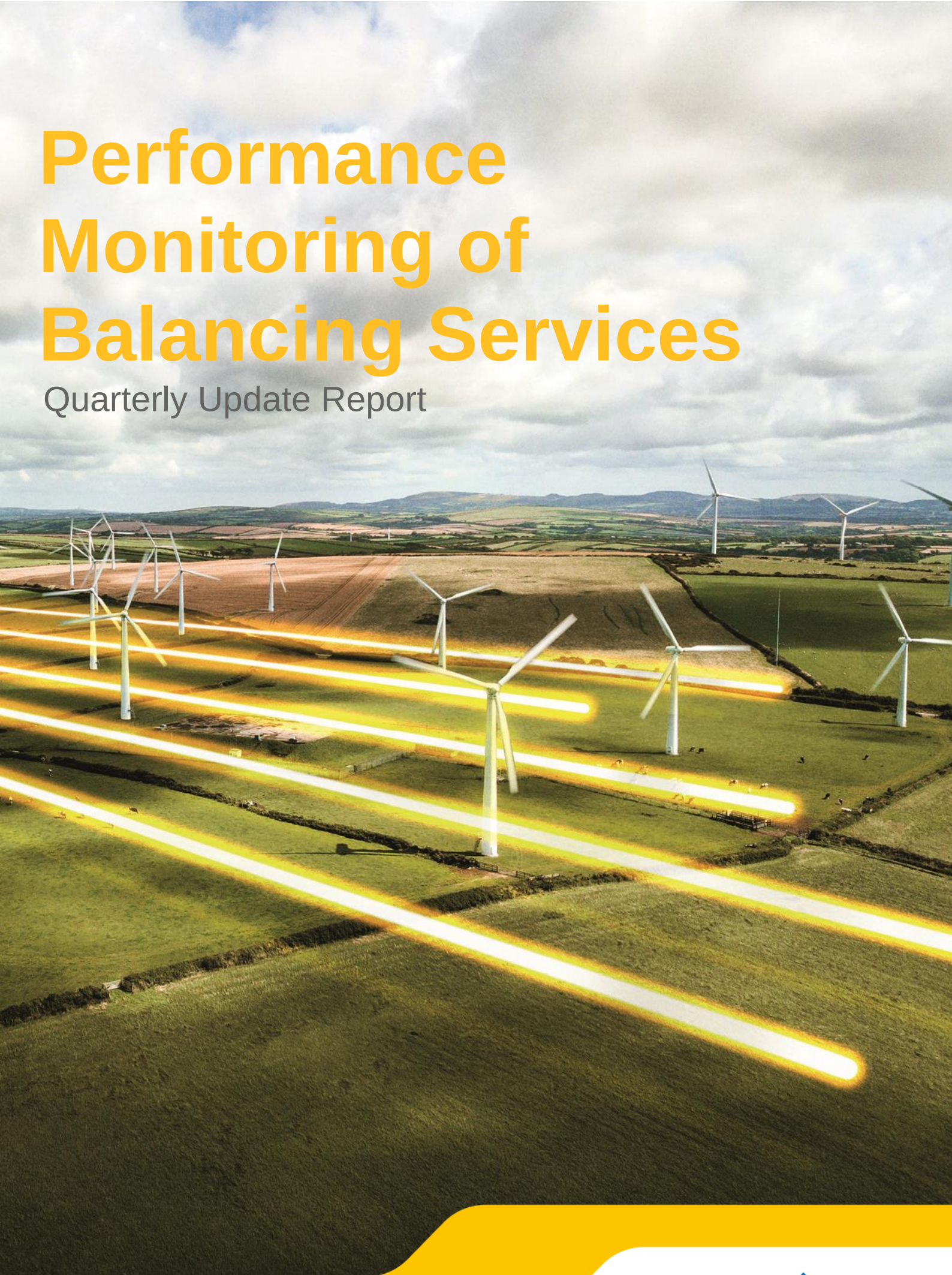
Performance Monitoring of Balancing Services

Quarterly Update Report



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Contents

Introduction

Our Roadmap for Enhancements to Performance Monitoring of Balancing Services provides the industry with details on the actions we are taking to provide greater transparency over how we proactively monitor and manage performance of balancing services. Within the roadmap, we have committed to producing quarterly reports which will provide regular updates on the performance of our balancing services. By sharing data on performance, we hope to provide greater transparency around the performance of the contracts that we award.

We welcome feedback on this report. Should you have any questions or comments, please do not hesitate to contact us at commercial.operation@nationalgrideso.com

What's in this report

This quarterly report covers the twelve-month period from April 2022 to March 2023 for Fast Reserve (FR), Short Term Operating Reserve (STOR), Enhanced Frequency Response (EFR), Firm Frequency Response (FFR), Dynamic Containment (DC), Dynamic Moderation (DM), Dynamic Regulation (DR) and Electricity System Restoration (ESR). Our ambition is to continue to expand the coverage to other services that we procure and include this in future publications.

