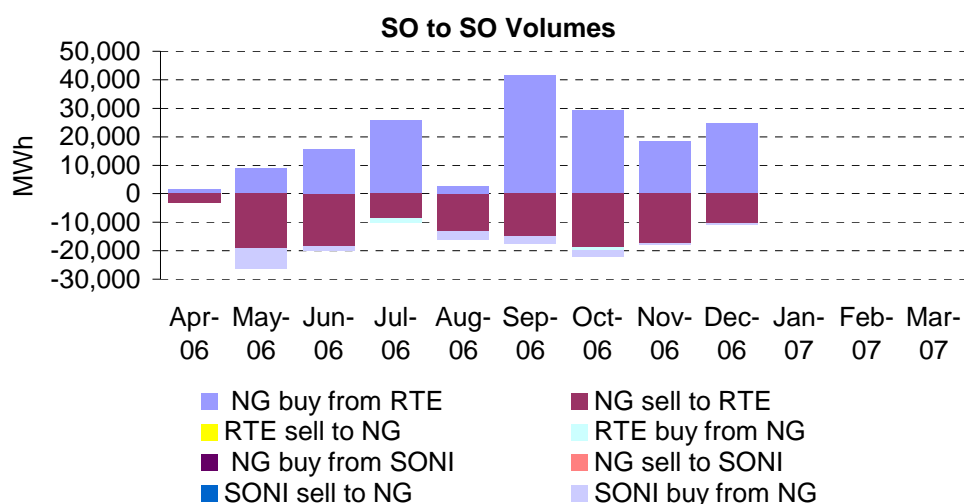


The availability payments during the relevant month totalled **£2.8m**. (Excluding Utilisation Via Offers and Bids Accepted in the Balancing Mechanism).

### 3.7 System to System Services

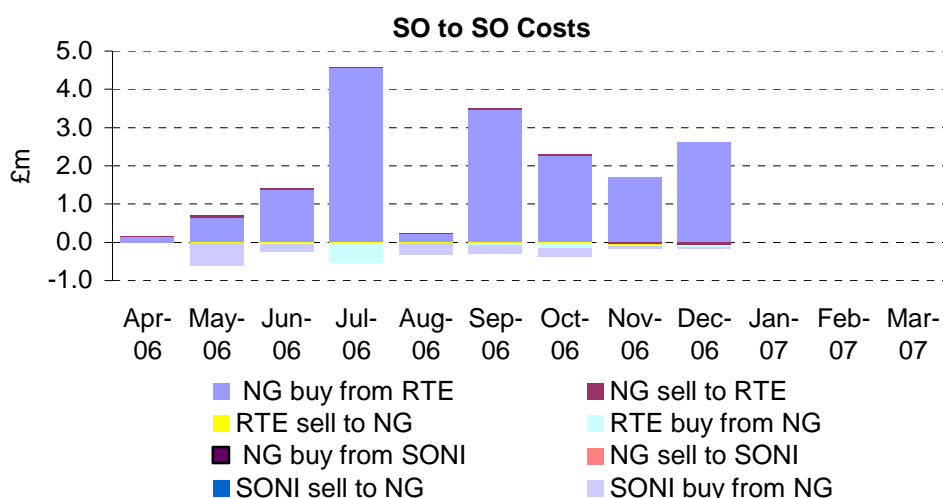
System to System services are provided mutually with other Transmission System Operators connected to the GB system via interconnectors. Such services are typically used to manage interconnector transfer profiles and to increase or reduce power flows across an interconnector to resolve transmission constraints on either side, or provide Emergency Assistance if required.

The graph below shows the total net volume imported and exported between GB, France and Ireland.



The total energy volumes associated with system to system services during the reporting month was **11GWh** Export (from GB) and **25GWh** Import (to GB).

