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16 October 2020.

Sent by email to: ESOperformance@ofgem.gov.uk

Dear Maryam,

Call for evidence on ESO's mid-year performance 2020-21

Thank you for the opportunity to respond to the above call for evidence. This is a non-confidential response on behalf of the Centrica Group.

The Electricity System Operator's (ESO's) efforts during the first half of the 2020-21 scheme year have been focussed on managing the operational challenges associated with the impacts of the COVID-19 pandemic. The pandemic was unforeseeable and, therefore, it was necessary and correct for the ESO to reprioritise the activities in the Forward Plan to focus on the operational challenges brought about by COVID-19.

We believe the ESO has performed well in this period, acting quickly to address the challenges arising because of the COVID-19 pandemic. There were areas where the ESO's performance could have been better, but these should be understood in the context of the pandemic where reasonable expectations are different to a normal period. During the first half of 2020-21, we highlight:

- **Communication was improved and transparency increased.**
- **The ESO succeeded in managing the operational challenges associated with the impacts of the COVID-19 pandemic, including by developing and deploying new balancing services at pace.**
- **Some aspects could have been delivered better:**
 - **The ESO could have avoided, or removed, impacts on markets arising from actions taken to manage the COVID-19 impacts**
 - **The process for developing new products and services can be improved.**

We also highlight that the ESO would have been in a better position to manage periods of exceptionally low demand, as resulted from the COVID-19 pandemic, had more progress been made towards market reforms for response and reserve services.

Communication was improved and transparency increased:

The ESO quickly recognised the need for an effective and timely way of engaging with market participants ahead of the major restrictions being placed on economic activity and, as such, implemented the weekly *COVID-19 Preparedness* webinars (now referred to as the *ESO Operational Transparency Forum*)¹. Since the start of the scheme year, the ESO has kept market participants abreast of operational matters in a near real-time manner and has responded to queries on a wide range of issues. We welcome this engagement and view it as a positive step towards increasing transparency of operational decisions. The ESO should maintain the weekly webinars as an enduring element of its stakeholder engagement.

During the webinars, the ESO has shared information about its approaches to operational decision-making and the factors underlying some of those operational decisions. For example, the ESO has provided ‘waterfall diagrams’ illustrating the actions taken to maintain the system within operational limits during those periods that presented particular operational challenges (such as the early May Bank Holiday²).

As another example, the ESO highlighted how it will manage operational issues due to outages on circuits in the North Wales group³, which arise because of National Grid Electricity Transmission undertaking maintenance activities. The ESO explained it will move away from forward fixed contracts and, instead, take actions via the Balancing Mechanism (BM), which it considers to be a more efficient approach. The ESO provided information useful to market participants such as the size of the largest demand loss that may need to be accommodated (1500MW) and what type(s) of actions would be needed to maintain system stability (e.g. high frequency response).

We welcome the insight into how the ESO manages operational issues, which the ESO has previously not shared. The ESO should routinely share this material with market participants. We continue to call for the ESO to share information on the drivers of expenditure, the extent of the system issues that were managed and the decisions that were made about how those issues were managed.

The ESO succeeded in managing the operational challenges associated with the impacts of the COVID-19 pandemic, including by developing and deploying new balancing services at pace:

We believe the ESO has successfully managed the operational challenges associated with the exceptionally low levels of system demand, using a combination of standard tools and newly-developed services.

The ESO introduced the Optional Downward Flexibility Management (ODFM) service as an additional tool to manage operational risks of low residual system demand. This service was made operational in early May, ahead of the early May Bank Holiday, during which the operational challenges were expected to increase.

¹ See: <https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials> .

² See page 8 of: https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials/r/ngeso_covid-19_preparedness_webinar_13-05-20_-_slides.

³ See pages 13 and 14 of: https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials/r/operational_transparency_forum_slides_30.09.20.

The ESO trialled upward or downward reserve being delivered from batteries via the BM. This is a good example of the ESO innovating and collaborating with market participants to deliver value for consumers. We look forward to this service being progressed beyond trialling to being made a standard tool. The ESO also increased system 'foot-room' by contracting with nuclear plant operators to reduce output.

The ESO implemented the Virtual Lead Party (VLP), which enables an aggregator to provide balancing services to the ESO via assets that do not participate in the BM. We welcome the ESO seeking innovative ways of managing the system and increasing access to balancing markets. Wider access to the BM via the VLP route has only been possible in earnest since July, following the implementation of the API. We expect the number of assets participating in the BM to increase.

Also, the ESO accommodated market participants that also encountered operational challenges as a result of the impacts of the COVID-19 pandemic by, for example, allowing flexibility/changes in tendering to provide black start services in the Midlands and South West regions.

The ESO could have avoided, or removed, impacts on markets arising from actions taken to manage the COVID-19 impacts:

It was necessary and correct for the ESO to focus on the operational challenges brought about by the COVID-19 pandemic. The ESO occupies a unique role in the energy system and, as such, holds significant influence on the operation of markets. There have been times during the COVID-19 pandemic that the ESO's actions affected markets, which could have been avoided. We summarise some instances below and provide further detail in the attached appendix.

