ESO Operational Transparency Forum

22nd December 2021

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Introduction | Sli.do code #OTF

Please note we will not be holding a live forum or live Q&A for this week and this slide pack will be uploaded to the Data Portal.

Please submit any questions for the forum this week to the email:box.NC.Customer@nationalgrideso.com

Answers to questions will be provided at the first OTF in January.

To tailor our forum and topics further we have asked for names (or organisations) against questions. If would prefer for your question to remain anonymous please let us know in the email and we will not identify you in the response.

These slides, event recordings and further information about the webinars can be found at the following location:
https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials

Regular Topics

- Questions from last week
- Business continuity
- Demand review
- Costs for last week
- Outlook
- Constraints

Questions outstanding from last week

Q: How does the margin data on slide 15 relate to the BMRS 2-14 day ahead view? There seem to be differences between demand and margin that look more than just timing of preparing the slides.

A: The BMRS margin calculation is prescribed and is of long-standing design. We publish the indicative surplus view which is an indication of the surplus we expect the system to be showing as we get closer to real time. A big part of the difference is that, on BMRS because there are no interconnector declarations in the 2-14 day ahead stage, the calculation does not take interconnector flows into account. On the indicative surplus slide we do attempt to estimate this.

Q: Can you explain the thinking behind the cost forecast for December published yesterday? Costs of £270+m appear low given the November out-turn and £100m has been added to the January forecast taking it to £356m. Also, factors driving high costs don't appear to have changed significantly

A: As discussed today part of our 5 point plan is moving our new constraint forecasts into the BSUoS cost forecasting from January. We know that our cost forecasting is important for the industry – and are developing additional modelling for our forecasts.

Q: Have the BM review consultants been selected yet?

A: We are undergoing selections and will update the forum as this and the review progress

Questions outstanding from last week

Q: The next 7 days have a very low wind outlook and asset availability remains constrained. The continental picture is also suffering from the high pressure. It's going to be carnage, with extremely strong BSUoS costs on multiple days. Please can you consider BSUoS capping to incentivize PN generation?

A:Our future BUSOS plans – as detailed in our 5 point plan are at getting improved BSUOS forecasts. This includes an improved constraints input, and a future new model for BUSOS costs

Q: What has been driving costs since Monday? Do you expect margins to be tight on Thursday and Friday ?

A: We do not have access to detailed data from the wholesale market, and are not involved in the running of this market, so have no detailed insight into wholesale prices, and the decisions that buyers and sellers in that market are making.

Q: Why does the table on slide 15 give IC availability as 3.9GW? Surely there is 1GW from IE, BE, NE; 2GW from FR; and 700MW from NO, giving a total of 5.7GW.

A: The difference here is that the Table on slide 15 assumes the Irish interconnectors are exporting. The 3.9 GW availability is derived from assumptions that there is 4.7 GW available to import from mainland Europe and 0.8 GW available to export to Ireland (net is 3.9 GW)

Questions outstanding from last week

Q: The slides last week expected the B2/B4 boundary capacity to be near 100% from 9th December for the remainder of the month. What has led to this change to the outage plan?

A: The forecast has been updated by the new forecasting process presented on the 15th Dec. Previously the constraint limits forecast was only updated at year ahead. The new process will update the forecast constraint limits every month. The changes in limit will be due to changes in the outage plan.

Q: The 24 months ahead constraints limits published today show B6 as having a predicted capability of only 4.8GW for the next two years. The ETYS 2021 publication from a couple of weeks ago gives a current capability of 6.1GW. What is the reason for this difference?

A: For the calculation of the constraint limits for B6, in the 24 month ahead data set, we have used the worse case scenario with regards to the flows on NSL. Although NSL connects to the system below the B6 boundary, whether NSL is importing or exporting affects the flow of power on the East Coast circuits across the B6 boundary, affecting the constraint limit. We are currently using a worse case scenario in our studies as we gain operational experience of NSL. We will monitor the flows on NSL and the price differentials between GB and Norway to see if they give an accurate indication of the direction of flow (import or export). We will regularly review our study assumptions and if they do not represent likely scenarios we will make amendments.

Q: On 06.12.21 the capacity on Britned IC from UK to the NL has been curtailed by 911 MW without notice. Where can information about curtailments be found before capacity auction opening? When are such information published (earliest/latest)? How/when are curtailments ICs coordinated with other TSOs?

A: Information about IC capacity before auction opening is not available. NGESO is progressing work to publish our NTCs to give more clarity but this will similarly not be available before auction opening. But please note this does not extend to other parties NTCs.

Questions outstanding from last week

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Q: Given the outturn costs for November are at least £210m greater than the ESO forecast IN November, can the ESO dedicate a part of the next webinar to explaining? This would be helpful as the industry needs to forecast costs and cannot rely on the ESO's forecasts

A: We are planning a deep dive session into BSUoS costs and forecasting in January to share our plans on developing our forecasts further.