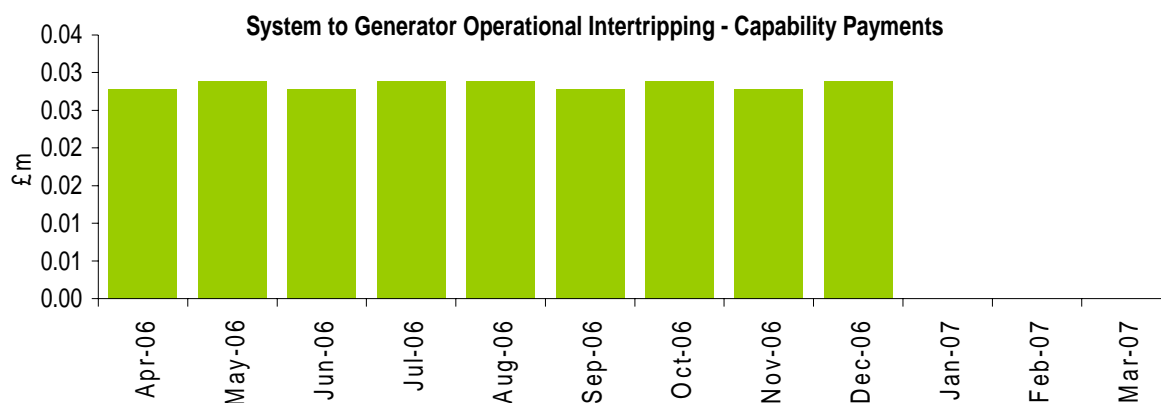
A total spend associated with system to system services during the reporting month was **£2.5m**.



### 3.8 System to Generator Operational Inter-tripping Schemes

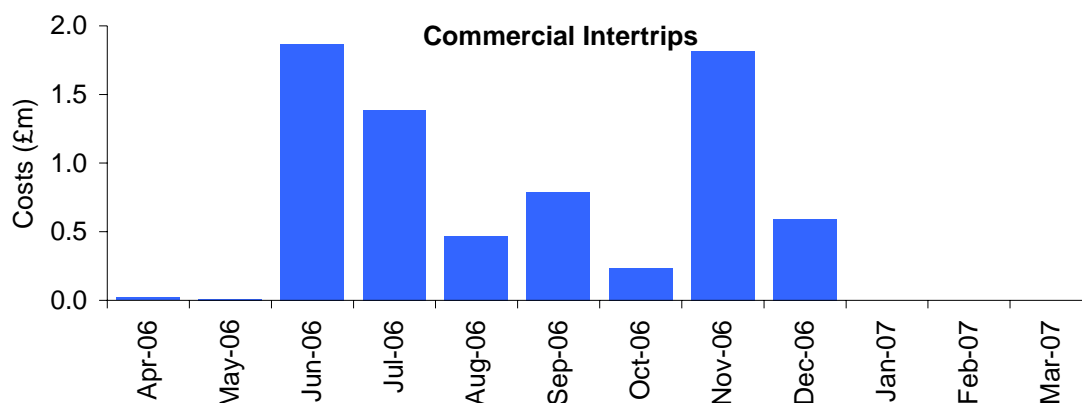
As a consequence of their connection conditions, certain generators are obligated to have in place operational intertrip schemes.

These schemes fall under a number of different category types as defined under section 4.2.A of the CUSC which describe the compensation arrangements relating for these schemes. A proportion of these categories entitle the counter party to payments for the arming (capability fee) and utilisation of this service.



### 3.9 Commercial Intertrip Service

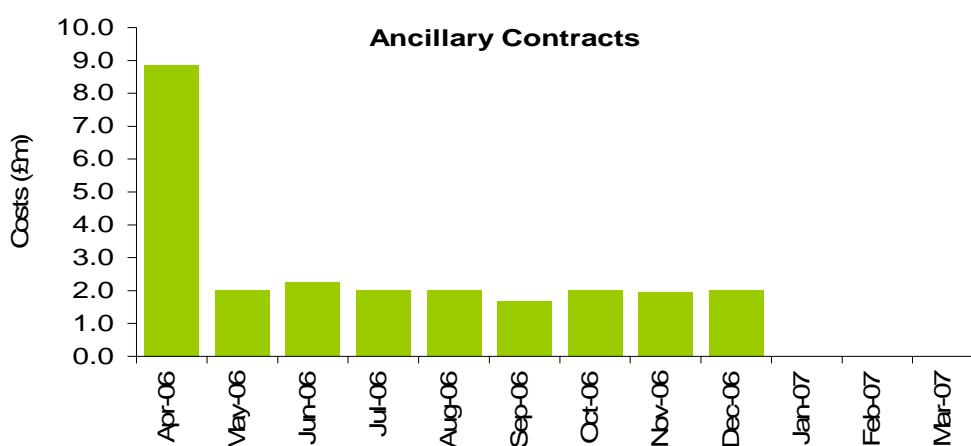
In addition to System to Generator Operational Inter-tripping Schemes, National Grid will seek to, where it proves economic and efficient to do so, enter into commercial intertrip schemes to manage system issues.