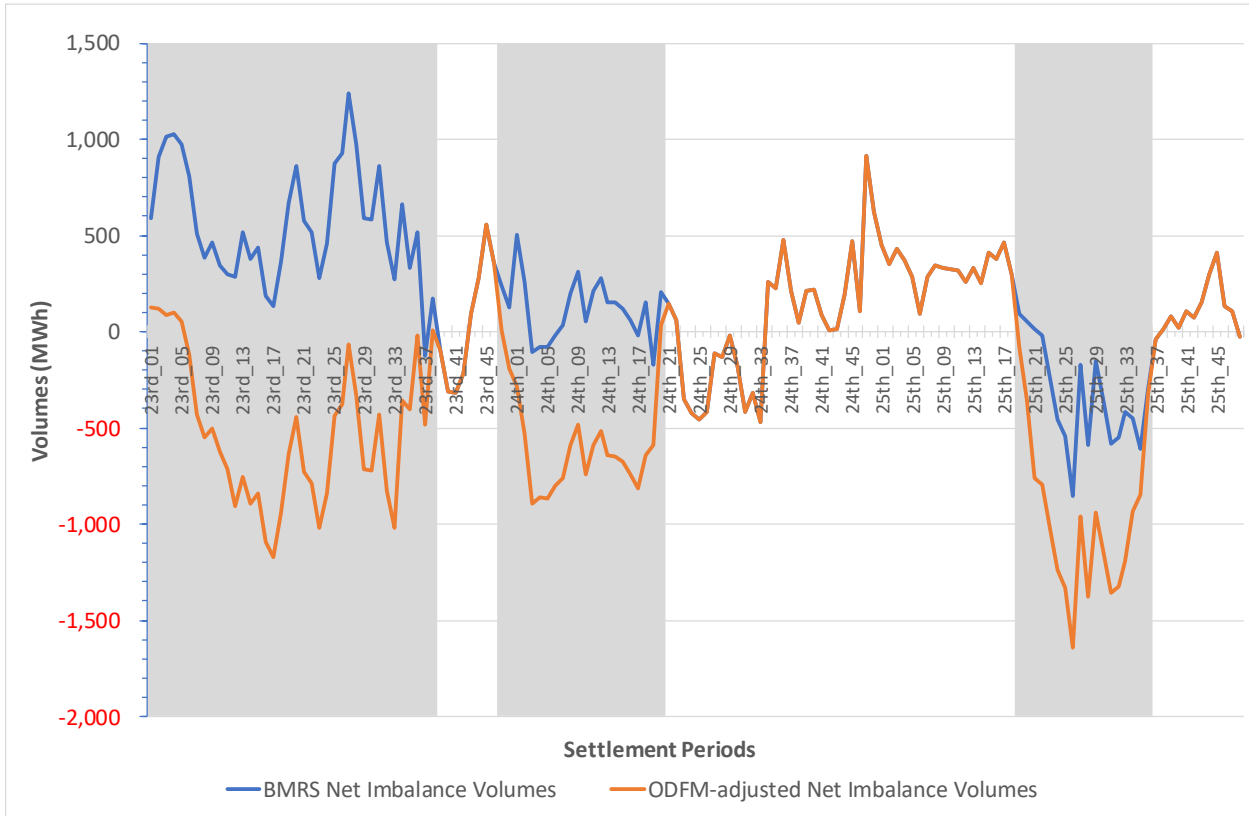
Impact on cash-out prices due to the way in which the Optional Downward Flexibility Management service was implemented:

The ESO introduced the ODFM service, as an additional tool to manage operational risks of low residual system demand. At the day-ahead stage, assets which do not participate in the BM could commit to turning down output or increasing demand during times of low demand. The ESO indicated the service was expected to be deployed during the 8 May - 31 August window.

When deploying ODFM, the ESO did not enter volumes and prices associated with the day-ahead ODFM instructions to reduce output into the Balancing Mechanism Reporting Service (BMRS). When the ESO re-balanced the system within-day by increasing output from BM units, the BM Offers did not reflect the full amounts of other actions (turn-down actions initiated by the ESO, BM Bids and ODFM volumes). As a result, the published BMRS Net Imbalance Volume (NIV) was 'shorter' and cash-out prices were higher than would have been the case had all balancing actions been included.

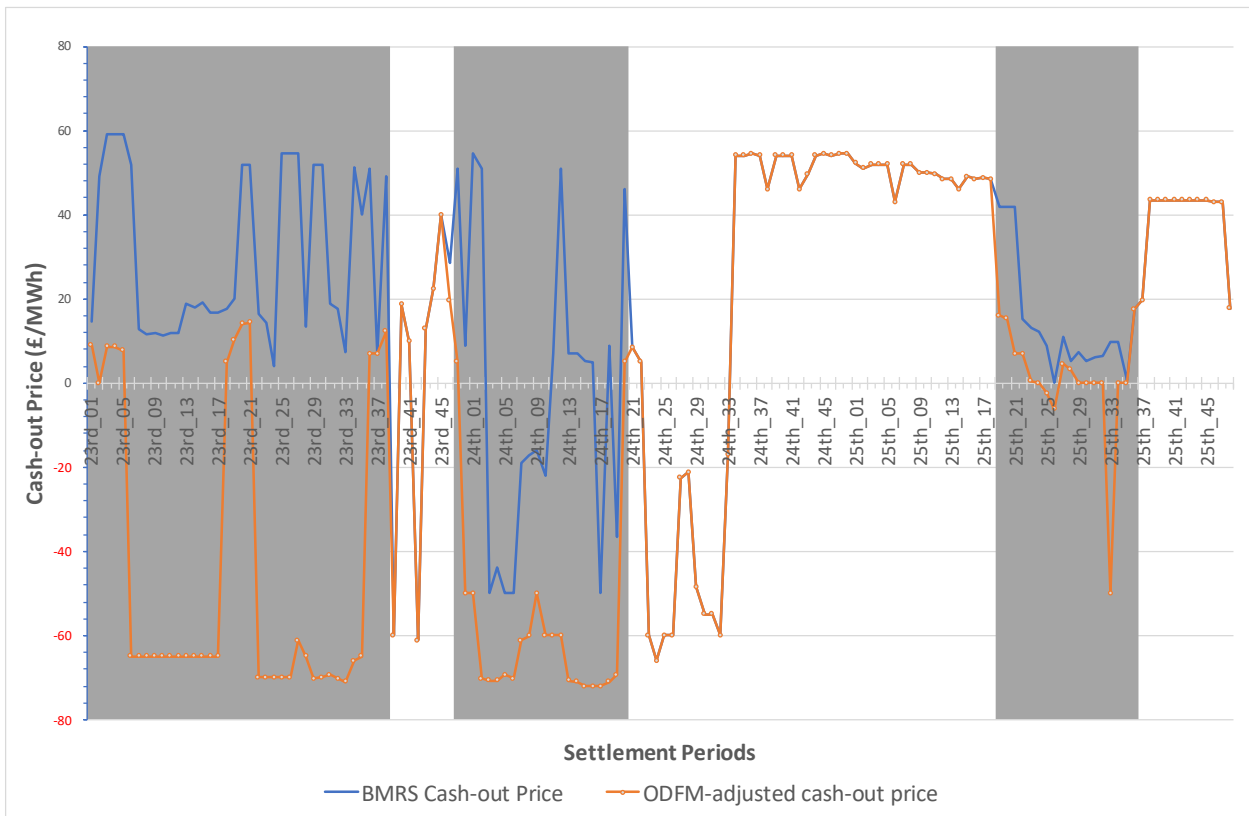
As an example, ODFM was deployed during 76 settlement periods over the Bank Holiday weekend of 23 - 25 May. Had ODFM volumes and prices been included in the calculation of NIV, it is likely 49 of these settlement periods would have changed from 'short' to 'long' periods. The differences between the NIV published in BMRS and NIV had ODFM volumes been appropriately accounted for are shown in Figure 1, and the differences between cash-out prices are shown in Figure 2.