Short Term Operating Reserve (STOR)

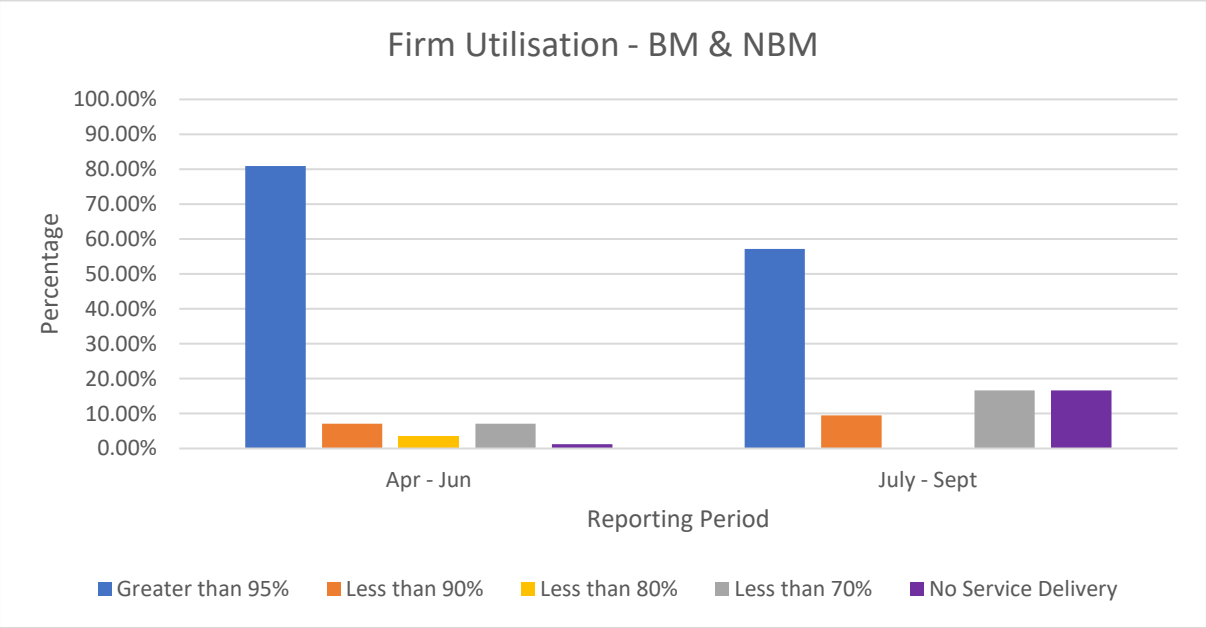
Service overview	STOR allows us to have extra power in reserve for when we need it. It helps us meet extra demand at certain times of the day or if there's an unexpected drop in generation. We award firm STOR contracts via the daily auctions where we procure for the next STOR service day across six annual seasons. Non-Balancing Mechanism (NBM) providers can also offer their assets (where eligible) on the day via the Optional STOR service.
What we pay providers	Availability payments – Paid (£/MW/Hr) for the hours in which the committed firm service has been made available. This paid as 'pay as clear' through the daily auction. Utilisation payments – Applicable to firm and Optional service. Paid £/MWh for the energy delivered.

Availability Windows

Statistics for STOR Availability *DATA NOT AVAILABLE AT TIME OF PUBLICATION – AN UPDATE WILL BE ISSUED ONCE DATA IS AVAILABLE

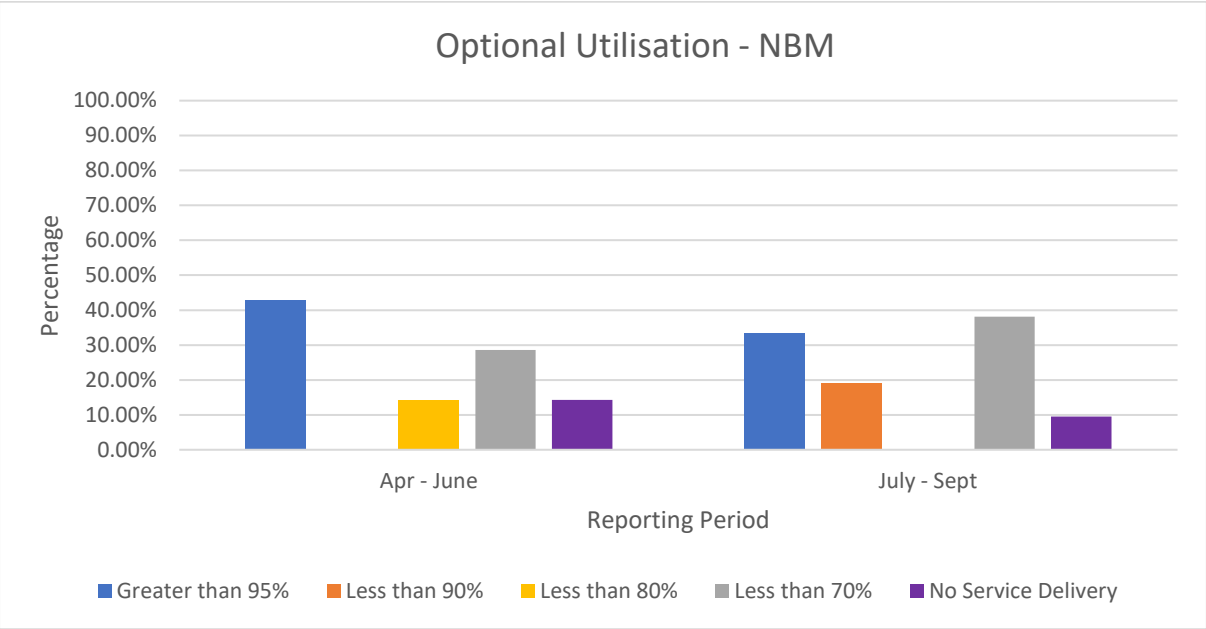
Month	Apr - Jun 22	Jul – Sep 22	Oct – Dec 22	Jan – Mar 23
Number of Units	150	96	*	*
Settlement Periods (SP)	147,637	79,116	*	*
SP where units available	135,518	66,889	*	*
SP where units unavailable/rejected	12,119	12,227	*	*
% Available	92	85	*	*
Total of availability payments withheld (£/K)	624	1,475	*	*