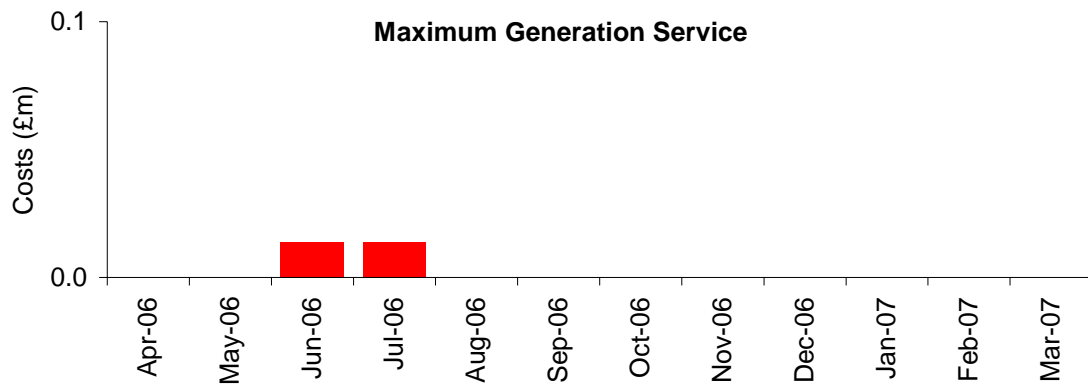
### 3.10 Ancillary Contracts to manage System Issues

On occasion, National Grid enters into bespoke Ancillary contracts to manage certain transmission system issues. The number and nature of these contracts is necessarily confidential. The costs reported here include any costs of 'Transmission Related Agreements', which are entered as a consequence of certain customer choices of connection conditions.



### 3.10 Maximum Generation Service

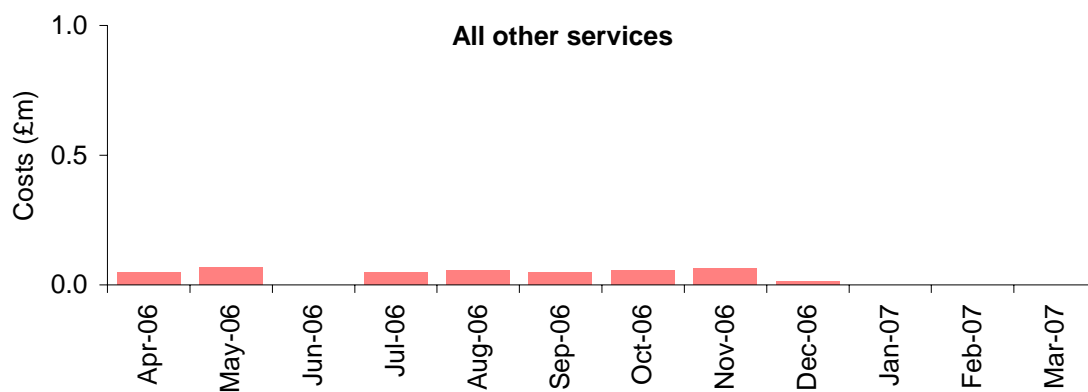
The Maximum Generation Service (MGS) is required to provide additional short term generation output during periods of system stress for system balancing. This service allows access to unused capacity outside of the Generator's normal operating range. MGS will be initiated by the issuing of an Emergency Instruction in accordance with the Grid Code BC2.9.2. Details of the service are contained in the [CUSC](#) section 4.2



Further details on the utilisation and availability of the service are available by clicking the [Maximum Generation](#) link.

### 3.12 All Other Services

These include bespoke services to manage specific system conditions and costs relating to fee and liabilities.



A total spend on All Other Services during the reporting month was **£0.015m**.