Figure 1: Published and ODFM-adjusted Net Imbalance Volumes



**shaded areas are those periods during which the ODFM volumes were deployed

Figure 2: Published and ODFM-adjusted cash-out prices

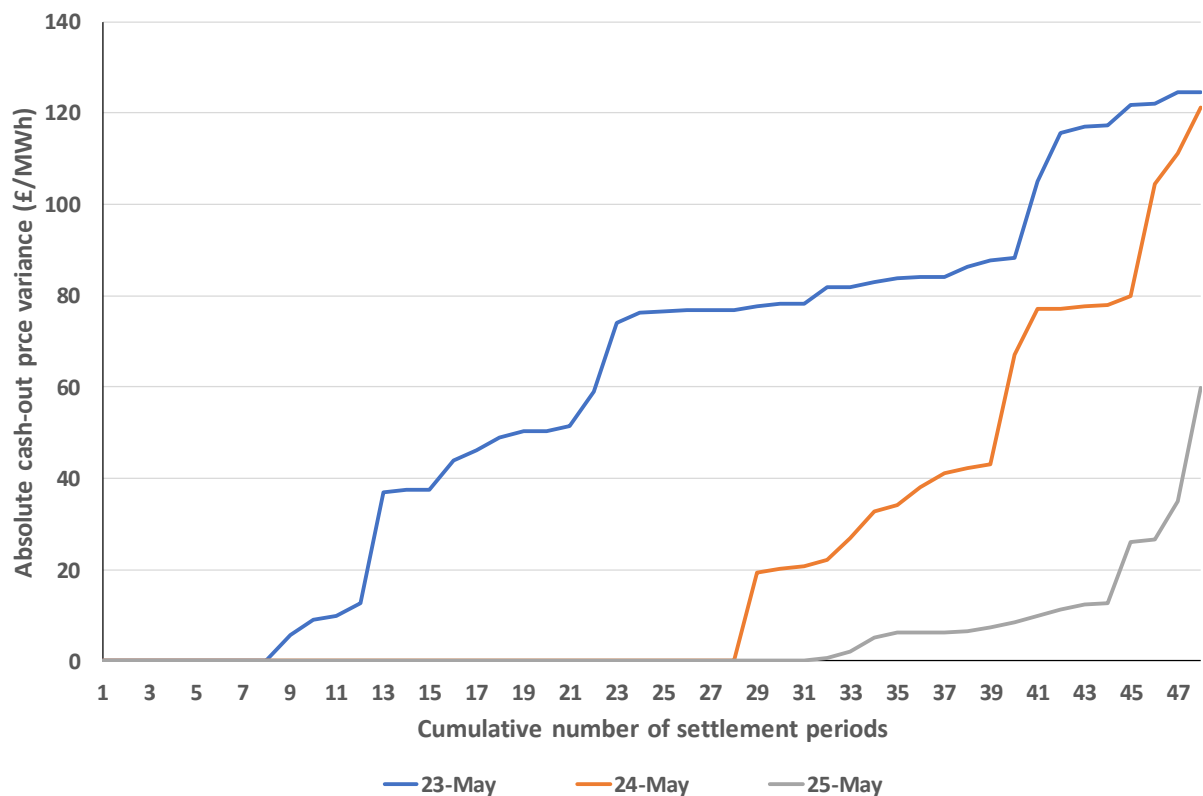


**shaded areas are those periods during which the ODFM volumes were deployed

The market received directionally incorrect signals to increase output or reduce demand, which nullified some of the effect of deploying the ODFM volumes. Total imbalance charges levied on Balancing Parties⁴ for 23 - 25 May was £1.6m. Had the distortion on cash-out prices not occurred, we estimate Balancing Parties would have received about £0.3m instead, a swing of about £1.9m. In aggregate, Balancing Parties were incorrectly charged for being 'short' when, in fact, they should have been rewarded for being long. This does not include amounts that will have been allocated to Balancing Parties via the Residual Cashflow Reallocation Cashflow mechanism and, as such, Parties were not overcharged overall.

In some instances, the magnitude of the directionally incorrect signal would have compounded the issue even further. For example, in several settlement periods during which ODFM was deployed between 8 May and August 31, the variance between the cash-out price published in BMRS and that we estimate would have been generated had ODFM volumes been included in NIV exceeded £100/MWh. The spread of variances is shown in Figure 3. Additional detail is included in the attached appendix.

Figure 3: Variance between published and ODFM-adjusted cash-out prices



⁴ Excluding the ESO.
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BSUoS forecasting:

In the BSUoS forecast published on 15 May, the ESO signalled that system balancing costs for summer 2020, under a ‘most likely’ view⁵, would increase by c. £500m compared to 2019 because of the restrictions on economic activity associated with the COVID-19 pandemic.

The ESO subsequently provided further explanation on the methodology employed to generate the May forecast. Whilst this additional explanation was welcome, it highlighted that pessimistic assumptions were made relating to demand, cost of actions and market response⁶. This was not made clear when the May forecast was published and market participants responded to what was described as the ESO’s ‘best’ view⁷. Market participants may have acted in ways that would have introduced overall inefficiency, resulting from the signals sent to the market, including parties’ approach to industry modifications to mitigate impacts. The ESO should ensure the forecasts it publishes are clearly understood by the market. It is unhelpful to present a forecast as a ‘best’ or ‘most likely’ view if it is derived using pessimistic assumptions.

