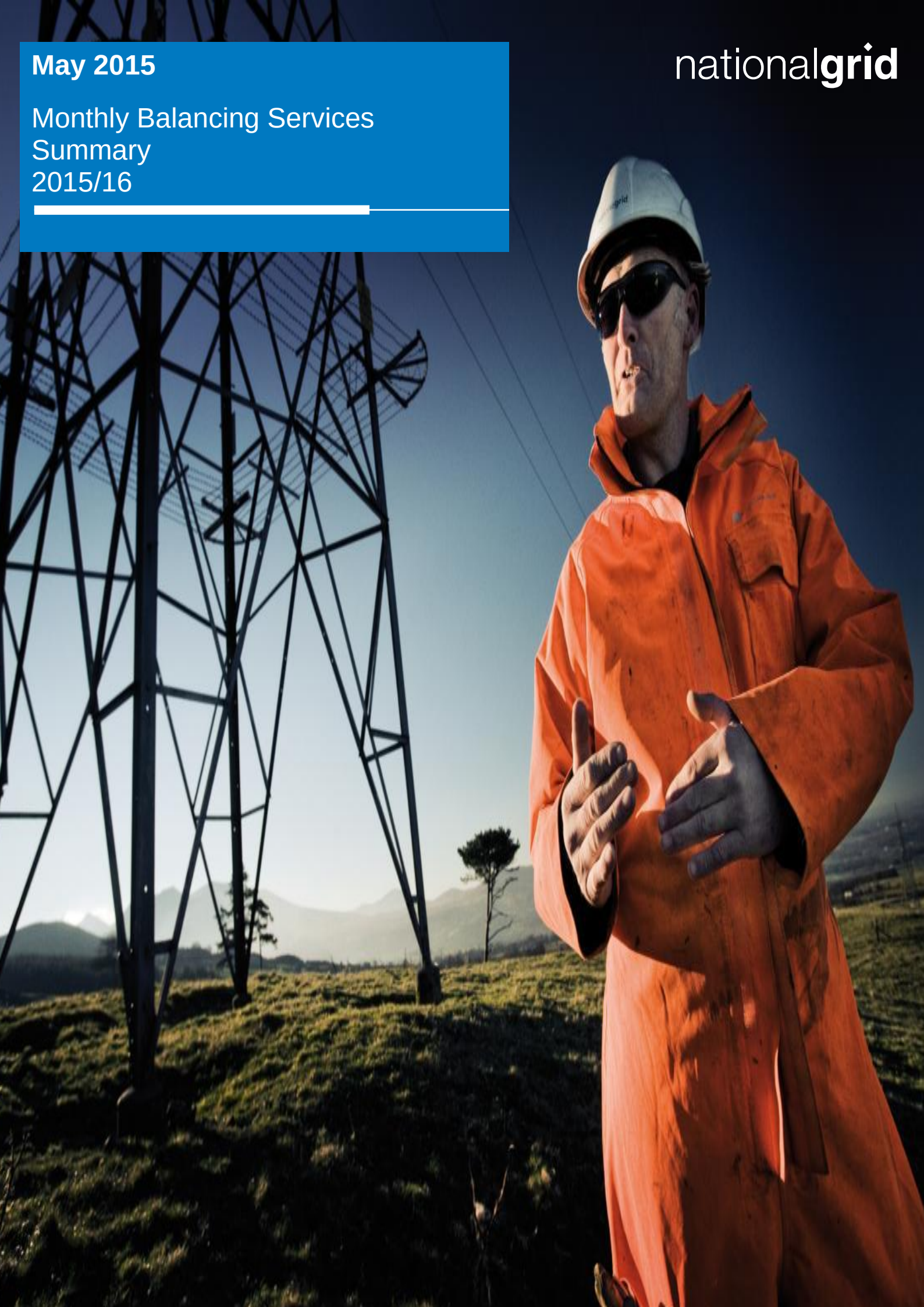
May 2015

Monthly Balancing Services Summary 2015/16

nationalgrid



Contents

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 this summary 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 2 decimal places (£m). 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, Short Term Operating Reserve, 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 on the National Grid website.

1.4 Report Structure

This report presents the Balancing Services under four main titles:

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

Further information is also provided within this report on the total costs of managing constraints, payments made to wind powered generation and overall costs of system operation, including forecast BSUoS charges.

1.5 Services not included in the report

The 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 which can be located on the National Grid Website in the Electricity section under Balancing Services & Transmission Licence Statements. All Bid and Offer information is available by clicking the following link to the NETA web site in the BMRS: http://www.bmreports.com/

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.

2.1.1 Market Arrangements for Reactive Power

All contracts awarded via tender **round 35 (TR35)** commenced on the **01 April 2015**. For further information regarding the nature of these contracts please refer to the National Grid Website:
http://www2.nationalgrid.com/uk/services/balancing-services/reactive-power-services/

For this reporting period, the total utilisation volume for reactive power procured via market arrangements was **0GVArh**. The total expenditure relating to the capability and utilisation costs of reactive power procured via market arrangements was **£0.00m.**

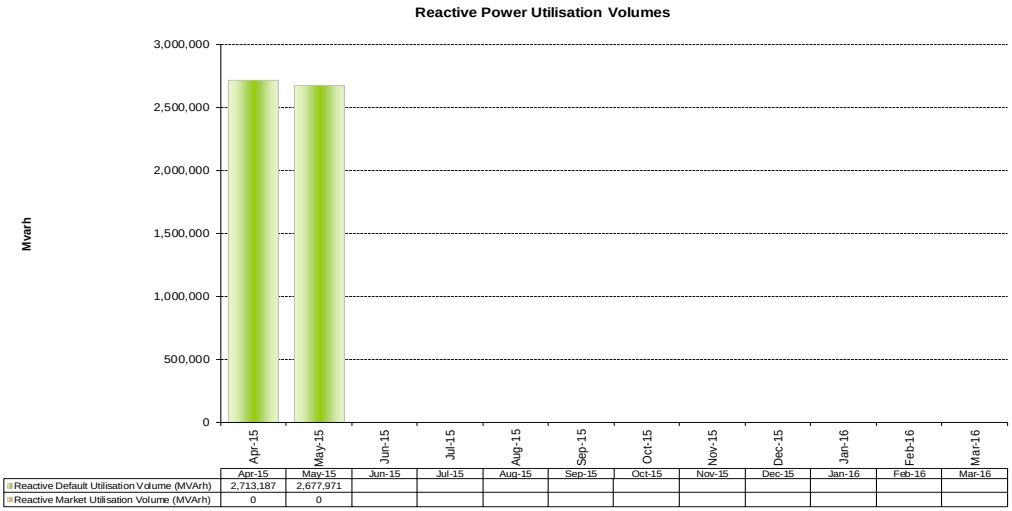
2.1.2 Default Arrangements for Reactive Power

For this reporting period, the total utilisation volume for reactive power under the default arrangements was **2,678GVArh**. The total amount spent on Reactive Power under the default arrangements during this reporting month was **£7.02m.**

For further information regarding the default payment arrangements please view the Introduction to Reactive document which can be found on the National Grid Website.
For this month, the combined total expenditure on reactive power was **£7.02m.**

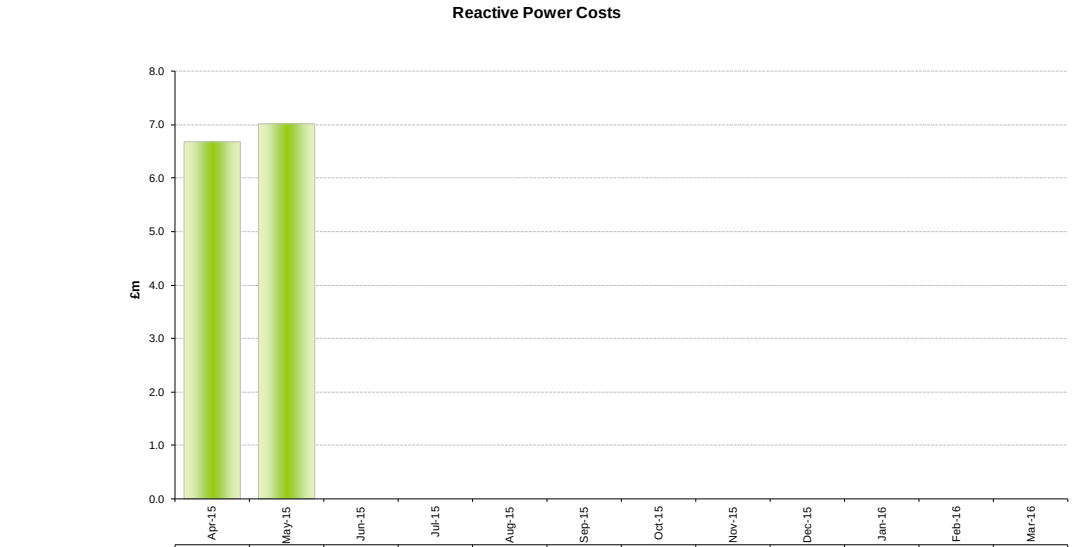
2.1.3 Utilisation of Reactive Power

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



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Reactive Default Utilisation Volume (MVArh)	2,713,187	2,677,971										
Reactive Market Utilisation Volume (MVArh)	0	0										

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



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Reactive Default Total £m	6.69	7.02										
Reactive Market Total £m	0.00	0.00										

2.2 Fast Reserve (Tendered)

Further information explaining the service and assessment criteria of tenders for this Balancing Service can be found on the National Grid Website under Electricity/Balancing/tender reports/fast reserve.

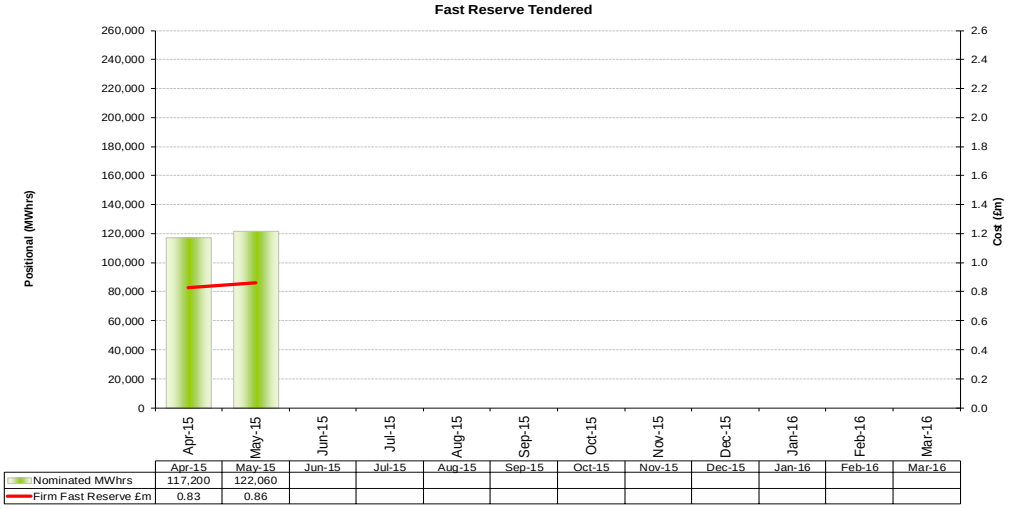
The following table lists the tender details for the relevant month.

	Total MW tendered	Total MW contracted	Nominated MWhrs	Firm Fast Reserve £m
Apr-15	280	280	117,200	0.83
May-15	280	280	122,060	0.86
Jun-15				
Jul-15				
Aug-15				
Sep-15				
Oct-15				
Nov-15				
Dec-15				
Jan-16				
Feb-16				
Mar-16				

Please note that eligible companies, eligible unit data, units accepted/tendered and max GWh data are no longer available to National Grid hence we are unable to report this information.

2.2.1 Fast Reserve (Tendered) Capacity Contracting

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



A total of **280MW** of capacity was contracted during the month. The total expenditure on availability and utilisation excluding bids and offers was **£0.86m**.
For more information on Fast Reserve please refer Fast Reserve information at:
http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/fast-reserve/

Fast Reserve Contracts placed through non-tendered bilateral agreements are detailed in section 3.6 of this report.