Utilisation – Firm STOR Service – BM & NBM



Month	Apr - Jun 22	Jul – Sep 22	Oct – Dec 22	Jan – Mar 23
Total Dispatch Instructions	168	42	*	*
Number of instructions delivered under 95%	32	18	*	*
Total of utilisation payments withheld (£/K)	22	198	*	*

Optional STOR Service – NBM



Month	Apr – Jun 22	Jul – Sep 22	Oct – Dec 22	Jan – Mar 23
Total Dispatch Instructions	7	21	*	*
Number of instructions delivered under 95%	4	14	*	*
Total of utilisation payments withheld (£/K)	12	614	*	*

Fast Reserve (Optional Service)

Service overview	Fast Reserve provides the rapid and reliable delivery of active power through an increased output from generation or a reduction in consumption from demand sources, following receipt of a dispatch instruction from the ESO. Optional Fast Reserve is contracted on the day, by instruction from the ESO for a Fast Reserve Unit to be available for instruction under the Optional service.
What we pay providers	Availability payments in £/hours – paid for a unit to be available to supply Fast Reserve Utilisation payments in £/MWh – paid for the energy delivered under the service

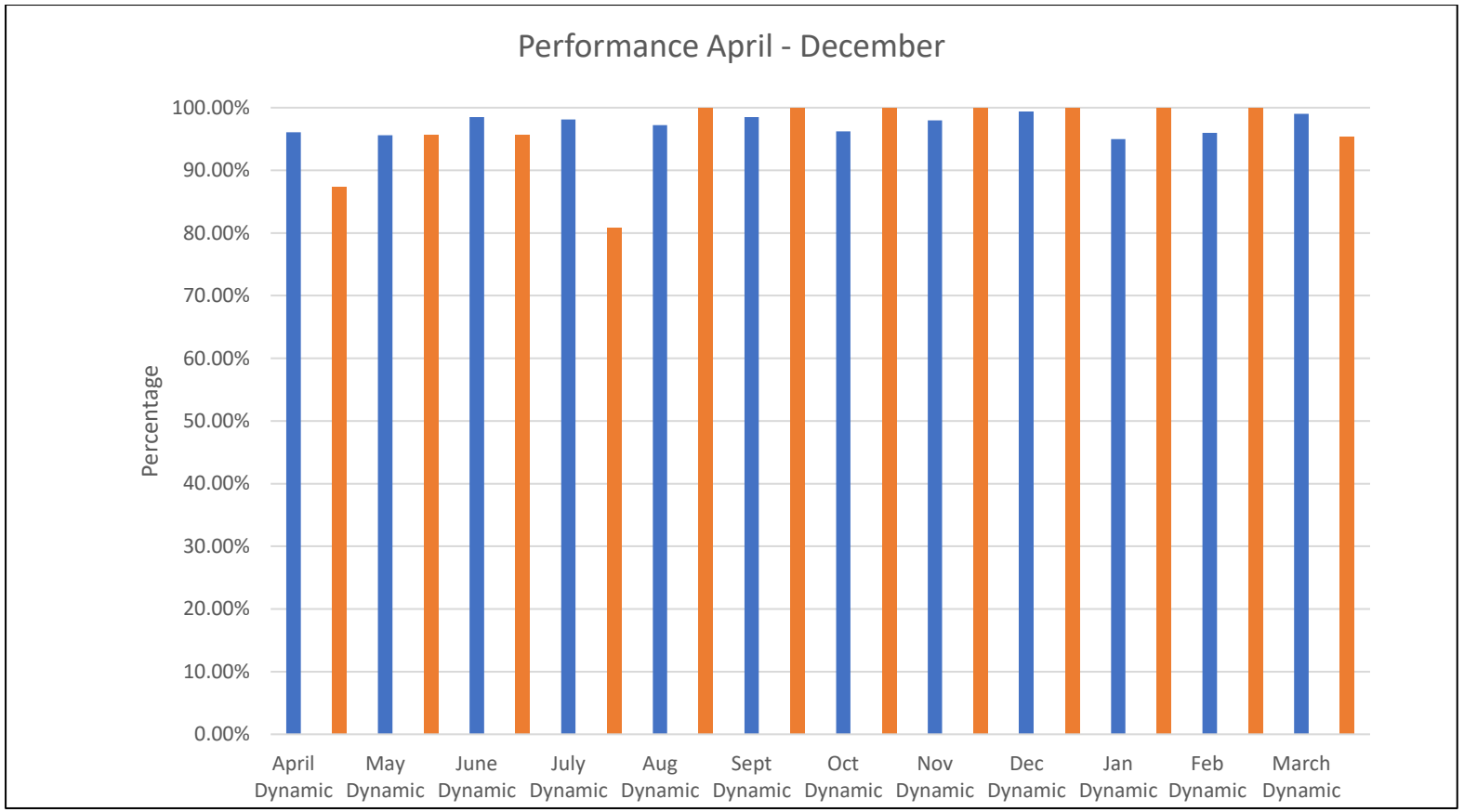
Utilisation performance

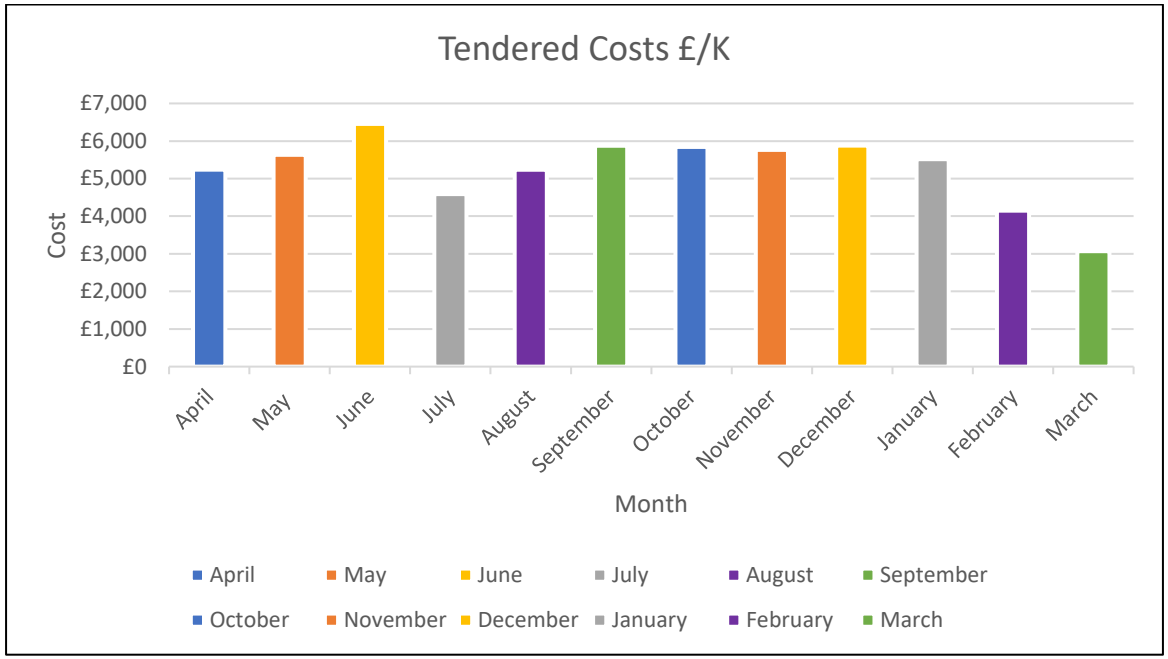
Measure	Apr - Jun 22	Jul – Sep 22	Oct – Dec 22	Jan – Mar 23
Number of dispatch utilisation instructions	2209	2946	2216	2124
Number of Units	8	8	8	8
Expected Delivery MWh	84,002	107,224	71,748	59,297
Under-delivered MWh	8,941	26,373	10,148	8,482
% Delivery	89.36	75.40	85.86	85.69
Utilisation Payments Withheld (£/K)	1,954	10,469	2,912	1,841