Grid code modification GC0143:

The modification was proposed on April 30 and was implemented on May 7, ahead of the Bank Holiday on May 8 when the ESO expected increased operational challenges due to low residual system demand. The modification allows the ESO to instruct the emergency disconnection of embedded generation (without compensation) between 7 May and October 25. While the modification gave the ESO the ability to instruct disconnection, it provided no clarity to market participants or distribution network operators relating to how, or which, assets could be disconnected.

The short window between proposal and implementation did not allow sufficient time to scrutinise a modification with potentially significant operational and economic consequences. The lack of clarity presents increased risks for our domestic customers, commercial customers and our portfolio of distribution generation assets. It is necessary that procedures for instructing the emergency disconnection of embedded generation, similar to the Low Frequency Demand Disconnection scheme, are developed⁸. It is important to highlight that the modification does not allow for compensation to be provided to operators of embedded generation the event of disconnection. This does not align with arrangements generators connected to the transmission network where compensation is provided. Not providing compensation for operators of embedded generation in the event of disconnection can affect the business case for those assets and could inhibit competition in balancing markets. This demonstrates the issue of users not having

⁵ The ESO stated “We evolved our May 8th forecasts into a single most likely view, using a range of weather scenarios to determine a best view of weather for May 2020.”. See:

https://data.nationalgrideso.com/balancing/bsuos-monthly-forecast/r/a_note_on_our_bsuos_updates_published_15th_may_2020.

⁶ See page 10 of: https://data.nationalgrideso.com/balancing/bsuos-monthly-forecast/r/a_note_on_our_bsuos_updates_published_15th_may_2020.

⁷ The ESO stated “Cost forecasts have been calculated by taking each scenario demand suppression and creating multiple weather scenarios (using Monte Carlo techniques) around the demand suppression. Each weather scenario has been costed, and the average (or expected) additional cost is then calculated for each of the demand suppression scenarios. This differs from the analysis in May, when we reported on our best view under the full lockdown conditions at the time.”. See page 2 of:

https://data.nationalgrideso.com/balancing/bsuos-monthly-forecast/r/bsuos_forecast_explained.

⁸ We note an enduring solution is being developed.

financially firm access at distribution, which requires addressing through the Access and Forward-Looking Charges Significant Code Review.

The development of new products and services is welcome but the process for product can be improved:

Dynamic Containment:

In our response to the call for evidence on the ESO's performance during 2019/20, we highlighted that, while the ESO had engaged positively with Centrica during the development phase of the Dynamic Containment product, we remained concerned that the proposed design restricted competition by, for example, excluding smaller, aggregated assets (e.g. residential flexibility).

We recognise development needed to be delayed so that the ESO could focus on managing the operational challenges due to the impact of the COVID-19 pandemic. However, the process for designing the product and some of the technical aspects of the design was not adequate. For example, we believe insufficient time was allowed between the close of the consultation on the performance monitoring regime and the 'soft launch' to properly assess stakeholder feedback. Also, the baseline and metering requirements for smaller, aggregated assets excluded their participation without good reason. Industry had engaged with the ESO on alternative product specifications, throughout 2020, that would enable wider participation while still meeting the ESO's technical requirements.

We acknowledge the ESO has engaged with us since the 'soft launch', following the formal raising of our concerns. The ESO has indicated that it believes that not all the features could have been implemented ahead of the launch and has reiterated the elements of the product design can be adapted to allow wider participation. We look forward to collaborating with the ESO to develop a product design that does not restrict competition and will deliver long-term value for consumers.

In addition, we welcome the market reforms relating to frequency products but the product rationalisation should be accelerated. Currently, there are inconsistencies in the arrangements such as the multiple auction platforms, payment terms, registration processes and qualification processes, depending on the product. These inconsistencies introduce unnecessary complexity for market participants and could act as a barrier to entry.

ESO would have been in a better position to manage periods of exceptionally low demand, as resulted from the COVID-19 pandemic, had more progress been made towards market reforms for response and reserve services:

The operational challenges triggered by low residual system demand (i.e. low demand and high wind generation) are well known. Within recent years, system balancing expenditure and BSUoS rates have spiked during the summer because of the additional expenditure needed to manage the system when low residual demand increases operational challenges⁹.

⁹ As an example, the ESO explained that, in July 2019, "*high wind levels in Scotland during low demand periods resulted in a large volume of wind generation being constrained through BM (Balancing Mechanism) actions over these high cost days*". See: "ESO Forward Plan 2019-20 Monthly Reporting – July", <https://www.nationalgrideso.com/document/151236/download>.

The COVID-19 pandemic was unforeseeable. The pandemic resulted in the suppression and changing patterns of electricity consumption i.e. contributed to low residual system demand. However, low residual system demand is not a new phenomenon and the associated operational challenges are known. Further, it was known that the Hornsea and East Anglia wind farms would have been fully commissioned (totalling 800 MW and 714 MW respectively) ahead of the 2020 summer period. This means that, all other things being equal, the operational challenges due to low residual system demand in 2020 would have increased relative to 2019.

We believe the ESO could have been better prepared to meet the operational challenges associated with low residual system demand, regardless of the causes. The implementation of the EU's Emergency and Restoration Network Code would have been the ideal opportunity for the ESO to consider such risks and to provide market participants with enough time to fully assess the necessary changes. Market reforms for response and reserve services have been delayed, meaning the ESO may not have had access to the diversity of assets needed to manage these particular operational challenges.

We hope you find these comments helpful. Additional detail is provided in the attached appendix. Please contact me if you have any questions.

Yours sincerely,

Andy Manning
Head of Industry Transformation, Governance and Forecasting
Centrica Regulatory Affairs, UK & Ireland

Appendix: Market Impacts

Impact on cash-out prices due to the way in which the Optional Downward Flexibility Management service was implemented:

The ESO introduced the Optional Downward Flexibility Management (ODFM) service, as an additional tool to manage operational risks of low residual system demand. At the day-ahead stage, assets which do not participate in the BM could commit to turning down output or increasing demand during times of low demand. The ESO indicated the service was expected to be deployed during the 8 May - 31 August window.