2.3 Short Term Operating Reserve (STOR) including Balancing Mechanism (BM) and Non Balancing Mechanism (NBM)

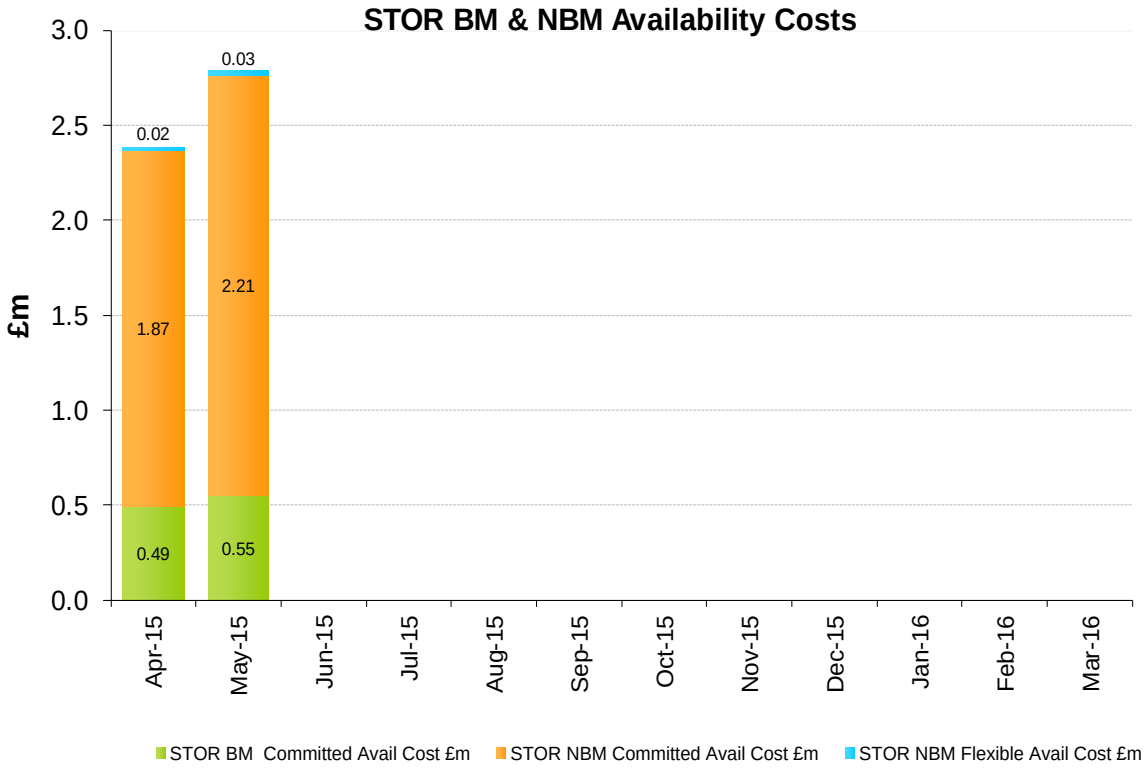
National Grid procures Short Term Operating Reserve (STOR) through a competitive tender process which is conducted three times per year. For further information regarding this service, and the timetable for future tenders, please refer to the STOR information at:
http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/short-term-operating-reserve/

The current reporting month falls in Seasons 9.2 2015/16. This season was available for tenders in tender rounds 10 to 12 for long term tenders and tender rounds 21 to 25. A total of 2894MW was accepted for season 9.2

Outturn and contracted figures for **May 2015** are shown in the table below.

	Outturn	**Contracted**
Volume weighted average availability price	£4.07/MWh	£3.14/MWh
Volume weighted average utilisation price	£100.74/MWh	£163.84/MWh
MW available	2121MW	2894MW

2.3.1 STOR BM and Non-BM Availability Costs



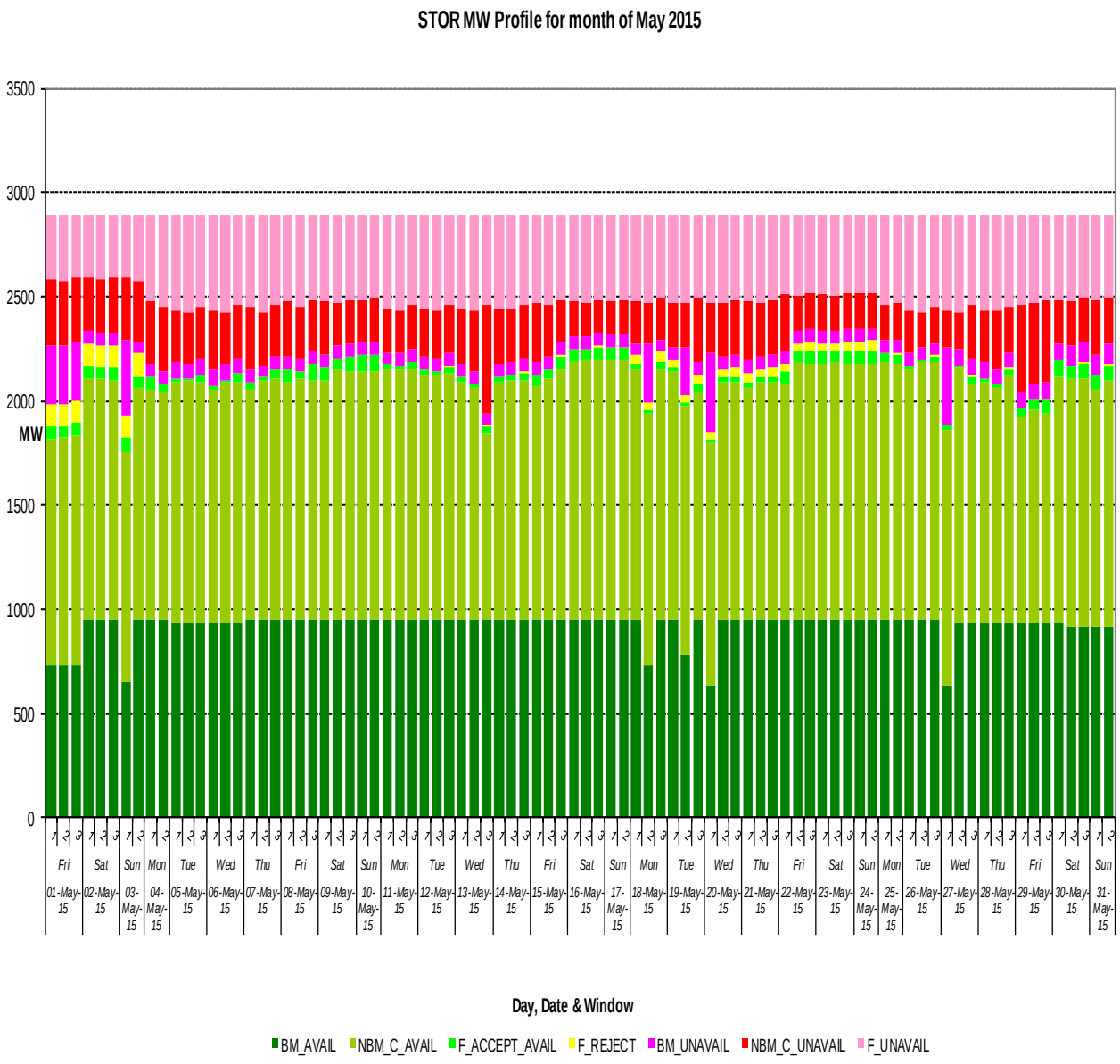
Note – the underlying data, presenting flexible STOR information since 1 April 2007, is available in the MBSS_DATA Excel file.

2.3.2 Previous Year STOR BM & NBM Availability Costs

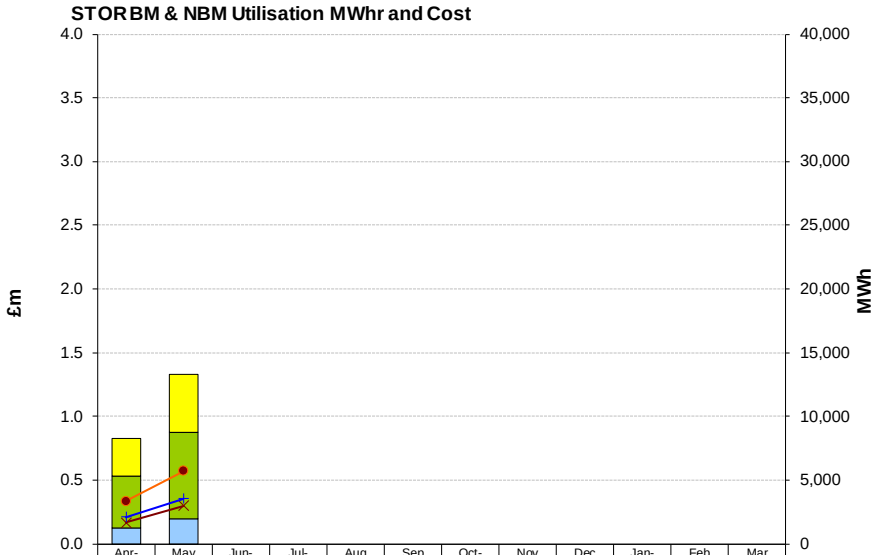
Previous Years Costs	May 2014/15	May 2013/14	May 2012/13	May 2011/12	May 2010/11
STOR BM Committed Avail Cost £m	1.19	2.83	3.09	3.35	4.99
STOR NBM Committed Avail Cost £m	2.19	2.35	2.10	1.14	1.00
STOR NBM Flexible Avail Cost £m	0.04	0.00	0.40	0.57	0.46
Average Utilisation Payment £/MWh	122.76	189.24	200.00	215	270.84

Note – this table is based on previous years' Settlements data. This year's figures to date are available in the chart in 2.3.1.

2.3.3 STOR MW Profiles with Results of Flexible STOR Assessments



2.3.4 STOR BM and Non-BM Utilisation



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
STOR NBM Flexible Utilisation MWhrs (Inc Ramp Energy)	2,971	4,550										
STOR NBM Committed Utilisation MWhrs (Inc Ramp Energy)	4,059	6,780										
STOR BM Committed Utilisation MWhrs	1,233	1,974										
STOR BM Committed Util Cost £m (Settlement)	0.165	0.296										
STOR NBM Committed Util Cost £m	0.334	0.571										
STOR NBM Flexible Util Cost £m	0.210	0.351										

Non-BM STOR Availability payments, Non-BM STOR Utilisation payments and BM STOR Availability payments are paid as Balancing Services. BM STOR Utilisation payments are paid via the BM Bids and Offers, not as a Balancing Service, they are included in this report only to clarify the total STOR expenditure.

The total STOR expenditure on availability payments and utilisation payments to both BM and NBM providers for the month was **£4.01m.**
The total STOR Utilisation volume for both BM and Non-BM units for the month was **13,305MWh.**
For further information on the nature of this service please refer to the STOR information at:
http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/short-term-operating-reserve/

2.4 Tendered Frequency Response.

Please see Section 3.2 Commercial Frequency Response.

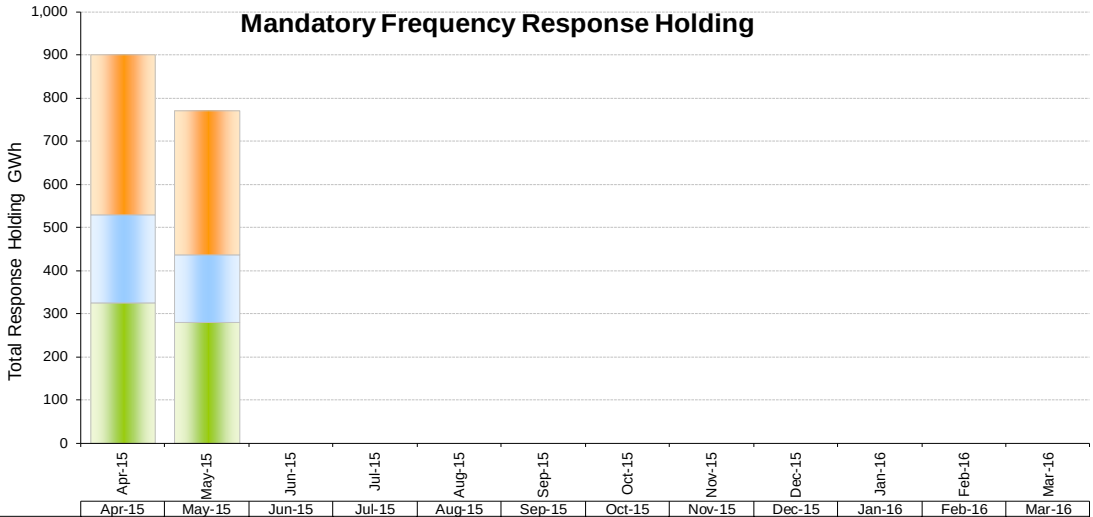
3. Services Procured Via Non-Tendered Bilateral Contracts

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.

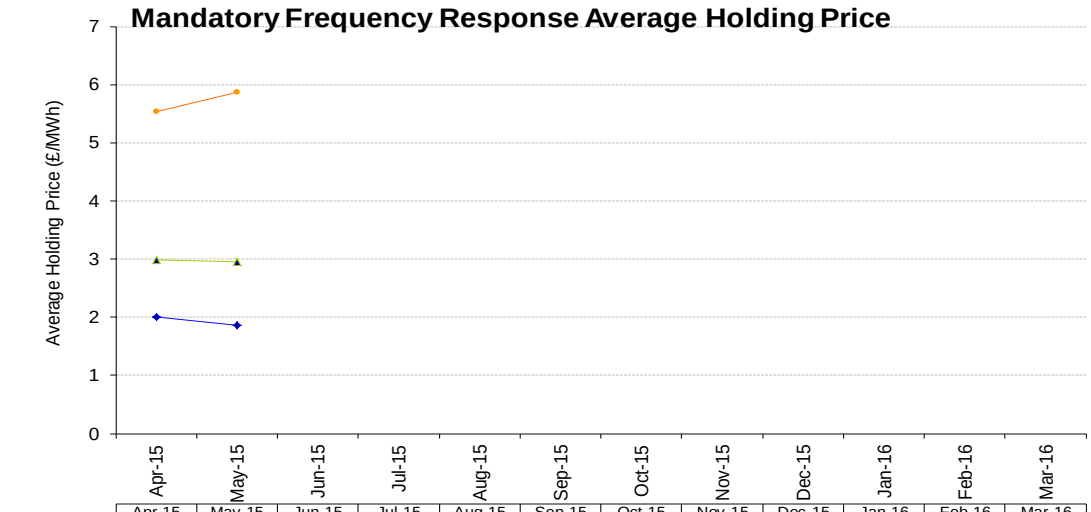
Payments for Mandatory Frequency Response comprise a Holding Payment (£/MWh) and a Response Energy Payment (£/MWh). Details on frequency response holding are given below. More information on this can be found on the National Grid Website:
http://www2.nationalgrid.com/uk/services/balancing-services/frequency-response/mandatory-frequency-response/

3.1.1 Mandatory Frequency Response Holding



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
High (GWh)	371.86	334.59										
Secondary (GWh)	203.47	156.90										
Primary (GWh)	326.62	280.50										

3.1.2 Average Holding price of Mandatory Frequency Response



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Primary	2.98	2.95										
Secondary	2.01	1.86										
High	5.54	5.87										

Spend on Mandatory Frequency Response holding for the reporting month was **£3.09m**.