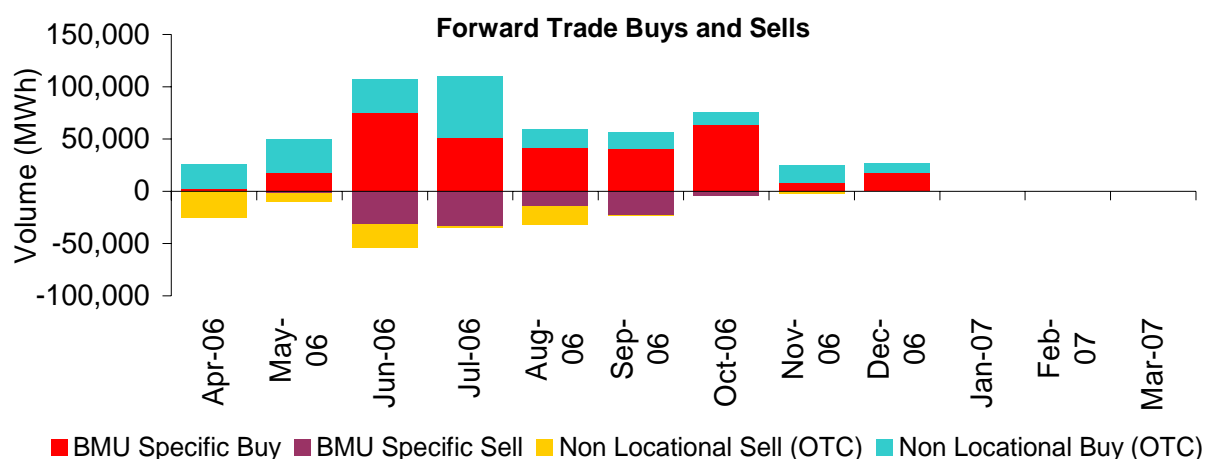
## 4 Energy Related Products

### 4.1 Forward Trading

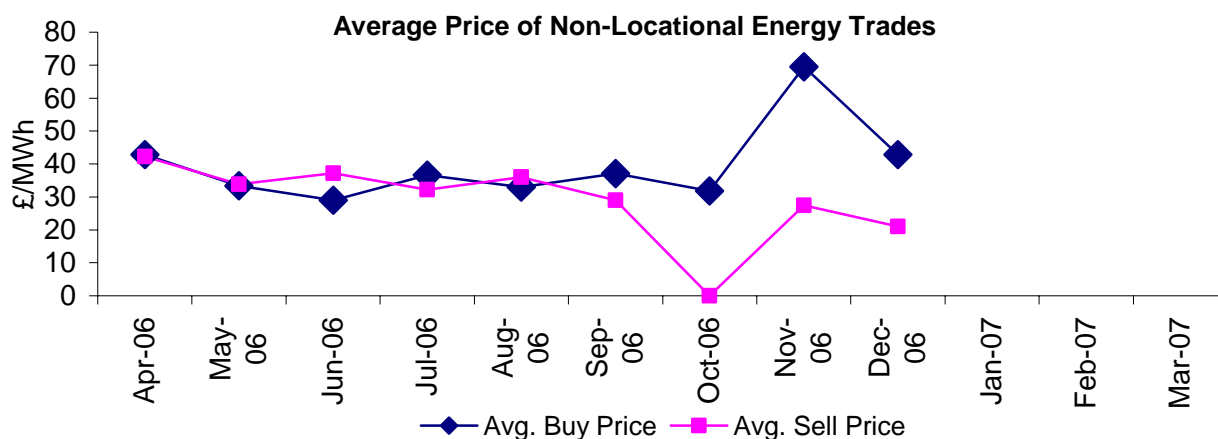
National Grid's forward trading is undertaken to reduce the overall costs of balancing the system, and to resolve system issues as appropriate. There are a number of products and procurement mechanisms available. During the reporting month, National Grid traded a gross volume of **26,784 MWh**.

|                       |            |                                |
|-----------------------|------------|--------------------------------|
| <b>Non Locational</b> |            | } Total Net Spend <b>£1.2m</b> |
| Buy Volume            | 8916 MWh   |                                |
| Sell Volume           | 92 MWh     |                                |
|                       |            |                                |
| <b>BMU Specific</b>   |            |                                |
| Buy Volume            | 17,776 MWh |                                |
| Sell Volume           | 0 MWh      |                                |

The following chart shows the monthly profile of our trading activities, both for non-locational energy trades and BMU-Specific trades;