The ESO did not include the ODFM volumes procured at the day-ahead stage in its feed to the Balancing Mechanism Reporting Service (BMRS). The omission of the ODFM volumes, which would have appeared as negative energy, meant Net Imbalance Volume (NIV) was skewed. When the ESO re-balanced the system within-day by increasing output from BM units, the BM Offers did not reflect the full amounts of other actions (turn-down actions initiated by the ESO, BM Bids and ODFM volumes). As a result, the published BMRS Net Imbalance Volume (NIV) was 'shorter' and cash-out prices higher than would have been the case had all balancing actions been included. This sent price signals to market participants to act in ways that would have nullified some of the effect of deploying those ODFM volumes.

ODFM was deployed during 82 settlement periods over the Bank Holiday weekend of 23 - 25 May and on July 5. The NIV published in BMRS and the resulting cash-out prices are shown in Table 1 - Table 4. The resulting aggregate cash flows to Balancing Parties are also shown. Total imbalance charges levied on Balancing Parties were £884k, £451k, £281k and £604k for the 23rd, 24th and 25th of May and on July 5 respectively.

We have adjusted the NIV and cash-out prices to account for the ODFM volumes for four of the five days during which ODFM volumes were deployed. Had ODFM volumes and prices been included in the calculation of NIV, a number of settlement periods would have changed from 'short' to 'long' periods.

The cash flows that should have accrued to Balancing Parties had ODFM volumes been appropriately accounted for are shown in the data tables. We estimate Balancing Parties should have received a credit of £847k on 23 May and of £871k on July 5. Also, Parties should have been charged £231k on 24 May (approximately £220k less than charges levied). In contrast, Balancing Parties should have charged £342k or £62k more than they were charged on 25 May. In aggregate, Balancing Parties were incorrectly charged for being 'short' when, in fact, the negative prices of the alternative cash-outs would have rewarded those Parties. Total imbalance charges levied on Balancing Parties for 23 - 25 May and July 5 was £2.2m. Had the distortion on cash-out prices not occurred, we estimate Balancing Parties would have received about £1.1m instead, a swing of about £3.4m.¹⁰

¹⁰ These figures do not include RCRC which reallocate revenues to Balancing Parties.
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Table 1: ODFM and imbalance data – 23 May (early May Bank Holiday weekend)

Half-Hourly Period	ODFM volumes (MWh)	BMRS NIV (MWh)	Adjusted NIV (MWh)	BMRS Cash Out Price (£/MWh)	Adjusted Cash Out Price (£/MWh)	BMRS Imbalance Cashflows (£)	Adjusted Imbalance Cashflows (£)
1	464	589	125	14.75	9.10	9,734	6,004
2	790	909	120	49.00	0.00	46,449	0
3	927	1,012	86	59.00	8.60	60,361	8,798
4	927	1,024	98	59.00	8.60	61,850	9,015
5	927	977	50	59.00	7.70	58,368	7,618
6	927	807	-120	51.89	-65.00	42,875	-53,707
7	938	510	-428	12.75	-65.00	6,693	-34,121
8	938	386	-552	11.60	-65.00	4,818	-26,997
9	967	463	-504	11.86	-65.00	5,955	-32,636
10	971	348	-623	11.16	-65.00	4,123	-24,013
11	1,008	296	-712	11.91	-65.00	3,838	-20,948
12	1,190	286	-904	11.91	-65.00	3,674	-20,049
13	1,270	516	-754	18.75	-65.00	9,909	-34,352
14	1,270	379	-892	17.85	-65.00	7,363	-26,813
15	1,276	434	-842	19.19	-65.00	8,344	-28,264
16	1,276	184	-1,092	16.71	-65.00	3,718	-14,463
17	1,306	135	-1,171	16.84	-65.00	3,659	-14,123
18	1,306	367	-939	17.78	5.05	7,819	2,221
19	1,304	667	-637	20.12	10.38	14,501	7,481
20	1,304	859	-445	51.75	14.14	45,993	12,567
21	1,306	576	-730	51.75	14.36	29,374	8,151
22	1,306	518	-788	16.30	-70.00	8,999	-38,647
23	1,299	279	-1,021	14.18	-70.00	2,855	-14,091
24	1,299	457	-843	4.05	-70.00	1,437	-24,844
25	1,306	873	-434	54.50	-70.00	48,395	-62,159
26	1,306	927	-380	54.50	-70.00	52,636	-67,606
27	1,306	1,241	-65	54.50	-61.20	68,731	-77,180
28	1,306	973	-333	13.26	-65.00	12,916	-63,315
29	1,306	592	-714	51.75	-70.17	32,980	-44,719
30	1,306	584	-723	51.75	-70.00	30,729	-41,566
31	1,295	862	-433	18.86	-69.39	16,799	-61,806
32	1,293	466	-828	17.60	-70.17	8,721	-34,768
33	1,293	270	-1,023	7.25	-71.00	2,247	-22,004
34	1,023	663	-360	51.25	-65.94	35,518	-45,699
35	737	332	-405	40.00	-65.00	15,756	-25,603
36	534	517	-17	51.00	7.00	30,249	4,152
37	356	-127	-482	7.00	7.00	-487	-487
38	163	170	8	49.24	12.33	11,041	2,765
39	0	-102	-102	-59.95	-59.95	2,146	2,146
40	0	-308	-308	18.61	18.61	-4,255	-4,255
41	0	-321	-321	9.88	9.88	-2,392	-2,392
42	0	-217	-217	-61.20	-61.20	9,030	9,030
43	0	90	90	12.84	12.84	2,073	2,073
44	0	281	281	22.40	22.40	7,947	7,947
45	0	559	559	40.00	40.00	24,377	24,377
46	0	355	355	28.40	19.50	11,178	7,675
47	232	238	6	51.00	5.00	13,391	1,313
48	322	128	-194	9.00	-50.00	1,503	-8,349
TOTAL	41,583	22,025	-19,557			883,936	-846,644

Table 2: ODFM and imbalance data - 24 May (early May Bank Holiday weekend)