Spend on Response Energy Payments was **£0.35m**[1]. The methodology for calculating these payments is given in the Connection & Use of System Code (CUSC) section 4.1.3.9 & 4.1.3.9A. The CUSC can be found on the National Grid website.

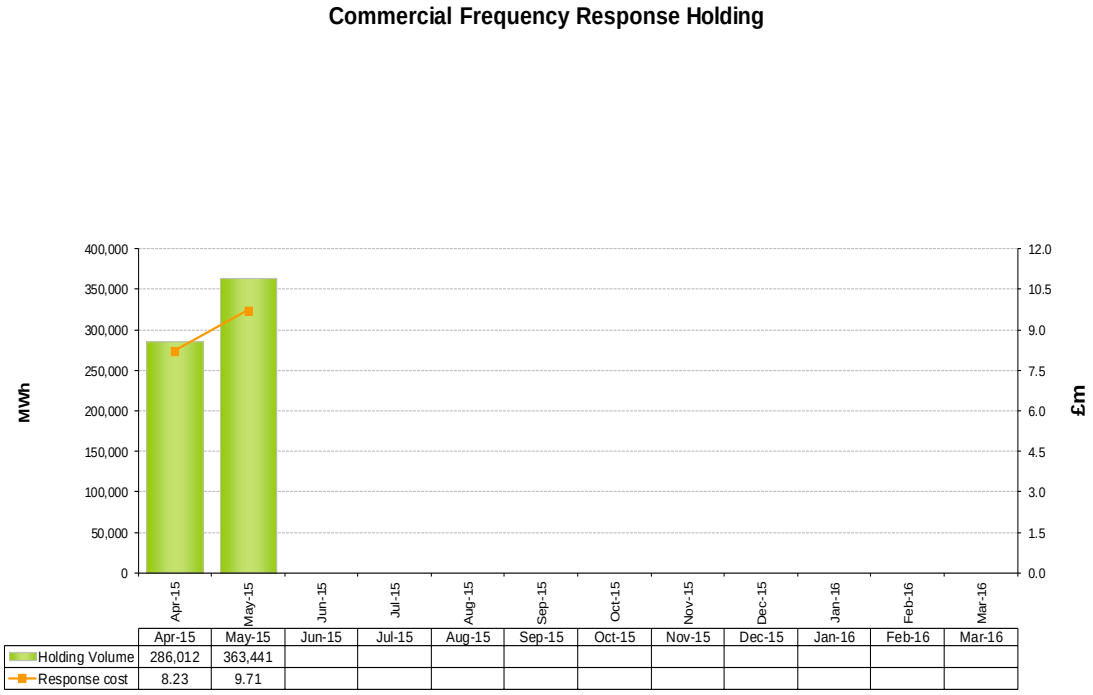
The total expenditure on Mandatory Frequency Response during the reporting month was **£3.44m**.

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.

[1] 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.

3.2.1 Commercial Frequency Response Holding Volume and Cost



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Holding Volume	286,012	363,441										
Response cost	8.23	9.71										

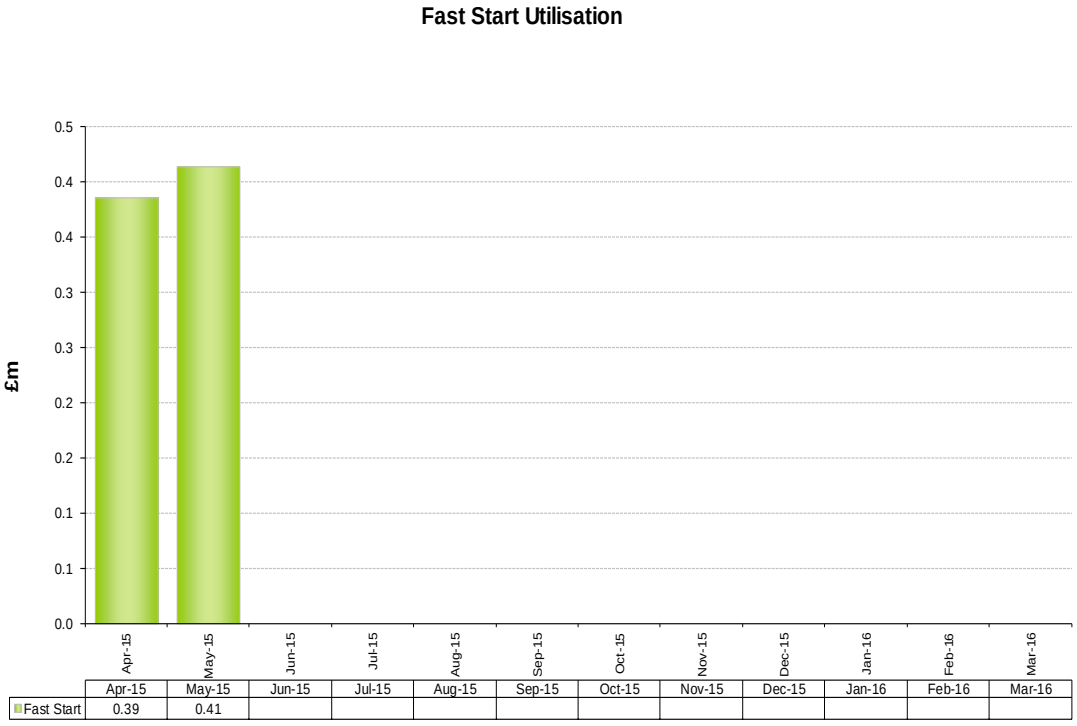
The total amount spent on Commercial Frequency Response holding during the reporting month was **£9.71m**.

Further information on Commercial Frequency is found in the appropriate place on the National Grid Website, 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.

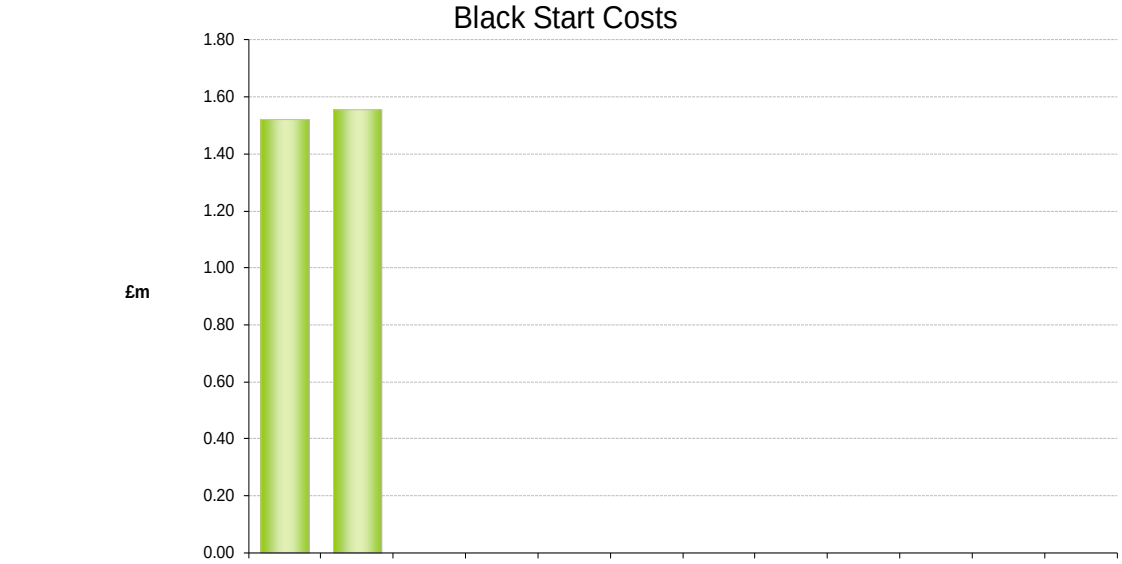
3.3.1 Fast Start Details



The total amount paid during the relevant reporting month for the availability and utilisation of the Fast Start service was **£0.41m.**

3.4 Black Start

During the reporting month there were up to **18** 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 **£1.56m**.

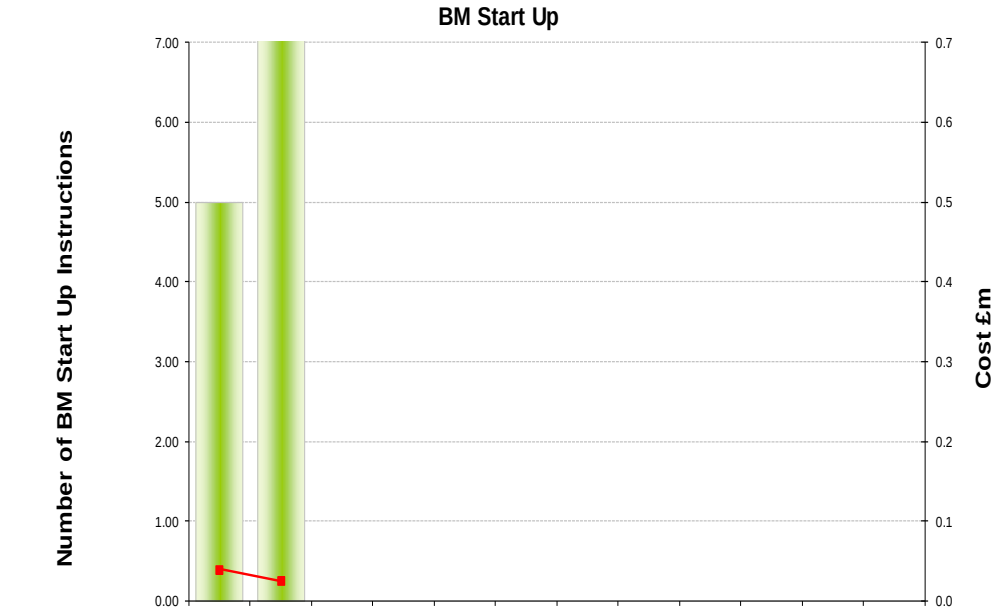


	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Black Start Contract costs (£m)	1.52	1.56										
Other Black Start Costs (£m)	0.00	0.00										

Further information on Black Start can be found on the National Grid Website: http://www2.nationalgrid.com/UK/Services/Balancing-services/System-security/Black-start/

3.5 BM Start up

The chart below contains information relating to the procurement of BM Start Up Balancing Services.

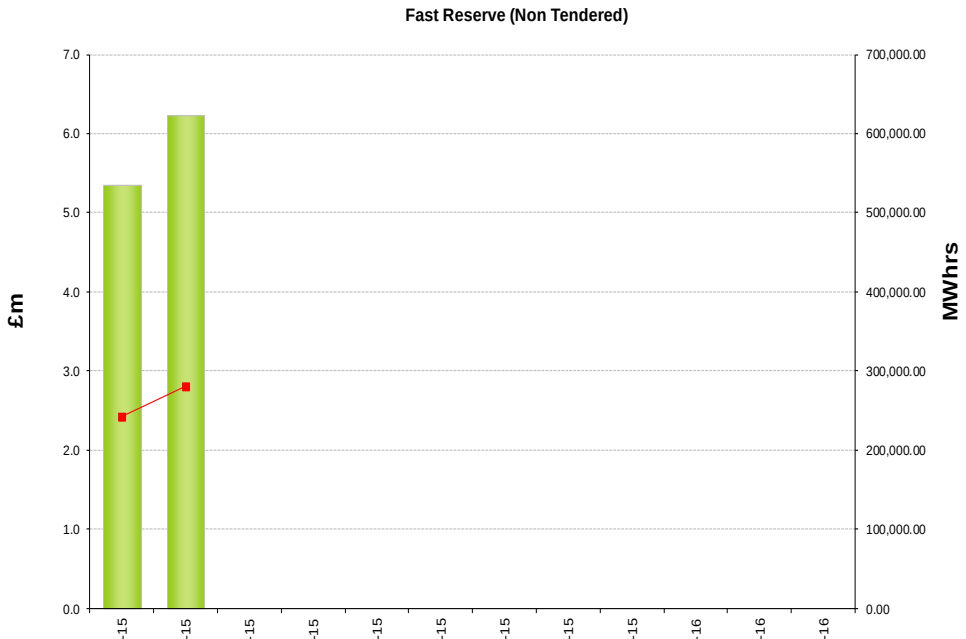


	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
No. of BMSU Instructions	5.00	13.00										
Total Spend £/m	0.04	0.03										

The total amount spent on BM Start Up during the reporting month was **£0.03m.** The total number of BM Start Up instructions was **13**. Further details are available via the National Grid Website:
http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/bm-start-up/

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.