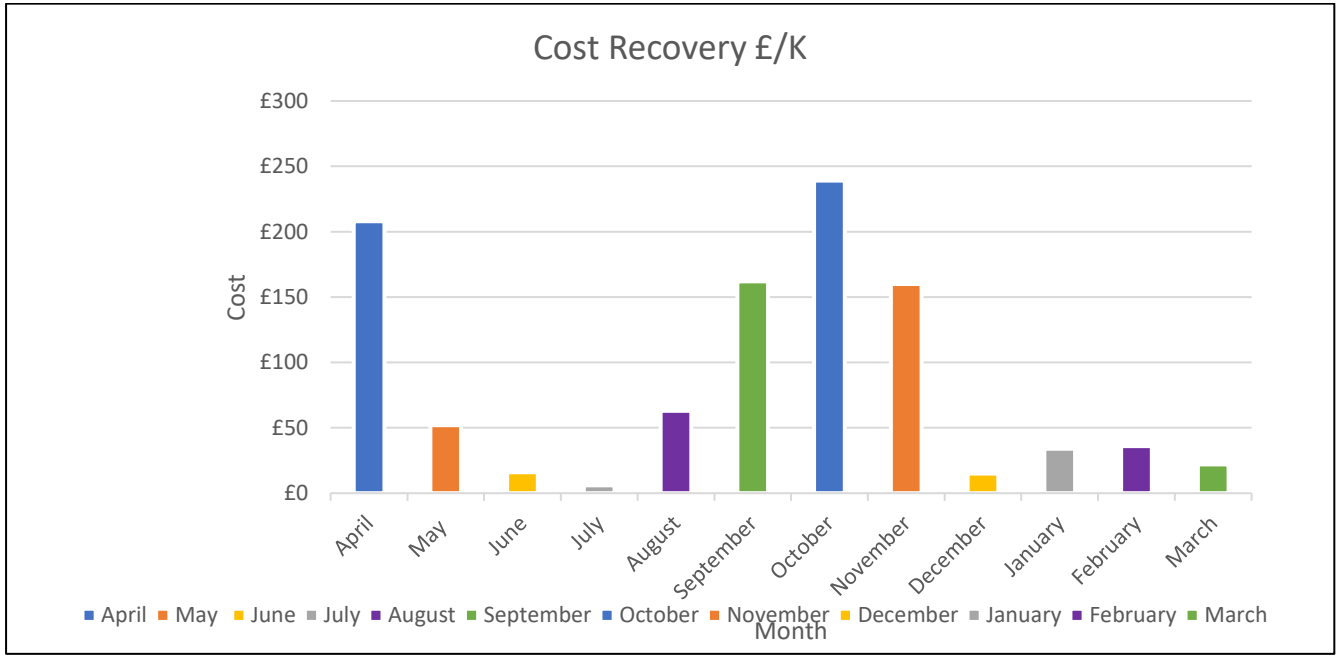
Firm Frequency Response (FFR)

Service overview	Firm Frequency Response is a service we use to keep the system frequency close to 50Hz. Fast acting generation and demand services are held in readiness to manage any fluctuation in the system frequency, which could be caused by a sudden loss of generation or demand. There are three types of frequency response known as “primary”, “secondary” and “high”. The difference between primary and secondary is the speed at which they act to recover the system frequency. Both primary and secondary react to low frequency conditions, and high response reacts to high system frequency conditions, restoring the frequency to normal operational limits
What we pay providers	FFR service is paid an availability fee on a £/Hr basis to providers for the MW and hours in which the firm service has been Contracted through the monthly tender. There is no utilisation payment for the FFR service.

Month	**Apr-22**	**May-22**	**Jun-22**	**Jul-22**	**Aug-22**	**Sep-22**	**Oct-22**	**Nov-22**	**Dec-22**	**Jan-23**	**Feb-23**	**Mar-23**
Contracted Units	71	64	69	75	66	70	94	95	99	73	71	50
Availability Payments £/K	5234	5633	6455	4588	5236	5874	5846	5764	5878	5517	3298	3070
Average performance for delivery %	96.1	95.6	98.5	89.5	98.6	99.2	96.2	98.1	99.4	98	98	97
Approx. amount to be recovered (£/K)	208	52	16	6	63	162	164	160	16	34	36	22


Performance April - December
Percentage
100.00%
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
April Dynamic
May Dynamic
June Dynamic
July Dynamic
Aug Dynamic
Sept Dynamic
Oct Dynamic
Nov Dynamic
Dec Dynamic
Jan Dynamic
Feb Dynamic
March Dynamic


Tendered Costs £/K
£7,000
£6,000
£5,000
£4,000
£3,000
£2,000
£1,000
£0
Cost
April
May
June
July
August
September
October
November
December
January
February
March
Month
April
May
June
July
August
September
October
November
December
January
February
March


Cost Recovery £/K
£300
£250
£200
£150
£100
£50
£0
Cost
April
May
June
July
August
September
October
November
December
January
February
March
Month

Enhanced Frequency Response (EFR)