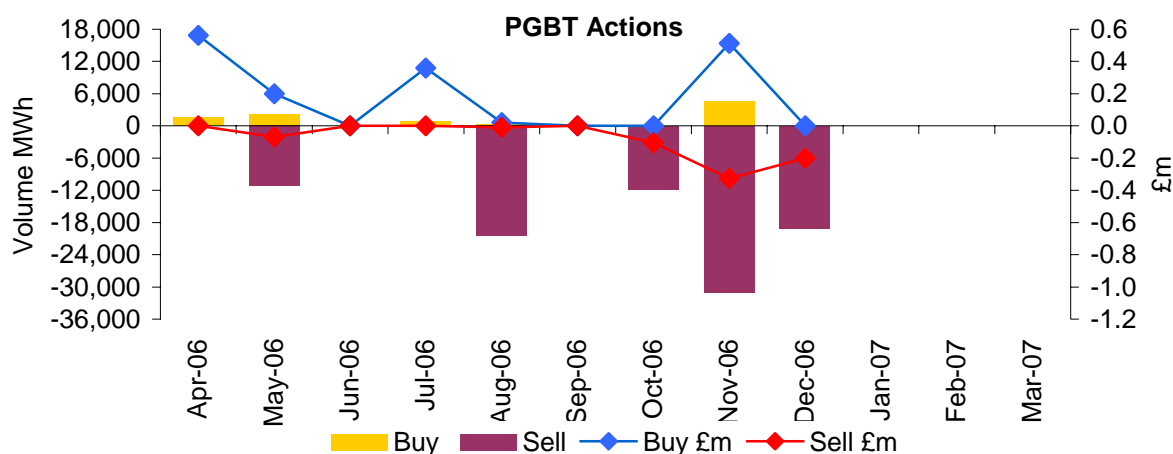
The following graph shows the monthly profile of our non-locational energy trading activities. It comprises all the trades undertaken by National Grid through Power Exchanges and through the use of brokerage houses for that purpose;



Further details are available by clicking the [Energy Related Products](#) link.

## 4.2 Pre-Gate BMU Transactions (PGBT)

Information on PGBT activity Transactions Sourced and Agreed is given in the chart below.

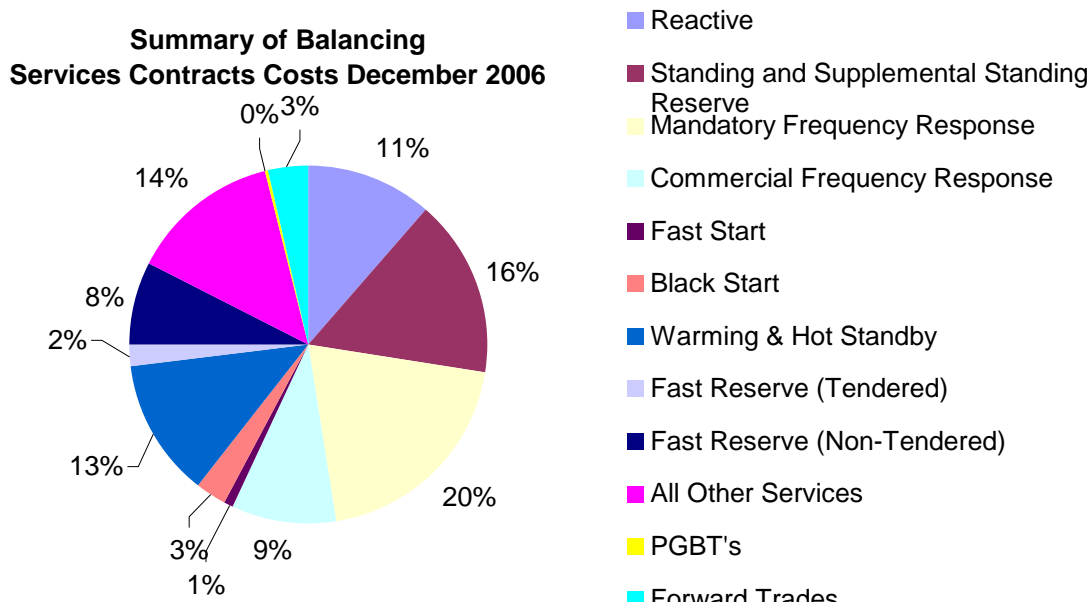


The total net spend on PGBT during the reporting month was (£0.2m). Details on real time PGBT transactions can be found on the BMRS (system warning page) and post event, on the [National Grid information website](#).