Half-Hourly Period	ODFM volumes (MWh)	BMRS NIV (MWh)	Adjusted NIV (MWh)	BMRS Cash Out Price (£/MWh)	Adjusted Cash Out Price (£/MWh)	BMRS Imbalance Cashflows (£)	Adjusted Imbalance Cashflows (£)
1	787	504	-282	54.50	-50.00	27,432	-25,167
2	787	260	-527	51.00	-70.17	13,215	-18,183
3	787	-106	-893	-50.00	-70.63	4,252	6,006
4	787	-76	-863	-43.77	-70.63	2,504	4,040
5	787	-81	-868	-50.00	-69.39	3,886	5,393
6	787	-17	-803	-50.00	-70.17	115	162
7	794	32	-762	-19.05	-61.21	-721	-2,315
8	794	201	-592	-17.05	-60.03	-3,699	-13,025
9	794	308	-485	-15.86	-50.00	-5,298	-16,703
10	794	55	-738	-21.98	-60.00	-1,122	-3,063
11	799	213	-586	7.00	-60.00	1,663	-14,257
12	799	281	-518	51.00	-60.00	15,434	-18,158
13	799	153	-645	7.00	-70.63	1,250	-12,614
14	799	152	-647	7.00	-71.00	1,229	-12,467
15	798	121	-677	5.18	-71.99	780	-10,836
16	798	58	-740	5.00	-71.99	395	-5,694
17	798	-19	-817	-50.00	-71.99	-874	-1,258
18	798	155	-643	9.00	-71.00	1,846	-14,564
19	419	-171	-590	-36.59	-69.39	5,316	10,082
20	174	209	35	46.00	5.00	10,891	1,184
21	0	144	144	8.49	8.49	1,730	1,730
22	0	63	63	5.00	5.00	618	618
23	0	-350	-351	-60.00	-60.00	18,631	18,631
24	0	-422	-422	-65.94	-65.94	26,192	26,192
25	0	-459	-459	-60.00	-60.00	26,233	26,233
26	0	-414	-414	-60.00	-60.00	23,779	23,779
27	0	-115	-115	-22.54	-22.54	1,844	1,844
28	0	-130	-130	-21.21	-21.21	2,348	2,348
29	0	-20	-20	-48.40	-48.40	939	939
30	0	-179	-179	-55.00	-55.00	10,133	10,133
31	0	-416	-416	-55.00	-55.00	22,638	22,638
32	0	-321	-320	-60.00	-60.00	18,352	18,352
33	0	-467	-467	-17.12	-17.12	7,412	7,412
34	0	259	259	54.00	54.00	15,159	15,159
35	0	228	228	54.00	54.00	13,038	13,038
36	0	477	477	54.50	54.50	27,043	27,043
37	0	210	210	54.00	54.00	11,511	11,511
38	0	50	50	46.00	46.00	2,089	2,089
39	0	215	215	54.00	54.00	11,898	11,898
40	0	219	219	54.00	54.00	11,906	11,906
41	0	86	86	54.00	54.00	4,656	4,656
42	0	8	8	46.00	46.00	-191	-191
43	0	12	12	49.72	49.72	888	888
44	0	193	193	54.00	54.00	10,724	10,724
45	0	468	468	54.50	54.50	20,891	20,891
46	0	106	106	54.00	54.00	1,364	1,364
47	0	912	912	54.50	54.50	47,140	47,140
48	0	621	621	54.50	54.50	33,311	33,311
TOTAL	14,875	3,214	-11,660			450,772	230,838

Table 3: ODFM and imbalance data - 25 May (early May Bank Holiday weekend)

Half-Hourly Period	ODFM volumes (MWh)	BMRS NIV (MWh)	Adjusted NIV (MWh)	BMRS Cash Out Price (£/MWh)	Adjusted Cash Out Price (£/MWh)	BMRS Imbalance Cashflows (£)	Adjusted Imbalance Cashflows (£)
1	0	454	454	52.25	52.25	22,940	22,940
2	0	349	349	51.00	51.00	17,021	17,021
3	0	433	433	51.89	51.89	21,894	21,894
4	0	373	373	51.89	51.89	18,622	18,622
5	0	286	286	51.89	51.89	14,333	14,333
6	0	95	95	43.00	43.00	3,842	3,842
7	0	287	287	51.89	51.89	14,548	14,548
8	0	344	344	51.89	51.89	17,212	17,212
9	0	333	333	50.00	50.00	15,885	15,885
10	0	323	323	50.00	50.00	14,983	14,983
11	0	316	316	49.72	49.72	14,824	14,824
12	0	259	259	48.50	48.50	12,162	12,162
13	0	328	328	48.50	48.50	10,722	10,722
14	0	252	252	46.00	46.00	4,248	4,248
15	0	414	414	49.00	49.00	13,066	13,066
16	0	377	377	48.50	48.50	12,966	12,966
17	0	467	467	48.75	48.75	18,804	18,804
18	0	301	301	48.50	48.50	14,620	14,620
19	175	96	-79	42.00	16.01	3,613	1,377
20	411	54	-357	42.00	15.34	1,658	606
21	775	12	-764	42.00	6.97	-328	-54
22	775	-22	-798	15.31	6.97	-867	-395
23	782	-236	-1,018	13.10	0.45	-3,338	-115
24	782	-458	-1,241	12.30	0.00	-5,750	0
25	789	-541	-1,330	8.80	-2.34	-4,885	1,299
26	789	-853	-1,643	0.00	-6.27	0	5,389
27	789	-173	-962	10.90	4.61	-2,201	-931
28	789	-590	-1,379	5.36	3.25	-3,119	-1,891
29	789	-150	-939	7.25	0.00	-1,181	0
30	789	-357	-1,147	5.17	0.00	-1,921	0
31	775	-581	-1,357	6.17	0.00	-3,706	0
32	773	-552	-1,325	6.46	0.00	-3,469	0
33	773	-415	-1,189	9.86	-50.00	-4,247	21,538
34	487	-447	-935	9.86	0.00	-4,330	0
35	240	-607	-846	0.55	0.00	-325	0
36	23	-300	-324	17.50	17.50	-5,147	-5,147
37	0	-39	-39	19.69	19.69	-1,106	-1,106
38	0	14	14	43.50	43.50	946	946
39	0	81	81	43.50	43.50	3,496	3,496
40	0	17	17	43.50	43.50	589	589
41	0	105	105	43.50	43.50	4,468	4,468
42	0	73	73	43.50	43.50	2,858	2,858
43	0	150	150	43.50	43.50	6,305	6,305
44	0	300	300	43.50	43.50	13,319	13,319
45	0	408	408	43.50	43.50	17,740	17,740
46	0	135	135	43.00	43.00	5,137	5,137
47	0	107	107	43.00	43.00	4,838	4,838
48	0	-29	-29	17.76	17.76	-531	-531
TOTAL	11,510	1,192	-10,319			281,207	342,426