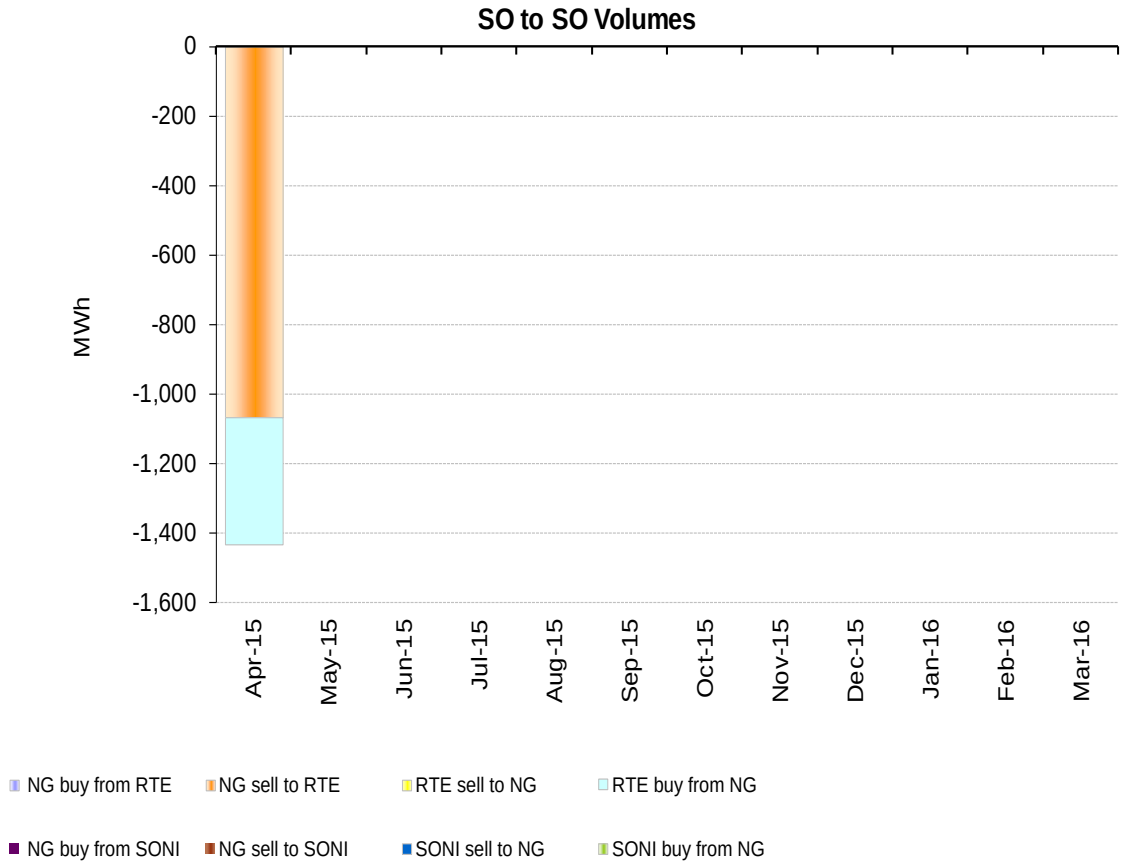
	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Fast Reserve Total Cost in £m	5.36	6.24										
Non Tendered Holding Volume MWh	241,863.	280,755.										

The availability payments during the relevant month totalled **£6.24m**, 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 Northern Ireland.

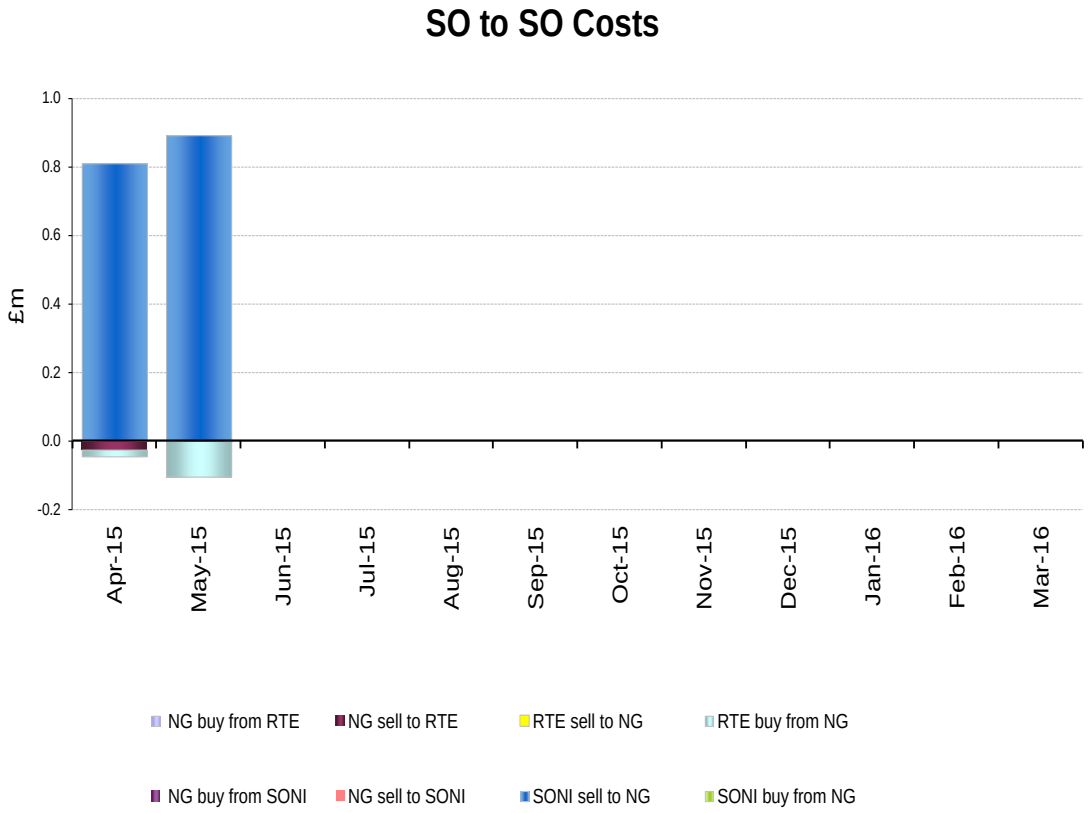
3.7.1 Volumes of System to System Services



The total energy volumes associated with system to system services during the reporting month was **0GWh** export (from GB) and **0GWh** import (to GB).

3.7.2 Expenditure on System to System Services

The following graph shows total net expenditure associated with System to System Services and was **£0.79m.**

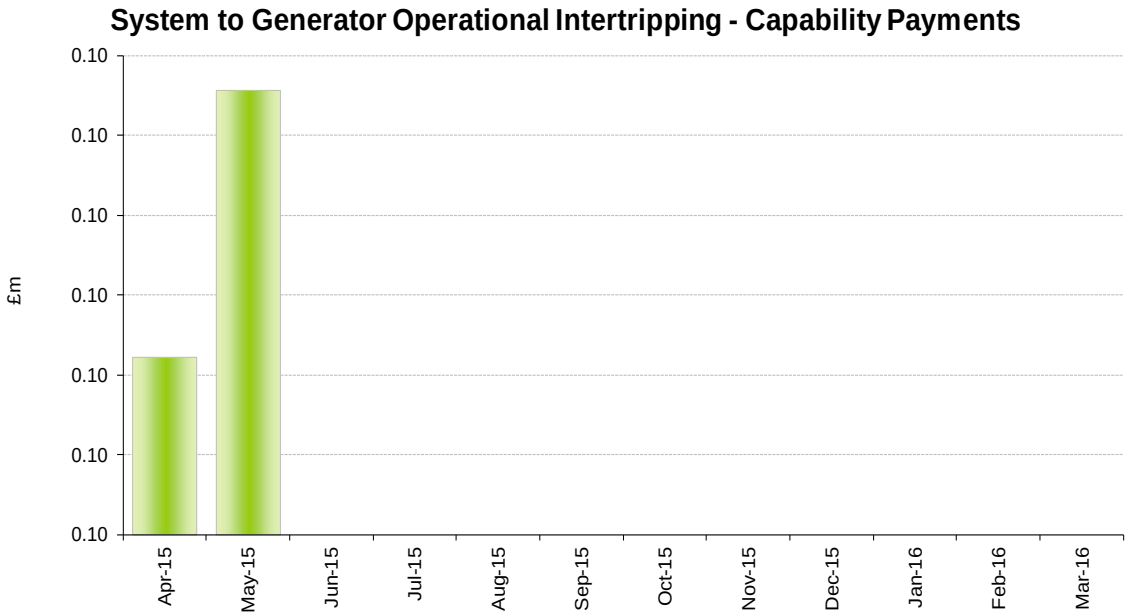


3.8 System to Generator Operational Intertripping Schemes

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 describes 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.

3.8.1 Capability Payments

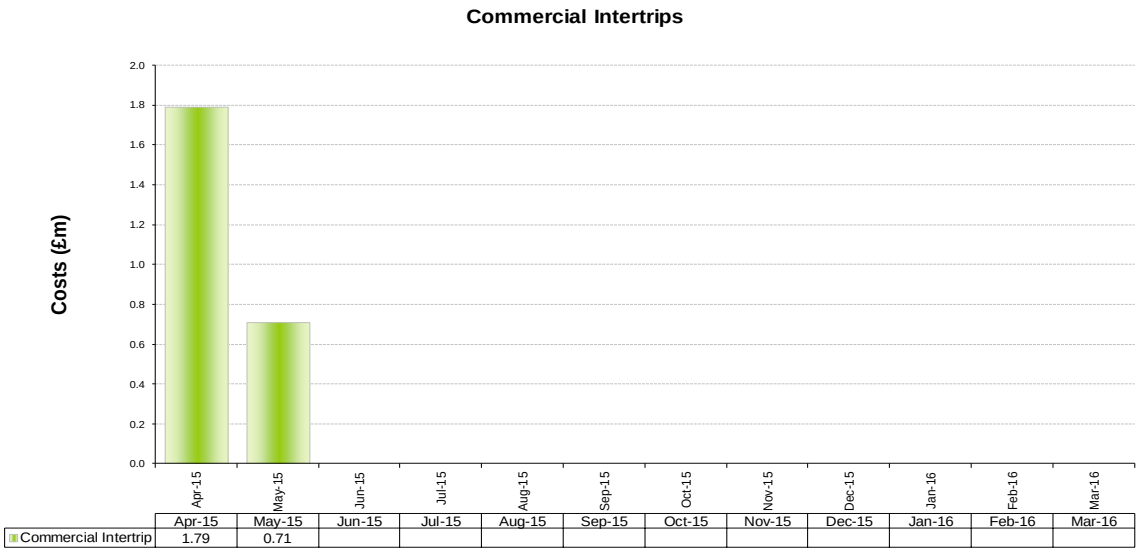


System to Generator Operational Intertripping – Capability Payments in the reporting month totalled **£0.10m.**

3.9 Commercial Intertrip Service

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

3.9.1 Commercial Intertrip Expenditure



Expenditure on Commercial Intertrips was **£0.71m.**

3.9.2 Commercial Intertrip Cost Breakdown

Month	Capability Payment £'s	Arming Payment £'s	Number of Hours of Intertrip Arming, Outside of Pre-Paid Arming Contract(s)	Contracted Pre-paid Arming £'s	Number of Hours Armed under Pre-Paid Arming Contract(s)	Number of Trips	Tripping Payment £'s
Apr-15	17,194	1,776,173	207	0	0	0	0
May-15	17,767	694,464	185	0	0	0	0
Jun-15							
Jul-15							
Aug-15							
Sep-15							
Oct-15							
Nov-15							
Dec-15							
Jan-16							
Feb-16							
Mar-16							

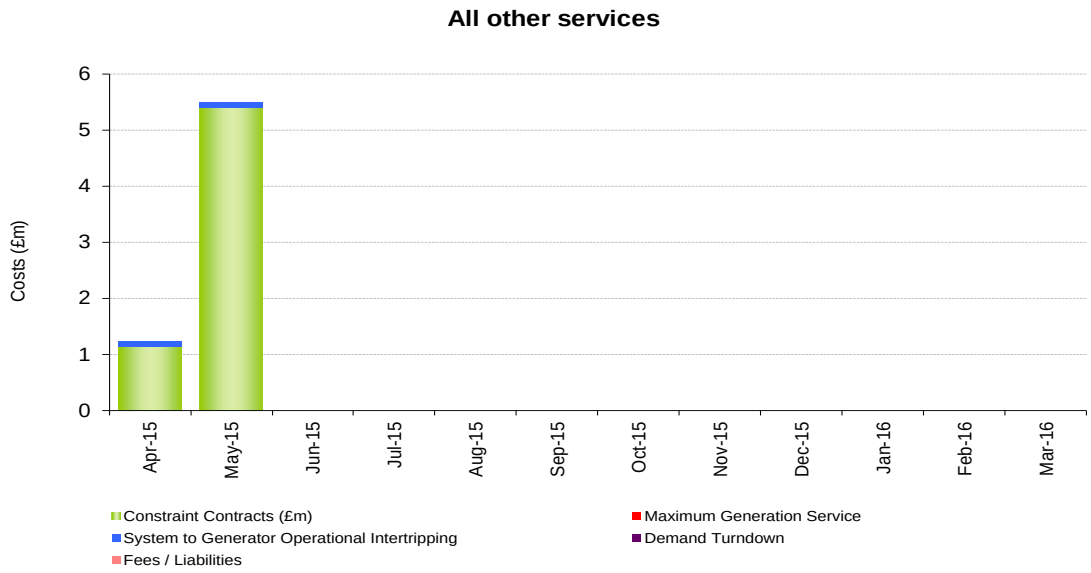
Under commercial intertrip agreements arming is payable either as:

1. A fixed pre-agreed sum, this may be for a fixed number of hours or unlimited hours (shown above as Contracted arming) or;
2. Payable on utilisation with the generator typically having the right to alter their payments with a short notice period (shown above as Arming Payments).
3. NGET have on occasion agreements in place with generators to manage system issues which include the use of a number of hours of

arming on an intertrip. The figure quoted in the "Contracted pre-paid arming" column is the maximum firm payment that could be made assuming the intertrip is available for use for all the Contracted Arming Hrs as quoted in the above table during the contracted period.