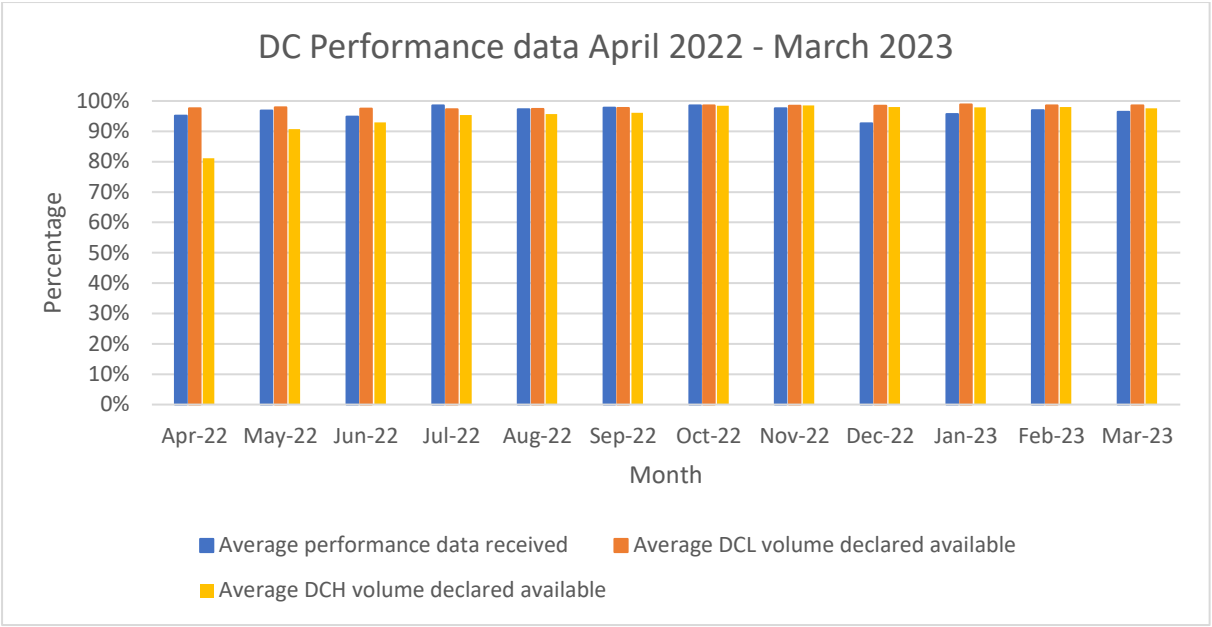
Service overview	Enhanced Frequency Response is a service we use to keep the system frequency close to 50Hz. EFR is a Faster acting generation and demand service than FFR and like FFR is held in readiness to manage any fluctuations in the system frequency, which could be caused by a sudden loss of generation or demand.
What we pay providers	EFR service is paid availability on a £/Hr basis to providers for the MW in which they have been contracted to provide. There is no utilisation payment for the EFR service.

During this reporting period the Enhanced Frequency Response service stopped being procured as the tendered EFR contracts have come to an end. Going forward there is one remaining trial agreement which will continue to deliver in line with the contractual terms.

Dynamic Containment (DC)

Service overview	Dynamic Containment is designed to operate post-fault, i.e. for deployment after a significant frequency deviation in order to meet our need for faster-acting frequency response. As we progress towards net-zero by 2050, we are seeing increasing amounts of renewable generation being used to meet electricity demand. However as renewable generation is more variable than traditional generation, such as coal and gas, we need faster acting frequency response products to help us maintain the frequency at 50Hz.
What we pay providers	Dynamic containment is paid via a £/MW/h availability fee for the service. As delivery is reflective of current frequency conditions parties are contracted for set periods for which they are remunerated, should the contracted volumes be delivered in accordance with the service specification.

Month	**Apr-22**	**May-22**	**Jun-22**	**Jul-22**	**Aug-22**	**Sep-22**	**Oct-22**	**Nov-22**	**Dec-22**	**Jan-23**	**Feb-23**	**Mar-23**
No. events DC activated	8	5	2	3	0	1	3	3	4	0	0	1
Average performance data received	95.2%	96.8%	94.8%	98.5%	97.3%	97.8%	98.50%	97.60%	92.60%	95.70%	96.90%	96.40%
Average DCL volume declared available	97.6%	97.9%	97.5%	97.3%	97.4%	97.7%	98.50%	98.40%	98.40%	98.90%	98.50%	98.50%
Average DCH volume declared available	81.1%	90.7%	92.9%	95.4%	95.7%	96.1%	98.40%	98.50%	98.00%	97.90%	98.00%	97.60%
Approx. amount to be recovered DCH (£/K)	435	258	233	153	175	243	77	145	194	93	55	272
Approx. amount to be recovered DCL (£/K)	770	581	163	1630	1060	797	594	357	325	147	129	136