Table 4: ODFM and imbalance data - 5 July

Half-Hourly Period	ODFM volumes (MWh)	BMRS NIV (MWh)	Adjusted NIV (MWh)	BMRS Cash Out Price (£/MWh)	Adjusted Cash Out Price (£/MWh)	BMRS Imbalance Cashflows (£)	Adjusted Imbalance Cashflows (£)
1	33	-629	-583	-59.76	-55.00	473	-5,346
2	164	-671	-760	-59.76	-59.99	24,680	-29,616
3	417	114	-303	4.87	-55.00	55,875	-36,942
4	841	470	-371	50.00	-60.00	26,885	-35,061
5	1,151	952	-199	60.50	-40.00	28,582	-37,281
6	1,151	578	-572	46.00	-59.99	22,328	-29,124
7	1,158	633	-525	46.00	-60.00	21,332	-27,824
8	1,158	484	-674	46.00	-60.00	16,691	-22,133
9	1,203	457	-746	46.00	-60.00	1,054	-28,064
10	1,228	372	-856	46.00	-61.00	-309	-23,435
11	1,281	454	-827	2.29	-61.00	1,594	-30,901
12	1,418	348	-1,071	-0.90	-68.24	3,092	-31,031
13	1,419	420	-1,000	3.57	-69.22	-537	-24,712
14	1,419	443	-976	6.80	-68.24	27,870	-42,411
15	1,414	332	-1,082	-1.52	-70.00	-920	-20,113
16	1,414	584	-831	46.00	-70.00	28,735	-44,770
17	1,440	258	-1,181	-3.35	-73.27	20,709	-32,390
18	1,440	627	-813	46.00	-71.67	25,433	-38,228
19	1,440	452	-988	47.00	-73.51	2,957	-13,449
20	1,440	531	-909	47.25	-71.02	253	-4,013
21	1,442	180	-1,262	15.22	-69.22	2,341	-18,558
22	1,442	69	-1,374	4.37	-69.22	21,797	-33,170
23	1,449	210	-1,239	8.83	-70.00	19,587	-29,380
24	1,449	422	-1,028	46.00	-70.00	14,673	-22,079
25	1,449	397	-1,052	46.00	-69.00	-282	-5,150
26	1,449	303	-1,146	46.00	-69.22	-312	-5,701
27	1,447	48	-1,399	-3.83	-69.94	16,575	-22,947
28	1,447	55	-1,392	-3.83	-69.94	17,974	-25,146
29	1,447	323	-1,124	50.00	-69.22	26,639	-39,242
30	1,447	338	-1,109	50.00	-69.95	32,259	-47,521
31	1,438	573	-865	46.99	-69.22	32,775	-44,343
32	1,438	676	-761	46.99	-69.22	44,613	-18,966
33	1,418	653	-766	51.00	-69.00	25,292	-4,521
34	1,189	892	-296	51.75	-22.00	32,064	353
35	975	513	-462	51.75	-9.25	9,901	1,364
36	791	680	-112	50.00	0.55	-359	-196
37	559	222	-337	49.00	6.75	2,022	590
38	348	-24	-372	12.00	6.55	-1,970	-1,758
39	183	62	-121	46.00	13.42	6,115	6,115
40	83	-181	-265	12.35	11.02	-2,964	-2,964
41	0	150	150	49.00	49.00	-2,457	-2,457
42	0	-159	-159	18.70	18.70	-4,601	-4,601
43	0	-134	-135	21.09	21.09	-748	-748
44	0	-249	-249	19.59	19.59	4,614	4,614
45	0	-290	-290	2.75	2.75	2,226	2,226
46	0	-922	-922	-5.00	-5.00	-139	-139
47	0	67	67	26.33	26.33	0	0
48	0	-276	-276	0.50	0.50	0	0
TOTAL	45,526	11,806	-33,565			604,414	-871,166

In some instances, the magnitude of the directionally incorrect signal would have compounded the issue even further. For example, in several settlement periods during which ODFM was deployed between 8 May and August 31, the variance between the cash-out price published in BMRS and that which would have been generated had ODFM volumes been included in NIV exceeded £100/MWh.

Market participants highlighted to the ESO that cash-out price distortions would occur if ODFM volumes and prices were not appropriately treated. Centrica shared analysis with the ESO in June on the distortions that the subsequent non-inclusion of the volumes caused and suggested how their inclusion might possibly be approached within ESO's internal systems or via manual processes. We understand system modifications and/or manual workarounds to address this issue may not have appeared proportionate at the time since the ODFM service was expected to be deployed over a relatively short window. However, given the market inefficiencies that the distortion of cash-out prices introduced, we would have expected the ESO to change its initial stance and to notify ODFM volumes and prices to the BMRS. The directionally incorrect cash-out prices did not give market participants any incentive to reduce 'length' in their energy accounts. Indeed, market participants would have benefited from increasing output since the cash-out price was higher than the within-day traded price.

BSUoS Forecasting

Approach to forecasting:

In the monthly BSUoS forecast published on 15 May, the ESO signalled that system balancing costs for summer 2020, under a 'most likely' view, would increase by c. £500m compared to 2019 because of the restrictions on economic activity associated with the COVID-19 pandemic.

In response, a modification to the Connection and Use of System Code (CUSC), CMP345, was proposed, highlighting the "*profound change*" in costs, that the costs "*could be neither forecasted or expected by market participants*" and "*with a high probability of BSUoS in individual periods effectively doubling the total cost of electricity*"¹¹. The Authority agreed the modification could be progressed according to an urgent timetable because it related to "*a current issue that if not urgently addressed may cause a significant commercial impact on parties, consumers, or other stakeholders(s)*"¹².

The ESO subsequently provided further explanation on the methodology employed to generate the May forecast. Whilst this additional explanation was welcome, it highlighted that pessimistic assumptions were made relating to demand, cost of actions and market response¹³. This was not made clear when the May forecast was published and market participants responded to what was described as the ESO's 'best' view. Market participants may have acted in ways that would have introduced overall inefficiency as a result of signals sent to the market, including parties' approach to industry modifications aiming to mitigate impacts. The ESO should ensure the forecasts it publishes are clearly understood by the market. It is unhelpful to present a forecast as a 'best' or 'most likely' view if it is derived using pessimistic assumptions.