Further information is available through the link on [PGBT offers](#).

## 5 Summary

This report has provided information on the Balancing Services procured (or acquired) during the relevant month.



As a summary of financial activity, the following breakdown of balancing service costs is provided by category, for this reporting month.

## 6 Further information

For further information on the types of Balancing Services that National Grid intends to procure, please refer to the prevailing **Procurement Guidelines**. Information on bid and offer acceptances in the Balancing Mechanism is contained within the **Balancing Principles Statement Report**. These documents, along with the **Procurement Guidelines Report**, are published in accordance with Standard Condition C16 of the Transmission Licence and are available on the National Grid Industry Information website at:

<http://www.nationalgrid.com/uk/Electricity/>

### Electricity Balancing Development

Email: [Balancingservices@uk.ngrid.com](mailto:Balancingservices@uk.ngrid.com)

## 7 Information Summary Page

| Balancing Service                           | Info Provision   | Value   |
|---|--|---|
| Reactive Power Market                       | Utilisation Volume (MA)<br>Utilisation Volume (DefaultPM)<br>Total Spend (MA)<br>Total Spend (Default PM)  | 399 Gvarh<br>1864 Gvarh<br>£0.9m<br>£4.1m                             |
| Standing Reserve                            | <u>Average availability payments:</u><br>Non-Working Days<br>Working Days<br>Total Spend<br>Total Volume   | £5.49/MW/h<br>£5.51/MW/h<br>£4.1m<br>15,172 MWh                       |
| Supplemental Standing Reserve               | <u>Average availability payments:</u><br>Non-Working Days<br>Working Days<br>Total Spend<br>Total Volume   | £N/A/MW/h<br>£12.68/MW/h<br>£2.1m<br>325 MWh                          |
| Mandatory Frequency Response                | <u>Holding Volumes &amp; Prices:</u><br>Average Volume held MW<br>Average price £/MW/h<br>Total Holding Spend<br>Total Response Energy Payment Spend | Pri / Sec / High<br>543 406 820<br>3.35 2.82 9.69<br>£8.1m<br>(£0.3)m |
| Commercial Frequency Response               | No. Of Contracts<br>Total Spend  | 6<br>£4.5m  |
| Fast Start                                  | Total Spend  | £0.3m   |
| Black Start                                 | Total Spend  | £1.1m   |
| Warming                                     | Total Cost of Warming & Hot Standby<br>/BM Start Up<br>Number of instructions (warming)  | £1.5m<br>29   |
| Fast Reserve-Tendered                       | Total Spend on Availability & Utilisation <sup>2</sup>   | £0.7m   |
| Fast Reserve Non-Tendered                   | Total Spend on Availability  | £2.8m   |
| SO to SO                                    | Volume Imported<br>Volume Exported<br>Total Spend  | 25 GWh<br>11 GWh<br>£2.5m   |
| System to Generator operational inter-trips | Capability Payments<br>Utilisation Payments  | £0.0m<br>£0.0m  |
| Commercial Intertrip Service                | Total Spend  | £0.6m   |
| Ancillary Constraint Contracts              | Total Spend  | £2.0m   |
| Maximum Generation Service                  | Total Spend  | £0.0m   |
| All Other Services                          | Total Spend  | £0.01 m   |
| Forward Trading                             | Traded gross volume<br>Net cost of forward trading<br><b>OTC – Power Exchange &amp; Energy</b><br>Buy Volume   | 26,784 MWh<br>£1.2m<br><br>8916 MWh                                   |

<sup>2</sup> Other than Fast Reserve utilisation achieved through the acceptance of bids or offers

|         |  |   |
|---------|--|---|
|         | Sell Volume<br><b>OTC – BMU Specific</b><br>Buy Volume<br>Sell Volume  | 92 MWh<br>17,776 MWh<br>0,000 MWh   |
| PGBT    | <u>No. of PGBT entered into:</u><br>Sourced<br>Agreed<br><u>Average PGBT Prices £/MWh:</u><br>Buy<br>Sell<br><u>Volume MWh:</u><br>Buy<br>Sell<br>Total Cost of PGBT | 6<br>6<br>£0.0/MWh<br>£10.50/MWh<br>0 MWh<br>19,148 MWh<br><b>(£0.2)m</b> |
| Summary | Total  | £36.2m  |