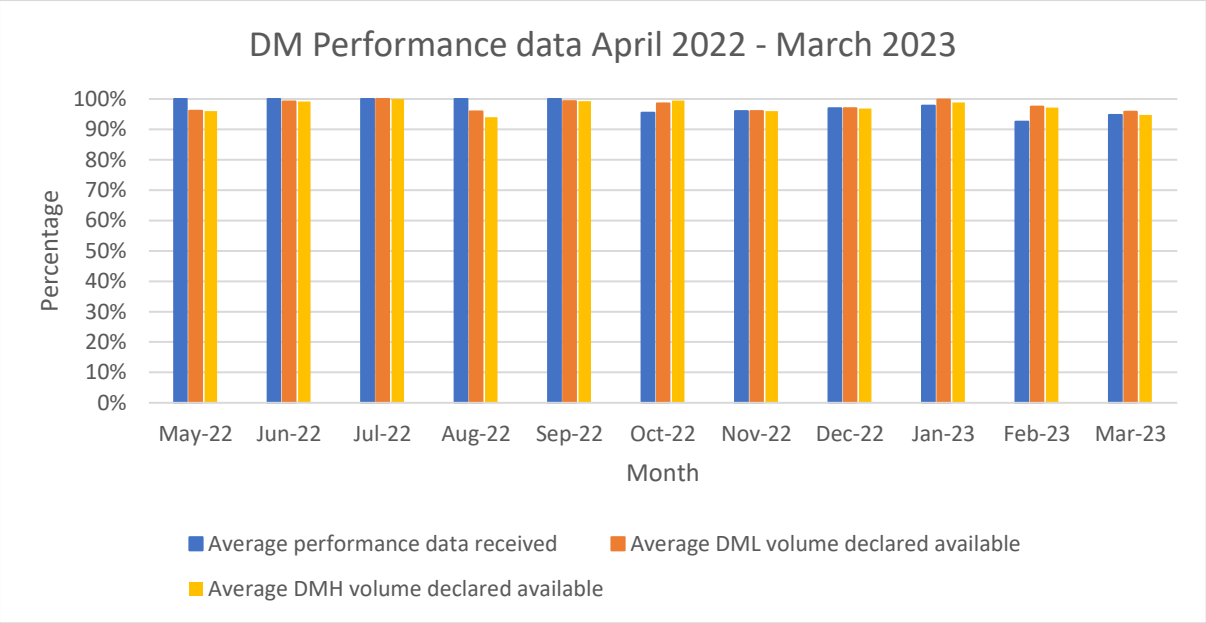

DC Performance data April 2022 - March 2023
Percentage
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Month
Average performance data received
Average DCL volume declared available
Average DCH volume declared available

Dynamic Moderation (DM)

Service overview	Dynamic Moderation is designed to assist the ESO to keep frequency within operational limits. Providers of this service will help manage sudden large imbalances between demand and generation by responding quickly when frequency moves towards the edge of the operational range.
What we pay providers	Dynamic Moderation is paid via a £/MW/h availability fee for the service. As delivery is reflective of current frequency conditions parties are contracted for set periods for which they are remunerated, should the contracted volumes be delivered in accordance with the service specification.

Month	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
No. events DM activated	NA	5	2	3	0	1	3	3	4	0	0	1
Average performance data received	NA	100%	100%	100%	100%	100%	95.5%	96%	97%	97.80%	92.50%	94.70%
Average DML volume declared available	NA	96.1%	99.2%	100%	95.9%	99.3%	98.5%	96%	97%	99.80%	97.50%	95.80%
Average DMH volume declared available	NA	96%	99.2%	100%	94%	99.3%	99.5%	96%	96.8%	98.80%	97.20%	94.70%
Approx. amount to be recovered DMH (£/K)	NA	13	5	0	3	4	14	24	17	15	12	32
Approx. amount to be recovered DML (£/K)	NA	7	4	0	1	0	6	14	0	3	21	14

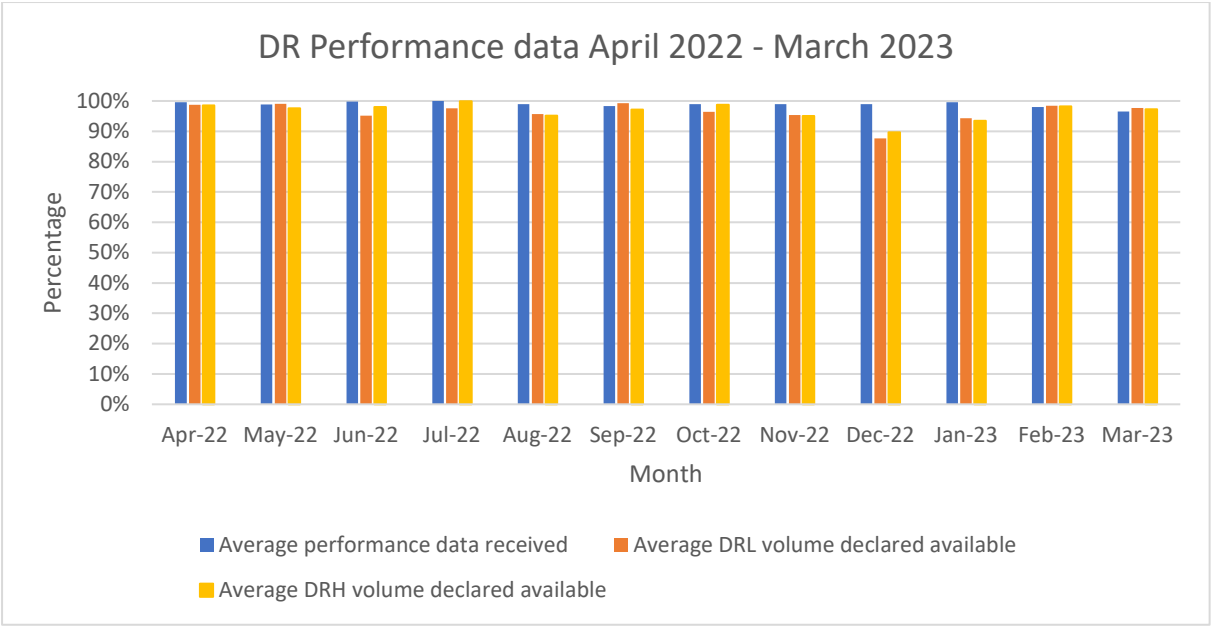
There is no data available for April as the service went live in May 2022.


DM Performance data April 2022 - March 2023
Percentage
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Month
Average performance data received
Average DML volume declared available
Average DMH volume declared available

Dynamic Regulation (DR)

Service overview	Dynamic Regulation is a pre-fault service. It is designed to slowly correct continuous but small deviations in frequency. The aim is to continually regulate frequency around the target system frequency of 50Hz.
What we pay providers	Dynamic Regulation is paid via a £/MW/h availability fee for the service. As delivery is reflective of current frequency conditions parties are contracted for set periods for which they are remunerated, should the contracted volumes be delivered in accordance with the service specification.