3.10 Ancillary Contracts to Manage System Issues

On occasion, National Grid enters into bespoke Ancillary service contracts to manage certain transmission system issues. A number and nature of these contracts is necessarily confidential however where possible National Grid will make the information available via our website. The costs reported here include any costs of 'Transmission Related Agreements', which are entered as a consequence of certain customer choices of connection conditions.



Further details on constraint contracts are available, where possible, via the National Grid Website: http://www2.nationalgrid.com/UK/Services/Balancing-services/System-security/Transmission-Constraint-Management/

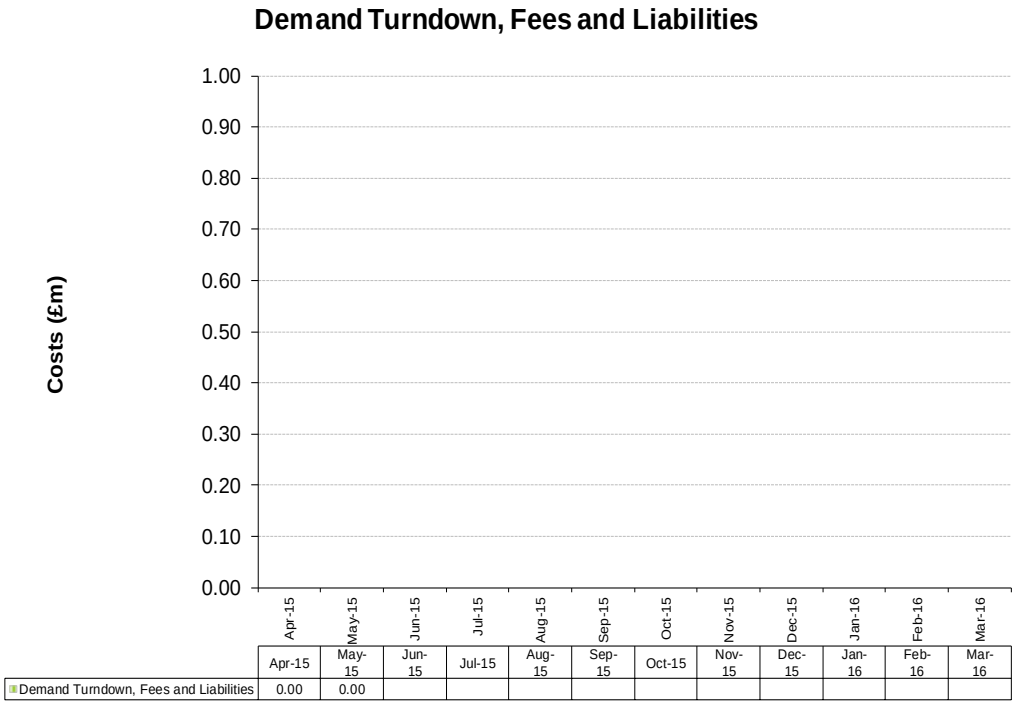
3.11 Maximum Generation Service

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.

3.12 Demand Turndown, Fees and Liabilities

The figure for Demand Turndown, Fees and Liabilities includes bespoke services to manage specific system conditions and costs relating to fees and liabilities.



The total expenditure on Demand Turndown, Fees and Liabilities during the reporting month was **£0.00m**.Please note that these costs are usually one month in arrears.

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 **484,319MWh.**

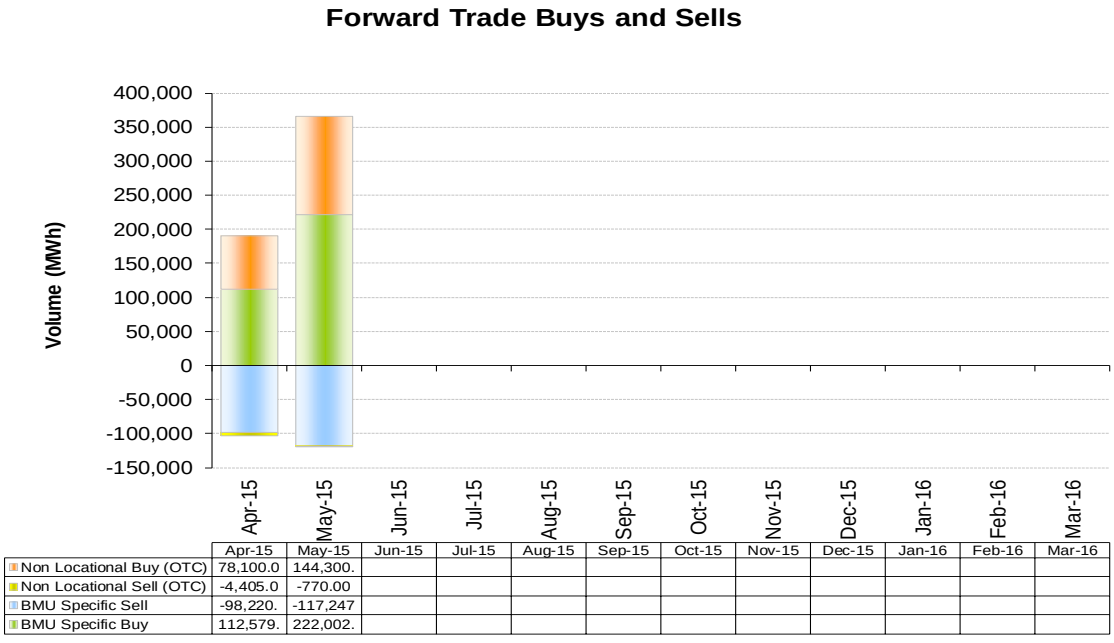
Non Locational	
Buy Volume	**144,300MWh**
Sell Volume	**-770MWh**

BMU Specific	
Buy Volume	**222,002MWh**
Sell Volume	**-117,247MWh**

Total Net Spend **£21.75m**

4.1.1 Volume of Forward Trading Buys and Sells

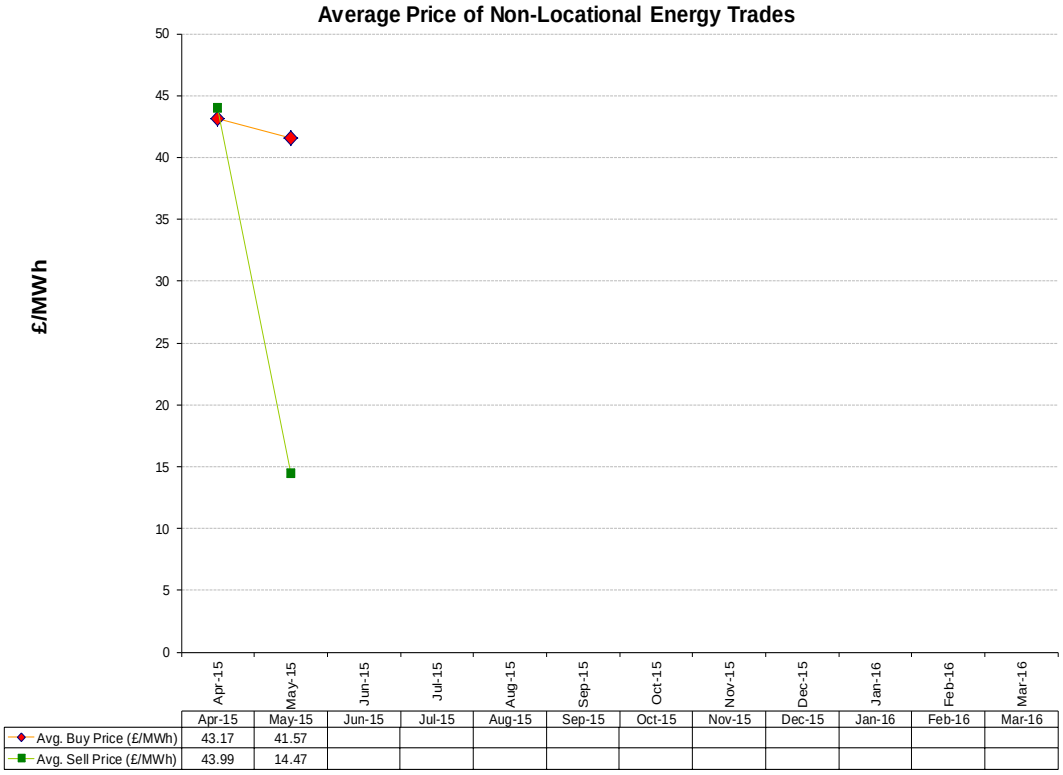
The following chart shows the monthly profile of our trading activities, both for non-locational energy trades and BMU-Specific trades.



	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16
Non Locational Buy (OTC)	78,100.0	144,300.										
Non Locational Sell (OTC)	-4,405.0	-770.00										
BMU Specific Sell	-98,220.	-117,247										
BMU Specific Buy	112,579.	222,002.										

4.1.2 Non-Locational Trading Activity

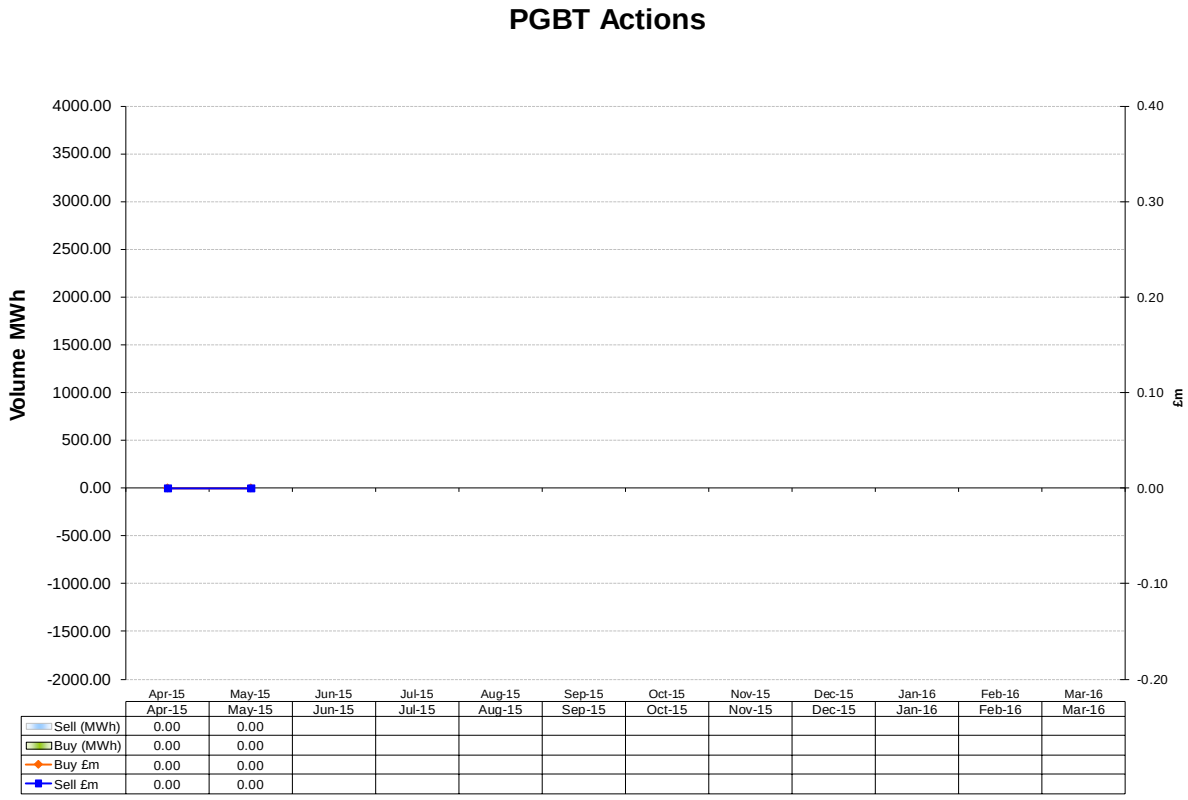
The following graph shows the monthly profile of our non-locational energy trading activity. It comprises all the trades undertaken by National Grid through Power Exchanges and through the use of brokerage houses for that purpose.



Further details are available via the National Grid Website: http://www2.nationalgrid.com/uk/services/balancing-services/trading/.

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 **£0m.**
Details on real time PGBT transactions can be found on the BMRS (system warning page) and post event, on the National Grid Website.