Since June, the ESO has provided scenario forecasts based on 5%, 10% and 15% demand suppression relative to pre-COVID-19 levels. In principle, we agree with the approach given the level of uncertainty relating to future electricity consumption. These forecasts, accompanied by clear assumptions, are helpful. However, the ESO has held the estimate of BSUoS chargeable volumes constant across all scenarios in each monthly forecast despite the scenarios being based on different levels of demand suppression. This means that the resulting forecast BSUoS rate (£/MWh) will be inconsistent with the assumptions used to derive the overall costs. .

We highlight that, Since June, the ESO has not fully identified how it intended to incur system balancing costs in each month between June and October. For example, for the forecast published in June, the ESO forecast total system balancing expenditure in July to be about £140m (for the 5% demand suppression scenario). However, the ESO did not account for how it expected to incur about £44m or 32% of the total forecast cost. If the ESO identified how it expected to incur costs in future months, that would have provided transparency about its forecasts and would have sent broad signals to market participants about the types and volumes of services required to balance the system. The profile of unidentified costs in the forecasts published between June and September inclusive is shown below.

¹¹ See page 5 of: <https://www.nationalgrideso.com/document/169471/download>

¹² See page 3 of: <https://www.nationalgrideso.com/document/169841/download>.

¹³ See page 10 of: https://data.nationalgrideso.com/balancing/bsuos-monthly-forecast/r/a_note_on_our_bsuos_updates_published_15th_may_2020

Table 5: Unidentified costs in monthly balancing expenditure forecasts - 5% demand suppression scenario (£m)

		Forecast published in...			
		June	July	August	September
Relevant month	June	39.4			
	July	44.2	44.2		
	August	55.3	55.3	55.3	
	September	34.5	34.5	35.2	35.5
	October	0.0	0.0	11.0	11.0
	November	0.0	0.0	2.0	2.0
	December	0.0	0.0	0.0	0.0

Table 6: Unidentified costs in monthly balancing expenditure forecasts - 5% demand suppression scenario (%)

		Forecast published in...			
		June	July	August	September
Relevant month	June	30.4%			
	July	31.6%	30.2%		
	August	34.5%	34.5%	34.3%	
	September	23.1%	23.1%	23.4%	22.8%
	October	0.0%	0.0%	8.3%	7.6%
	November	0.0%	0.0%	1.7%	1.5%
	December	0.0%	0.0%	0.0%	0.0%

Table 7: Unidentified costs in monthly balancing expenditure forecasts - 10% demand suppression scenario (£m)

		Forecast published in...			
		June	July	August	September
Relevant month	June	56.8			
	July	64.5	64.5		
	August	80.5	80.5	80.5	
	September	50.5	50.5	39.3	39.3
	October	0.0	0.0	12.7	12.7
	November	0.0	0.0	2.0	2.0
	December	0.0	0.0	0.0	0.0

Table 8: Unidentified costs in monthly balancing expenditure forecasts – 10% demand suppression scenario (%)

		Forecast published in...			
		June	July	August	September
Relevant month	June	38.6%			
	July	40.3%	38.6%		
	August	43.4%	43.4%	43.2%	
	September	30.5%	30.5%	25.4%	24.7%
	October	0.0%	0.0%	9.4%	8.7%
	November	0.0%	0.0%	1.7%	1.5%
	December	0.0%	0.0%	0.0%	0.0%

Table 9: Unidentified costs in monthly balancing expenditure forecasts - 15% demand suppression scenario (£m)

		Forecast published in...			
		June	July	August	September
Relevant month	June	76.1			
	July	87.6	87.6		
	August	107.5	107.5	107.5	
	September	70.7	70.7	44.3	44.3
	October	0.0	0.0	14.9	14.9
	November	0.0	0.0	2.0	2.0
	December	0.0	0.0	0.0	0.0

Table 10: Unidentified costs in monthly balancing expenditure forecasts - 15% demand suppression scenario (%)

		Forecast published in...			
		June	July	August	September
Relevant month	June	45.7%			
	July	47.8%	46.1%		
	August	50.6%	50.6%	50.4%	
	September	38.0%	38.0%	27.8%	27.0%
	October	0.0%	0.0%	10.9%	10.0%
	November	0.0%	0.0%	1.7%	1.5%
	December	0.0%	0.0%	0.0%	0.0%

Lack of transparency relating to the Sizewell de-load contract:

On 7 May, The ESO stated it entered into a contract for the output at the Sizewell nuclear power station to be reduced, as an additional means of managing the operational risks associated with low residual system demand¹⁴. The ESO did not provide an indicative cost or how the cost of the contract would be recovered. On 13 May, the ESO stated the contract could be extended beyond the initial end date of 19 June and that the cost would be socialised over the term of the contract¹⁵. On 17 June, the ESO provided an indicative cost of the contract covering the 7 May – 19 June period¹⁶ and stated the contract would be extended to 10 August, at an indicative cost of £17m - £23m.

The lack of transparency and the delay in providing relevant information contributed to the negative impacts on the market. Further, the ESO was not explicit about whether this cost was included the monthly BSUoS forecast published in the middle of May (after the start of the delivery period). Without providing the market with relevant information as soon as the delivery period started, some market participants may not have been able to price the entire additional cost (via retail tariffs of wholesale prices) into forward sales for the 7 May to 10 August period. We accept the ESO needed to act quickly to manage operational risks given the low residual system demand. However, the ESO needed to provide market participants with relevant information (such as an indicative cost and the method by which the cost would be recovered) much sooner than it did.

¹⁴ <https://theenergyst.com/national-grid-confirms-sizewell-b-deal-but-says-no-need-to-panic/>

¹⁵ See page 9 of: https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials/r/ngeso_covid-19_preparedness_webinar_13-05-20_-_slides.

¹⁶ Cost in the range of £17m - £23m.

Given the relevant information was not provided before CMP345 was raised, we expect market participants may have acted in ways that would have introduced overall inefficiency. The increased uncertainty at the time may not have allowed prudent market participants to recover these costs.