Month	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Average performance data received	99.6%	98.8%	99.8%	100%	99%	98.3%	99%	99%	99%	99.60%	98.00%	96.50%
Average DRL volume declared available	98.7%	99.1%	95.2%	97.6%	95.7%	99.3%	96.4%	95.4%	87.7%	94.30%	98.40%	97.70%
Average DRH volume declared available	98.5%	97.6%	98%	99.9%	95.2%	97.2%	98.70%	95%	89.7%	93.50%	98.20%	97.30%
Approx. amount to be recovered DRH (£/K)	14	78	49	35	22	7	20	27	17	23	6	12
Approx. amount to be recovered DRL(£/K)	13	69	36	6	19	6	22	63	11	42	34	142

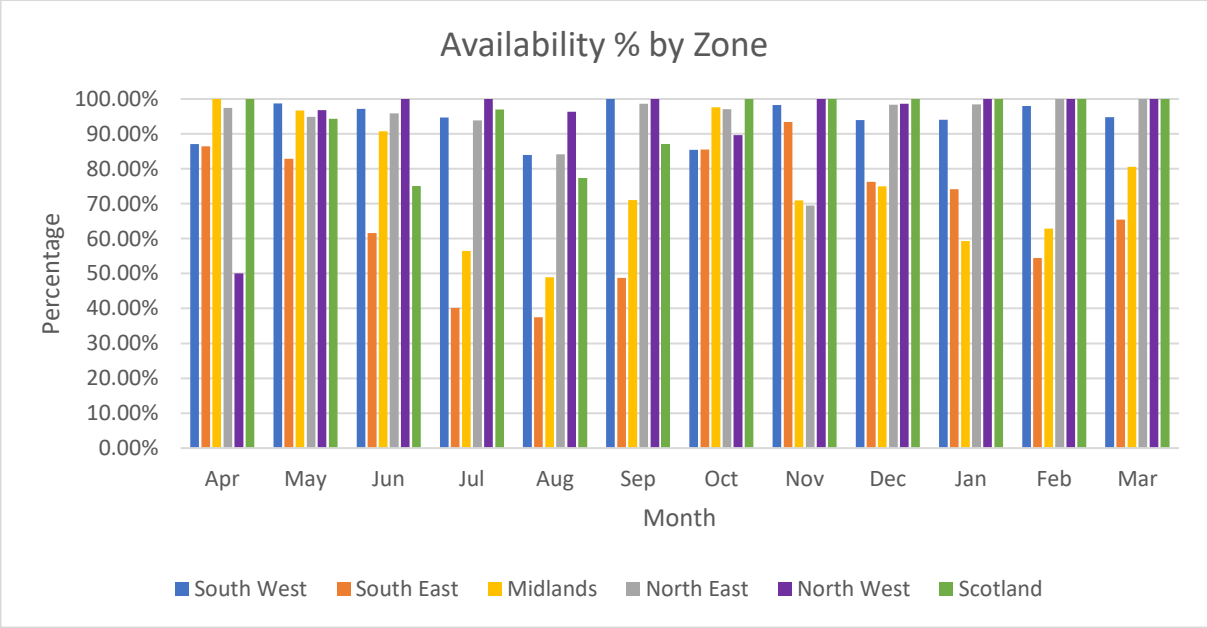

DR Performance data April 2022 - March 2023
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Percentage
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Month
Average performance data received
Average DRL volume declared available
Average DRH volume declared available

Electricity System Restoration (ESR)

Service overview	Restoration (formerly known as Black Start) is the process used to restore power in the event of a total or partial shutdown of the national electricity transmission system. During a shutdown, the service requires the provider to re-start, carry out initial energisation of sections of the national electricity transmission system and distribution network and restore sufficient demand to create and manage a stable 'power island'.
What we pay providers	**Availability payment** (£/settlement period) – a payment for being available to provide restoration services. **Contribution sums** – these payments are available to new or refurbishing plant only. Where the installation, or refurbishment of capital assets at the contracted site would return a valuable restoration service, we may choose to contribute towards the provider's costs. This may be in the form of profiled (staged) or upfront payments, all supported by valid invoices. We reserve the right to request further evidence to verify that the works have been completed.

Performance

Month	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23
Number of contracted stations	19	19	20	21	21	20	23	22	22	24	24	24
Service Utilised	No	No	No	No	No	No	No	No	No	No	No	No
Sum of Payment if fully available (£/K)	3,186	3,429	3,337	3,536	3,555	2,795	2,918	2,665	2,748	2,746	2,261	2,503
Actual Sum of Payment (£/K)	3,166	3,300	3,096	2,966	2,755	2,328	2,667	2,468	2,389	2,260	1,858	2,154



The main reason that a station declares itself unavailable is for planned outages. We continually monitor availability to meet the minimum requirement.

Moving forwards

We intend to continuously build on the content of this report and to include further Balancing Services.

We welcome feedback on this report. Should you have any questions or comments, please do not hesitate to contact us at commercial.operation@nationalgrideso.com

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