5. Constraints

A constraint is essentially when the energy flow in a certain area of the network is limited by the capacity of the network. When National Grid asks a generator to reduce output (constrain) we still need the electricity it would have produced to keep the network balanced, it's just that we can't move it in or out of a certain area. We manage this by buying energy from the market for another generator elsewhere on the network to increase output and make up the difference essentially. This can equally happen the other way around in that some areas might need more energy to be produced within them and hence there would need to be reductions elsewhere.

If we did not carry out these activities then this could result in damage to equipment or put areas of the system at risk of shutting down completely. National Grid resolves these constraints on the GB Transmission System through different mechanisms, including bids and offers in the Balancing Mechanism, PGBTs, Trades, SO-SO actions and through contracted services. The costs of resolving constraints via intertrip contracts (see section 3.9) and bilateral contracts (see section 3.10) have already been explored.

The total cost of managing transmission constraints in this month was **£42.51m**.

5.1 Constraint management taken in the Balancing Mechanism, via Trades or by SO-SO actions

The total cost of resolving constraints via Balancing Mechanism, Trading and SO-SO actions was **£36.31m**. This total includes part of the costs of SO-SO actions (section 3.7), Trades (section 4.1) and PGBTs (section 4.2) already reported above. This section shows how this figure was calculated.

5.1.1 Summary of costs of constraint actions taken in the Balancing Mechanism, via Trades and SO-SO actions

	Type of Constraint	Location	Date					
	Export			Export summary	Import			Import summary	Grand Summary
	Scotland	Cheviot	England & Wales		Scotland	Cheviot	England & Wales		
Constrained Volume (GWh) [A]	-171.53	-115.90	-99.50	-386.93	6.25	0.00	287.10	293.34	**680.28**
Average Price of Action (£/MWh) [B]	-6.27	-46.98	15.03	-12.99	68.35	0.00	73.60	73.49	**24.30**
Average Energy Replacement Price (£/MWh) [C]	41.61	38.21	40.30	40.25	40.95	0.00	40.76	40.76	**40.47**
Total Direct Cost (£m) [G]=[A*(B-C)]	8.21	9.87	2.51	20.60	0.17	0.00	9.43	9.60	**30.20**
Reserve Replaced (GWh)	262.23	335.25	179.09	776.58	0.31	0.00	5.50	5.81	**782.39**
Volume of Actions Required for Reserve Replacement (GWh) [D]	159.67	195.51	94.69	449.87	0.33	0.00	5.57	5.90	**455.77**
Average Reserve Replacement Price (£/MWh) [E]	62.37	61.16	54.36	103.57	-88.78	0.00	9.12	3.78	**102.83**
Average Energy Reference Price for Reserve Replacement (£/MWh) [F]	41.05	41.01	42.50	71.41	9.14	0.00	39.30	37.11	**71.16**
Total Reserve Cost (£m) [H]=[D*(E-F)]	3.40	3.94	1.12	8.47	-0.03	0.00	-0.17	-0.20	**8.27**
Total Cost (£m) [I]=[G+H]	11.62	13.81	3.64	29.07	0.14	0.00	9.26	9.40	**38.47**
Additional (Transferred) Costs (£m) [J]	0.04	0.03	0.02	0.10	0.01	0.00	-2.26	-2.25	**-2.15**
Total constraint net cost (£m) [I+J]	11.65	13.85	3.66	29.16	0.15	0.00	7.00	7.15	**36.31**

*Please note Constrained Volumes for Import and Export are now shown as positive volumes. The Grand Summary therefore is the absolute constrained volume.

5.1.2 Break down of constraint costs per category

ACTION TYPE	Export	Import	Total
BM Actions	24.42	2.07	26.49
SO-SO Trades	0	0	0
Trades (including PGBT)	4.75	5.07	9.82
Total	29.16	7.15	36.31

5.1.3 Explanatory Notes

Row	Description
Constrained Volume (GWh)	Total volume of bids/offers accepted for BM Units within a constrained zone
Average Price of Action (£MWh)	Volume weighted average prices of bids / offers
Average Energy Replacement Price (£/MWh)	Volume weighted average of the energy reference price(*)
Total Direct Cost (£m)	Constrained Volume x (Average Price of Action - Average Energy Replacement Price)
Reserve Replaced (GWh)	Additional reserve created to replace reserve sterilised behind constraints e.g. capacity of additional units sychronised to the system
Volume of Actions Required for Reserve Replacement (GWh)	Volume of actions required by National Grid to create replacement reserve e.g. offers in the BM to run a unit at SEL thus gaining access to capacity of unit.
Average Reserve Replacement Price (£/MWh)	Volume weighted average of prices of the reserve actions
Average Energy Reference Price for Reserve Replacement (£/MWh)	Volume weighted average of the energy reference price(*) for periods when reserve is replaced
Total Reserve Cost (£m)	Reserve replaced x (Average Reserve Replacement Price - Average Energy Reference Price for Reserve Replacement)
Total Cost (£m)	Total Direct Cost + Total Reserve Cost
Additional (Transferred) Costs (£m)	For some import constraints, actions taken in BM units within the constrained zone may end up being the cheapest option for creating system reserve - in this case all or part of the cost is transferred to the relevant account. In all other circumstances,
Total constraint net cost (£m)	Total Cost + Additional (Transferred) Costs
(*) Energy reference price (£/MWh)	For each settlement period, it is the volume weighted average of the submitted bids/offers available for National Grid to resolve NIV, i.e. the lowest (highest) available price of offers (bids) stacked up to NIV when the market is short (long)

5.2 Breakdown of Constraint Costs by Fuel Type

In mid January 2014 National Grid confirmed we would include a table within this report showing the costs of constraints broken down by fuel type. In the tables below, you will see that there are two columns showing what makes up constraint payments – one shows the costs National Grid has incurred to constrain generation (“Payments to Manage Constraint”) and the other column shows the money National Grid has paid generators to bring the system back into balance, both in terms of energy and to readdress the level of reserve available on the system (“Payments to Rebalance System”).

The majority of our constraint costs in general regard this process – payments for generation to reduce output, and payments to generation to increase output.

However, when managing constraints, National Grid can incur other costs. For example, make use of an intertrip service or bilateral contract to reduce the overall costs to consumers. Because these costs are a consequence of the constraint, these costs are also included in the tables below.

5.2.1 Breakdown of Constraint Costs by Fuel Type (Reporting Month)

May 2015	All Values £m		
Fuel Type	Payments to Manage Constraint	Payments to Rebalance System	Net
COAL	-1.53	4.21	2.68
GAS	4.29	22.39	26.68
INTERCONNECTOR	-0.85	-1.99	-2.84
WIND	9.56	0.01	9.56
OTHER	0.55	1.80	2.35
Total	12.02	26.41	38.43

5.2.2 Breakdown of Constraint Costs by Fuel Type (Year to Date)

FY2015-2016	All Values £m		
Fuel Type	Payments to Manage Constraint	Payments to Rebalance System	Net
COAL	-4.58	3.59	-0.99
GAS	5.55	38.75	44.30
INTERCONNECTOR	-1.50	-2.75	-4.25
WIND	10.56	0.01	10.57
OTHER	2.92	2.32	5.23
Total	12.96	41.92	54.87

Notes:

1. Positive values indicate costs to National Grid, negative values indicate receipts
2. “Other” includes all fuel types not reported separately and includes hydro, OCGT, demand side providers, nuclear & oil.

More detail on the methodology behind this table can be found here:
http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=31695

6. Other Information

6.1 New Wind Generation

No new wind generation was reported in Elexon Settlement Data as having generated more than 2MW in any half hour for the first time during the last month.

6.2 How we manage Wind generation

Energy generated by wind farms varies according to how windy it is. Sometimes there is very little wind, and on other days wind generation could be too strong such that the turbines shut down automatically for their own protection.

In order to balance the system we require backup generation everyday. This covers for power station breakdowns, forecasting errors and for unexpected events. In the past we have seen periods when the level of electricity generated from wind within the UK, Ireland and parts of Northern Europe has been very low. This can coincide with days of peak electricity demand when it's cold and still. The cost of using backup generation is part of the total cost of balancing the system.

Sometimes we ask some wind farms to stop generating, or reduce output, because very high wind may affect the transmission network, causing constraints. Where economic we may also use wind powered units to resolve other system issues such as frequency management or to create flexibility across the GB generation portfolio in the same way as we would use any other type of generation for these services.

6.2.1 Payments to Wind Powered Generation

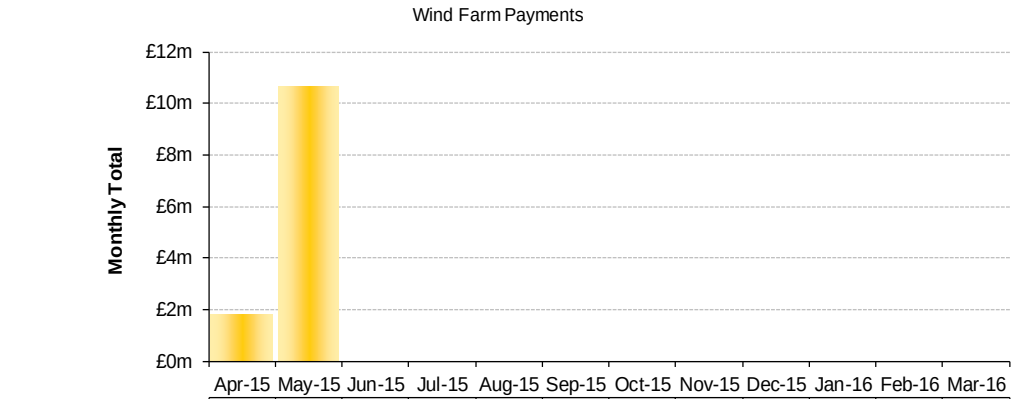
The table below shows the payments made to wind powered generation since the 2010/11 financial year. There were no payments to wind powered generation prior to this. All payments to wind powered generation are included regardless of the reason that this cost was incurred.

£m	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Payments to Wind powered generation	0.2	34.1	7.6	49.7	65.3	12.4

Payments to wind farms in **May 2015** totalled **£10.6m**.

6.2.2 Monthly Breakdown of Wind Farm Payments

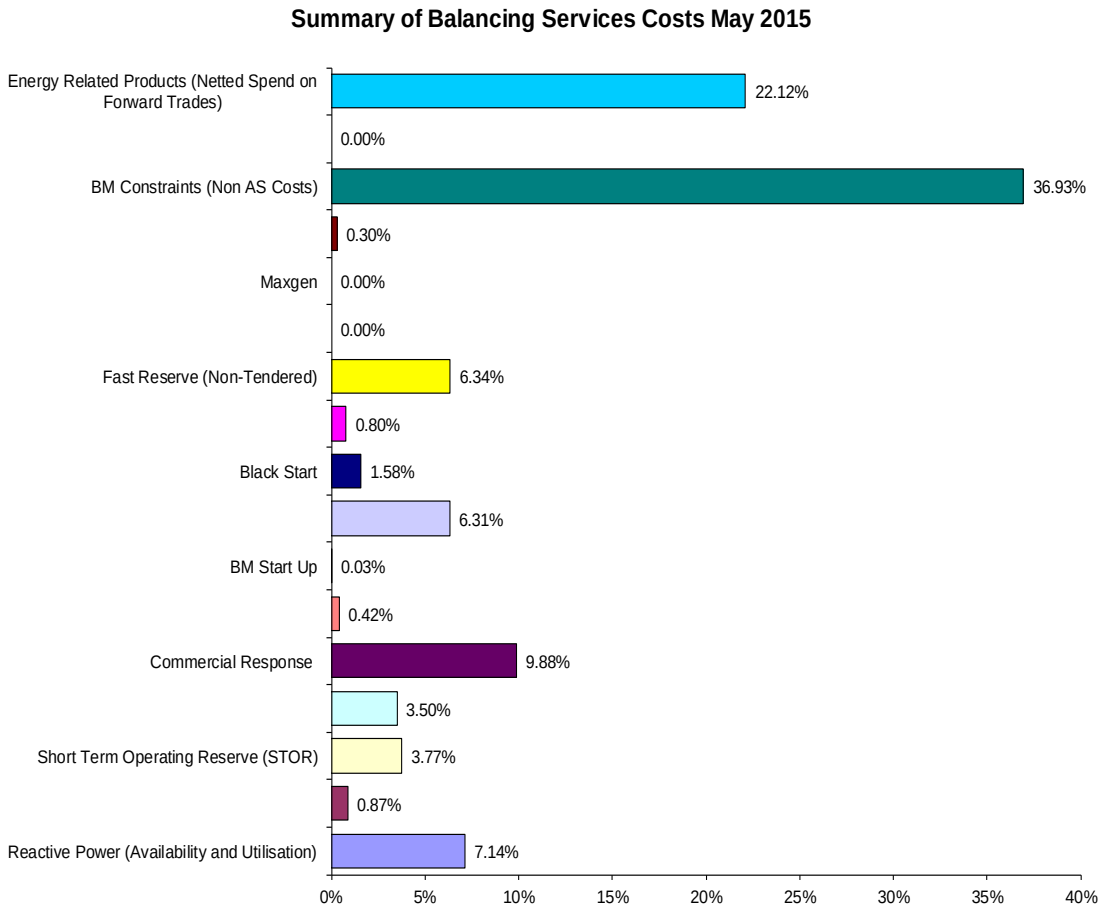
The graph below shows the monthly total payments to wind powered generation this financial year:



	Apr-2015	May-2015	Jun-2015	Jul-2015	Aug-2015	Sep-2015	Oct-2015	Nov-2015	Dec-2015	Jan-2016	Feb-2016	Mar-2016
Wind Farm Payments	£1.8m	£10.6m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m	£0.0m

7. Summary

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



8. 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.
The Procurement Guidelines and Balancing Principles Statement Reports can be accessed via:
http://www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Transmission-License-Condition-C16-Statements/

Electricity Balancing Services
Email: BSIS@nationalgrid.com

9. Information Summary Page

Balancing Services	Info Provision	Total Costs £m	Total Value
Reactive Power Market	Utilisation Volume (MA)		0GVArh
	Utilisation Volume (DefaultPM)		2,678GVArh
	Total Spend (MA)	0.00	
	Total Spend (Default PM)	7.02	
Short Term Operating Reserve(STOR) Including BM and NBM Availability & Utilisation	Average Contracted Availability Payment		£4.07 /MWh
	Average Contracted Utilsation Payment		£100.74 /MWh
	Total Spend	4.01	
	Total Utilisation Volume (MWh)		13,305MWh
Mandatory Frequency Response	Holding Volumes & Prices:		Primary / Sec / High
	Average Volume Held MW		378 211 450
	Average Price £/MWh		2.95 1.86 5.87
	Total Holding Spend	3.09	
	Total Response Energy Payment Spend	0.35	
Commercial Frequency Response	No. Of Contracts		
	Total Spend	9.71	
Fast Start	Total Spend	0.41	
Black Start	Total Spend	1.56	
	Number of Stations		18
BM Start Up	Total Cost of BM Start Up	0.03	
	Number of Instructions		13
Fast Reserve -Tendered	Total Spend on Availability & Utilisation	0.86	
	Capacity		280MW
Fast Reserve Non-Tendered	Total Spend on Availability	6.24	
SO to SO	Volume Imported		0GWh
	Volume Exported		0GWh
	Total Spend	0.79	
System to Generator Operational Intertrips	Capability Payments	0.10	
	Utilisation Payments	0.00	
Commercial Intertrip Service	Total Spend	0.71	
Balancing Services Constraint Contracts	Total Spend	5.39	
BM Constraints Only	Total Spend	36.31	
Transmission Constraints	Total Management Cost	£42.51m	
Maximum Generation Service	Total Spend	0.00	
Demand Turndown, Fees and Liabilities	Total Spend	0.00	
Forward Trading	Traded Gross Volume		484,319MWh
	Net Cost of Forward Trading	21.75	
	OTC - Power Exchange & Energy:		
	Buy Volume		144,300MWh
	Sell Volume		-770MWh
	OTC - BMU Specific:		
	Buy Volume		222,002MWh
	Sell Volume		-117,247MWh
PGBT	No. of PGBT Entered Into:		
	Sourced		0
	Agreed		0
	Average PGBT Prices £/MWh:		
	Buy		0.00
	Sell		0.00
	Volume MWh:		
	Buy		0MWh
	Sell		0MWh
	Total Cost of PGBT	0.00	
Summary (exc. Transmission Constraints)	Total	£98.31m	

The category of Transmission Constraints is listed in the Balancing Services Data. It is a sub total of BM Constraints only, Balancing Services Constraints Contracts, Commercial Intertrip Service and System to Generator Operational Intertrips. This is provided for ease of use. The Summary/Total excludes the Transmission Constraints sub total.

10. Summary of BSIS Costs

10.1 MBSS Year to Date Summary

MBSS costs report absolute costs (volume x price) on services. Costs differences in the table below compared to the summary in Section 9 are directly related to the estimate of the additional costs of obtaining that service above the costs of balancing the system.

2015/16 £m	A. Year to Date Total Cost	B. Year To Date Target	C. Year to Date Latest Cost Forecast	D. Year to Date Initial Target Forecast	E. Projected Total Cost for Year (Cost Outturn + Latest Cost Forecast)	F. Projected Scheme Target Total (Year 1)	G. Initital Forecast for Year
Energy Imbalance	-£12.6	£0.0	-£14.9	-£23.2	-£35.9	£0.0	-£94.0
Operating Reserve	£12.6	£0.0	£9.4	£31.6	£88.9	£0.0	£174.8
BM Startup	£0.1	£0.1	£0.2	£1.0	£2.6	£1.9	£4.8
STOR	£7.1	£0.0	£9.0	£13.5	£61.7	£0.0	£82.8
Constraints - E&W	£21.1	£0.0	£32.4	£111.6	£319.1	£0.0	£610.9
Constraints - Cheviot	£17.1						
Constraints - Scotland	£16.6						
Footroom	£0.5	£0.0	£1.8	£0.7	£9.3	£0.0	£15.6
Fast Reserve	£18.2	£0.0	£21.5	£24.4	£123.7	£0.0	£148.9
Response	£35.2	£0.0	£29.9	£36.7	£181.9	£0.0	£213.4
Reactive	£13.6	£0.0	£14.0	£14.2	£71.8	£0.0	£87.8
Minor Components	£10.8	£3.5	£6.1	£8.1	£45.7	£21.4	£51.8
TOTAL	£140.3	£3.6	£109.4	£218.5	£868.8	£23.2	£1,296.8

Note - Individual cost forecasts of 'England & Wales, Cheviot and Scotland' are not available. Outturn costs remain split by area.

10.2 Latest Projection of Scheme Outturn Cost

Latest Projection of Scheme Outturn Cost	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Total 15/16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Total 16/17	Total
Energy Imbalance	-14.0	1.4	-10.4	-2.5	-6.0	-1.7	-3.3	-0.9	-0.5	0.9	3.8	-2.7	-35.9	-4.2	-9.9	-9.8	-2.4	-5.7	-1.7	-3.1	-0.9	-0.5	0.9	3.6	-2.6	-36.3	-72.2
Operating Reserve	5.9	6.7	3.3	4.1	3.9	5.9	8.5	10.2	10.4	10.6	9.9	9.5	88.9	4.9	4.5	3.3	4.1	3.9	5.9	8.5	10.2	10.4	10.6	9.9	9.5	85.8	174.7
BM Startup	0.0	0.0	0.4	0.4	0.4	0.4	0.2	0.1	0.1	0.2	0.3	0.0	2.6	0.3	0.5	0.4	0.6	0.7	0.6	0.2	0.1	0.1	0.2	0.3	0.0	4.0	6.6
STOR	3.1	4.0	4.4	4.7	5.6	5.5	6.6	5.4	5.2	5.5	4.4	7.3	61.7	4.6	4.8	4.6	4.9	5.8	5.7	6.9	5.6	5.4	5.7	4.6	7.6	66.2	127.9
Constraints - E&W	7.7	9.8																									
Constraints - Cheviot	3.0	14.1	22.8	27.6	34.3	37.8	37.8	24.1	20.3	17.9	19.8	21.8	315.6	12.6	16.5	20.5	24.8	30.8	34.0	33.8	21.3	17.9	15.8	17.5	19.6	265.1	580.7
Constraints - Scotland	4.8	11.8																									
Footroom	0.3	0.1	1.2	1.5	2.0	1.1	1.2	0.6	0.5	0.2	0.2	0.3	9.3	0.8	1.1	1.3	1.6	2.1	1.2	1.3	0.6	0.5	0.2	0.2	0.3	11.2	20.5
Fast Reserve	8.6	9.6	9.3	9.1	9.9	10.7	11.5	11.7	11.9	12.4	8.8	10.2	123.7	11.0	10.5	9.3	9.1	9.9	10.7	11.5	11.7	11.9	12.4	8.8	10.2	127.0	250.7
Response	15.6	19.7	15.0	16.3	16.0	13.2	14.8	13.9	14.6	14.9	12.7	15.3	181.9	15.0	15.9	15.4	16.8	16.5	13.6	15.2	14.3	15.1	15.3	13.0	15.7	181.8	363.7
Reactive	6.7	6.9	7.1	6.3	5.9	5.9	5.4	5.3	6.0	5.9	5.2	5.2	71.8	6.8	7.5	7.3	6.5	6.0	6.0	5.5	5.4	6.1	6.0	5.3	5.3	73.7	145.5
Minor Components	4.5	6.3	2.8	3.4	4.1	3.2	3.0	3.1	3.8	4.2	3.3	3.9	45.7	2.9	3.2	2.8	3.4	4.1	3.2	3.0	3.1	3.8	4.2	3.2	3.9	40.8	86.5
ROCOF (E&W)	0.86	2.6622											3.5														3.5
TOTAL	47.1	93.3	55.9	71.0	76.1	82.0	85.7	73.5	72.3	72.8	68.4	70.8	868.8	54.7	54.6	55.1	69.5	74.1	79.2	82.7	71.4	70.7	71.4	66.4	69.5	819.3	1688.1
Estimated BSUoS Vol (TWh)	41.9	40.4	42.5	43.1	43.0	44.8	50.0	53.0	56.2	57.3	53.2	53.7	578.9	46.7	44.1	42.5	43.1	43.0	44.8	50.0	53.0	56.2	57.3	53.2	53.7	587.5	1166.4
Forecast NGET Profit/(Loss)						-25.0							-25.0						0.0							0.0	-25.0
Estimated Internal BSUoS (£m)	12.2	12.6	12.2	12.6	12.6	12.2	12.6	12.2	12.6	12.6	11.4	12.6	148.0	12.1	12.5	12.1	12.5	12.5	12.1	12.5	12.1	12.5	12.5	11.7	12.5	148.04	296.1
Estimated BSUoS Charge (£/MWh)	1.37	2.57	1.55	1.89	2.01	2.06	1.92	1.58	1.47	1.45	1.46	1.51	1.71	1.43	1.52	1.58	1.90	2.02	2.04	1.91	1.58	1.48	1.46	1.47	1.53	1.65	1.68

Note - Individual cost forecasts of 'England & Wales, Cheviot and Scotland' are not available. Outturn costs remain split by area

10.3 Balancing Service Use of System Charges

The BSUoS forecast makes use of our current models, which were developed for use in the Incentive Scheme. This allows for SO cost and incentives to flow through to a more accurate BSUoS cost estimate. Our forecast takes into account our best view given the current outage plan and reflects trends in costs.

Please note that the internal costs for 2016/16 and 2016/17 align with the amount recoverable under RIIO T1. These values are fixed upfront under the RIIO terms and as such the amount now quoted will be recovered via BSUoS during 2015/16, subject to the annual iteration process described in NGET's Transmission Licence.

Dividing this by our latest forecast of demand, including station demand after reductions for embedded wind generation and PV, multiplied by 2 gives an estimate central BSUoS forecast of **£1.71/MWh.**

The new BSUoS forecast of **£1.71/MWh** represents a **£0.04/MWh** increase from the figure for 2015/16 in last month's report. This change has been predominantly driven by higher than forecast constraint costs during May, in addition to lower energy imbalance receipts which resulted from a shorter system. High solar PV output over the Spring Bank Holiday weekend contributed to low daytime system inertia, which in turn led to higher response costs.

10.4 Detail BSIS Costs

2015-16		Outturn for Month	Target for Month	Latest Cost forecast for month	Initial Target forecast for month	Scheme to Date Total Cost	Scheme to Date Target Forecast	Scheme to Date Initial Target	Projected Total cost for Scheme (Cost Outturn + Latest Cost Forecast)	Projected Total Target for Scheme	Initial Target Forecast for Scheme
Energy Imbalance		**1.4**	**0.0**	**-10.5**	**-8.9**	**-12.6**	**0.0**	**-23.2**	**-72.2**	**0.0**	**-94.0**
	BM	1.4	0.0	-10.5	-8.9	-12.5	0.0	-23.2	-72.1	0.0	-94.0
	Forward Trade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SO-SO	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0
Operating Reserve		**6.7**	**0.0**	**4.5**	**14.7**	**12.6**	**0.0**	**31.6**	**174.7**	**0.0**	**174.8**
	BM	3.8	0.0	4.5	12.4	7.1	0.0	25.8	168.3	0.0	143.4
	Constrained Margin	1.7	0.0	0.0	2.1	3.0	0.0	4.4	3.0	0.0	23.7
	Forward Trade	0.9	0.0	0.0	0.0	1.9	0.0	0.4	1.9	0.0	3.5
	UTUV (Forward Trade)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Forward Constrained Margin	0.3	0.0	0.0	0.1	0.6	0.0	0.1	1.5	0.0	0.8
	SO-SO	0.0	0.0	0.0	0.2	0.0	0.0	0.8	0.0	0.0	3.1
	SO-SO Constrained Margin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	AS Demand Downturn	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS Capacity Contracts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BM Startup		**0.0**	**0.1**	**0.2**	**0.4**	**0.1**	**0.1**	**1.0**	**6.6**	**1.9**	**4.8**
STOR		**4.0**	**0.0**	**4.6**	**7.0**	**7.1**	**0.0**	**13.5**	**127.9**	**0.0**	**82.8**
	Standing Reserve	0.3	0.0	4.6	2.3	0.4	0.0	4.9	121.2	0.0	27.4
	AS - BM Reserve Option Fees	0.6	0.0	0.0	2.6	1.1	0.0	4.5	1.1	0.0	31.2
	AS - NBM Reserve Option Fees	2.2	0.0	0.0	1.6	4.1	0.0	2.7	4.1	0.0	14.4
	AS - NBM Reserve Utilisation	0.9	0.0	0.0	0.5	1.5	0.0	1.4	1.5	0.0	11.0
	AS - Supplemental Standing Reserve	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.2
Constraints		**38.4**				**54.9**					
	BM	26.5				35.5			584.2	0.0	
	Forward Trade	9.8	0.0	18.2	53.2	14.2	0.0	111.6			610.9
	SO-SO	0.0				0.0					
	AS - Intertrip and Constraints	2.1				5.2					
Footroom		**0.1**	**0.0**	**1.1**	**0.5**	**0.5**	**0.0**	**0.7**	**20.5**	**0.0**	**15.6**
	BM	0.1	0.0	1.1	0.5	0.5	0.0	0.7	20.5	0.0	13.4
	Forward Trade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
	SO-SO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fast Reserve		**9.6**	**0.0**	**10.5**	**12.7**	**18.2**	**0.0**	**24.4**	**250.7**	**0.0**	**148.9**
	BM	1.8	0.0	10.5	3.2	3.2	0.0	6.5	235.7	0.0	31.7
	AS - Firm Fast Reserve	0.9	0.0	0.0	1.3	1.7	0.0	2.6	1.7	0.0	20.2
	AS - SpinGen	5.5	0.0	0.0	6.8	10.6	0.0	12.6	10.6	0.0	80.5
	AS - Other Fast Reserve	6.5	0.0	0.0	7.5	12.5	0.0	14.0	12.5	0.0	89.3

2015-16 *{Continued}*		Outturn for Month	Target for Month	Latest Cost forecast for month	Initial Target forecast for month	Scheme to Date Total Cost	Scheme to Date Target Forecast	Scheme to Date Initial Target	Projected Total cost for Scheme (Cost Outturn + Latest Cost Forecast)	Projected Total Target for Scheme	Initial Target Forecast for Scheme
	AS - Fast Start	0.4	0.0	0.0	0.7	0.8	0.0	1.4	0.8	0.0	7.7
Response		**19.7**	**0.0**	**15.4**	**18.1**	**35.2**	**0.0**	**36.7**	**363.7**	**0.0**	**213.4**
	BM	6.8	0.0	15.4	5.7	11.0	0.0	11.5	339.5	0.0	62.9
	AS - Generator Response	3.1	0.0	0.0	5.8	6.6	0.0	12.5	6.6	0.0	68.3
	AS - Demand Side Response	0.3	0.0	0.0	0.6	0.6	0.0	1.0	0.6	0.0	4.5
	AS - Response Energy	0.4	0.0	0.0	0.3	0.7	0.0	0.8	0.7	0.0	3.8
	AS - Other Response	9.0	0.0	0.0	5.7	16.3	0.0	11.0	16.3	0.0	73.8
Reactive		**6.9**	**0.0**	**7.3**	**7.1**	**13.6**	**0.0**	**14.2**	**145.5**	**0.0**	**87.8**
	AS - Default Utilisation	6.9	0.0	7.3	7.0	13.6	0.0	14.1	145.5	0.0	87.0
	AS - Market Agreement Available Capability	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Market Agreement Synchronised Capability	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Market Agreement Utilisation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Sync Comp	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.8
Black Start		**1.5**	**1.8**	**1.9**	**1.8**	**3.0**	**3.5**	**3.5**	**44.1**	**21.4**	**21.4**
	BM+BMSU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Black Start Availbility Contracts	1.5	1.8	1.9	1.8	3.0	3.5	3.5	44.1	21.4	21.4
	AS - Black Start Capital Contributions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Black Start Feasibility Studies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Other Blackstart costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unclassified BM		**4.2**	**0.0**	**1.3**	**1.8**	**6.5**	**0.0**	**3.3**	**41.1**	**0.0**	**22.1**
BM+AS General		**-0.2**	**0.0**	**0.0**	**0.7**	**-0.3**	**0.0**	**1.2**	**-0.3**	**0.0**	**8.3**
	Non Delivery	-0.5	0.0	0.0	0.0	-0.9	0.0	0.0	-0.9	0.0	0.0
	Other Reserve (Unwinding)	0.4	0.0	0.0	0.4	0.7	0.0	0.8	0.7	0.0	4.4
	Ramping	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	SO-SO invoked by external party	-0.1	0.0	0.0	-0.1	-0.1	0.0	-0.5	-0.1	0.0	-0.5
	AS - SO-SO BSUoS	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5
	AS - SO-SO Interconnector	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4
	AS - Trading Option Fees	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	AS - Bank Charges	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Incidentals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Disputes Formally Raised	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	AS - Queries/NGC Identified Issues	0.0	0.0	0.0	0.3	0.0	0.0	0.7	0.0	0.0	3.0
Reconciliation		**0.8**	**0.0**	**0.0**	**0.0**	**1.6**	**0.0**	**0.0**	**1.6**	**0.0**	**0.0**
TOTAL		**93.3**	**1.9**	**54.5**	**109.0**	**140.3**	**3.6**	**218.5**	**1688.1**	**23.2**	**1296.8**

10.5 Volume of BM Actions by Category

		Total for Month	Scheme forecast for Month	Year to Date Total	Year to Date Scheme Forecast	Projected total for year	Scheme Forecast for Year
Energy Imbalance		**-75,306**	**0**	**-533,757**	**0**	**-533,757**	**0**
	BM	-74,111	0	-531,127	0	-531,127	0
	Forward Trade	0	0	0	0	0	0
	SO-SO	-1,195	0	-2,629	0	-2,629	0
Operating Reserve		**618,817**	**0**	**1,043,810**	**0**	**1,043,810**	**0**
	BM	171,290	0	320,003	0	320,003	0
	Constrained Margin	303,227	0	501,046	0	501,046	0
	Forward Trade	68,900	0	129,946	0	129,946	0
	UTUV (Forward Trade)	0	0	0	0	0	0
	Forward Constrained Margin	75,400	0	92,815	0	92,815	0
	SO-SO	0	0	0	0	0	0
	SO-SO Constrained Margin	0	0	0	0	0	0
Absolute STOR		**2,797**	**0**	**4,157**	**0**	**4,157**	**0**
	Standing Reserve	2,797	0	4,157	0	4,157	0
Constraints by Area		**0**	**N/A**	**410,763**	**N/A**	**410,763**	**N/A**
	E&W	0		234,135		234,135	
	Cheviot	0		17,237		17,237	
	Scotland	0		159,392		159,392	
Constraint Margin Replacement		**0**	**N/A**	**426,191**	**N/A**	**426,191**	**N/A**
	E&W	0		93,451		93,451	
	Cheviot	0		130,684		130,684	
	Scotland	0		202,056		202,056	
Footroom		**-11,237**	**0**	**-31,220**	**0**	**-31,220**	**0**
	BM	-8,911	0	-23,490	0	-23,490	0
	Forward Trade	-2,300	0	-6,636	0	-6,636	0
	SO-SO	-27	0	-1,094	0	-1,094	0
Fast Reserve		**11,243**	**0**	**18,771**	**0**	**18,771**	**0**
	BM	11,243	0	18,771	0	18,771	0
Absolute Response		**306,287**	**0**	**757,478**	**0**	**757,478**	**0**
	BM	306,287	0	757,478	0	757,478	0
Unclassified BM	**Unclassified BM**	**-357,170**	**0**	**-761,148**	**0**	**-761,148**	**0**
BM General		**2,971**	**0**	**4,473**	**0**	**4,473**	**0**
	Non Delivery	0	0	0	0	0	0
	Other Reserve (Unwinding)	4,161	0	6,030	0	6,030	0
	Ramping	0	0	0	0	0	0
	SO-SO invoked by external party	-1,190	0	-1,557	0	-1,557	0
Transmission Losses	**Transmission Losses**	**410,334**	**0**	**862,655**	**0**	**862,655**	**0**
Theoretical Cost of Transmission Losses if purchased on wholesale market @ £40.96/MWh		**£16.8m**		**£353m**		**£353m**	**£0.0m**

11. Glossary of Terms used in BSIS Tables

NIA		The Net Imbalance Adjustment
Energy Imbalance		
	BM	Offers and bids taken in the BM to manage the difference between generation supplied to the BM and system demand
	Forward Trade	Trades undertaken ahead of gate closure to reduce the forecast difference between generation to be supplied to the BM and system demand
	SO-SO	Interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure to reduce the forecast difference between generation to be supplied to the BM and system demand
Operating Reserve		
	BM	Offers and bids taken in the BM to establish headroom on BMUs
	Constrained Margin	Offers and bids taken in the BM which both create additional reserve and replace pre-existing headroom that is sterilised behind a constraint boundary
	Forward Trade	Trades undertaken ahead of gate closure to establish additional headroom on BMUs
	UTEV (Forward Trade)	UnTagged Energy Volume is non-locational energy trade volume traded to help meet the forecast energy imbalance.
	Forward Constrained Margin	Trades undertaken ahead of gate closure which both create additional reserve and replace pre-existing headroom that is sterilised behind a constraint boundary
	SO-SO	Interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure to establish additional headroom on BMUs
	SO-SO Constrained Margin	Interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure which both create additional reserve and replace pre-existing headroom that is sterilised behind a constraint boundary
	AS Demand Downturn	Ancillary services that enable demand to turndown relative to synchronised generation which, when pulled back to maintain energy balance, creates additional headroom
	AS Capacity Contracts	Ancillary services that provide additional generation capacity for headroom
BM Startup		Optional service that allows BMUs to be warmed ready to

		synchronise in BM timescales and held in a state of hot-standby if required
STOR		
	Standing Reserve	Offers and bids taken in the BM to run STOR BMUs
	AS - BM Reserve Option Fees	Ancillary service availability fees for STOR BMUs
	AS - NBM Reserve Option Fees	Ancillary service availability fees for non-BM STOR providers
	AS - NBM Reserve Utilisation	Ancillary service utilisation fees for non-BM STOR providers
	AS - Supplemental Standing Reserve	Ancillary service fees associated with supplemental standing reserve
Constraints		
	BM	Offers and bids taken in the BM to resolve constraints
	Forward Trade	Trades undertaken ahead of gate closure to resolve constraints
	SO-SO	Interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure to resolve constraints
	AS - Intertrip and constraints	Ancillary services which provide operational intertrips, commercial intertrips and bespoke contracts to manage constraints
Footroom		
	BM	Offers and bids taken in the BM to establish negative regulating reserve capability (for example by desynchronising a BMU operating at SEL and increasing output on another BMU)
	Forward Trade	Trades undertaken ahead of gate closure to establish footroom
	SO-SO	Interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure to establish footroom
Fast Reserve		
	BM	Offers and bids taken in the BM to run fast reserve BMUs
	AS - Firm Fast Reserve	Ancillary service availability fees associated with fast reserve contracts
	AS - SpinGen	Ancillary service fees associated with spingen fast reserve
	AS - Other Fast Reserve	Ancillary service fees associated with non-BM fast reserve units
	AS - Fast Start	Ancillary service fees associated with OCGT fast start
Response		
	BM	Offers and bids taken in the BM to position BMUs to be able to provide frequency response
	AS - Generator Response	Ancillary service payments for frequency response capability on generation BMUs
	AS - Demand Side Response	Ancillary service payments for frequency response capability from demand side service providers
	AS - Response	Ancillary service payments for the energy delivered when

	Energy	providing frequency response
	AS - Other Response	Ancillary service payments for firm response, and firm response energy, including part loaded response.
Reactive		
	AS - Default Utilisation	Ancillary service payments for metered reactive power provided under the Default Payment Arrangements
	AS - Market Agreement Available Capability	Ancillary service payments for the available capability to provide reactive power pursuant to a market agreement
	AS - Market Agreement Synchronised Capability	Ancillary service payments for the synchronised capability to provide reactive power pursuant to a market agreement
	AS - Market Agreement Utilisation	Ancillary service payments for metered reactive power provided pursuant to a market agreement
	AS - Sync Comp	Ancillary service payments for provision of synchronous compensation
Unclassified BM		Actions not satisfying the specific criteria of any other category
BM+AS General		
	Non Delivery	Correction for failure to delivery energy as contracted.
	Other Reserve (Unwinding)	Costs associated with reversing a previously agreed BOA.
	Ramping	Costs associated with managing changes on the interconnectors to limit rate of change of transfer to the technically achievable ramp rates
	SO-SO invoked by external party	SO-SO trades over an interconnector instigated at the request of the other system operator connected to the interconnector
	AS - SO-SO BSUoS	BSUoS charges associated with interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure
	AS - SO-SO Interconnector	Interconnector fees associated with interconnector actions entered into between the system operators of the interconnected transmission systems following interconnector gate closure
	AS - Trading Option Fees	Energy trading broker fees
	AS - Bank Charges	Interest costs in respect of disputes
	AS - Incidentals	Exchange rate adjustments
	AS - Disputes Formally Raised	Disputes raised on AS payments
	AS - Queries/NGC Identified Issues	Forecast cost of unsigned contracts/disputes not yet formally raised

DSBR	Demand Side Balancing Reserve	DSBR is targeted at large energy users willing to reduce their demand during winter weekday evenings between 4pm and 8pm in return for a payment. The service covers the period 1st November 2014 – 28th February 2015.
SBR	Supplemental Balancing Reserve	SBR is targeted at contracting for reserves from generating plant that would otherwise be closed or mothballed. Plant would need to be available on winter weekdays between 6am and 8pm. All providers must be capable of providing the SBR contracted output within BM Timescales. The service covers the period 1st November 2014 – 28th February 2015.