Q:In the MBSS data that is published, under the response tab there is a spend category called stability. Please can you provide an example of what this relates to.

A: Stability is a new product. It is there to ensure the stability of the system. It comprises Inertia, Short Circuit Level and Dynamic Voltage Support. It was required because previously this was provided as a by produce of synchronous generation, however since now more providers are renewables, and synchronous plant is being retired, it has been necessary to take a proactive approach in contracting for this service.

Q: Any update on publishing more data relating to mandatory frequency spend and actions? Spend on this is skyrocketing again but we have little visibility of why other than reduced commercial contracting in DC and FFR.

A: There are a number of publications which provide information related to our mandatory frequency response (MFR) spend actions, including the Monthly Balancing Services Summary (MBSS) and the Firm Frequency Response (FFR) Market Information report. We would welcome any suggestions as to what else could be provided and will do our best to accommodate wherever possible. We also expect to be able to further increase our provision of data publication when our data and analytics platform is established.

Part b (MFR cost):

The data in the MBSS shows that MFR costs have risen from an average of £1.46m in 2020 to an average of £3.96m in 2021 (Apr-Oct). However, monthly FFR costs have reduced from an average of £2.43m to £0.76m for the same period, whilst total volumes of PSH for MFR and FFR have seen a small decrease on average, but with a higher proportion of the volume through the mandatory market. This shift is in part due to assets which previously participated in MFR moving to the Dynamic Containment market. The introduction of dynamic containment has enabled significant cost reduction through the changes made via the Frequency Risk and Control Report, allowing us to set an expected level of both cost and risk on the system, resulting in savings of approximately £20m a month on average in balancing costs YTD compared to FY 20/21. More information can be found in the ESO Mid-Year Report 2021-22

Questions outstanding from last week

Q: Noting your answer to the earlier question, Is the ESO able to publish (actual or estimate) the status of the system on key metrics (e.g. volts, inertia, etc.) and how they compare versus the minimum system requirements (whether local or national) before any constraint actions were taken in the BM?

A: Our transparency roadmap outlines the data sets currently under development for publication over the year. We recently published an update to this and are looking at other requested datasets. Thank you for this suggestion – we will take on board when considering other datasets and sources that might be of use to the industry.

Q: NG regularly use S7 trades on I/C's. Is it not possible to contract with BMU's to get better value than within day BM offer prices currently submitted / taken

A: NGESO do regularly contract 7A trades with BMUs where there is a clear requirement that can be competitively met. More generally for energy related requirements such as margin, all BMUs are available in the BM competitively whereas ICs do not have the ability to offer BOAs so cross border energy has to be procured though 7A trades and is done so where it is competitive compared to other BM options.

Q: Would NG consider longer period S7A 'greater than or equal to' PN agreements to reduce costs on scarcity days?

A: we can often consider flexible duration trades so long as our requirements are met and costs are within merit.

Q: Noting the extremely high costs constraint costs in Scotland because Transmission capacity to the south has failed to meet increase penetration of wind, the ESO is planning to launch a Local Turndown Constraint Mgt service similar to ODFM next year. Can you say more about this pls?

A: This workstream is accelerating the market delivery to access distribution connected assets in Scotland. The Local Constraint Market is intended to offer a competitive alternative to Balancing Mechanism actions when resolving Anglo-Scottish boundary constraints via generation turndown / demand turn-up.

We intend to deliver this service by late 2022, and be present until longer-term solutions in this area (potentially through Regional Development Programmes) are delivered in Scottish regions in circa 2025.

Questions outstanding from last week

Q: Where will the ESO present their Locational ODFM new product then?

A: We are assessing a Local Constraint Management service in order to make it suitable for managing constraints whilst remaining accessible to new sources of DER. For the avoidance of doubt, this is not an ODFM service as the requirement and usage will be quite different. ODFM was the last action once all commercial actions had been taken prior to demand disconnection, whereas the LCM will be used as part of our general suite of balancing tools. We intend to publish a draft service design early in the new year for industry feedback. We intend to coordinate external engagement including the Operational Transparency Forum.

Q: Any updates on the ISM operational metering map?

A: We are still working on this list of operational generators that feed into the INDO calculation and should have something to share in the new year.

Future forum topics

While we want to remain flexible to provide insight on operational challenges when they happen, we appreciate you want to know when we will cover topics.

We have the following deep dives planned:

January:
12th Jan: Demand Forecasting methodology (high level overview)
BSUoS Forecasting
SO – SO Trading

February:
Balancing Services Adjustment Data (BSAD) Overview

December Forums

We have set out the following timetable for the rest of the OTFs in December :

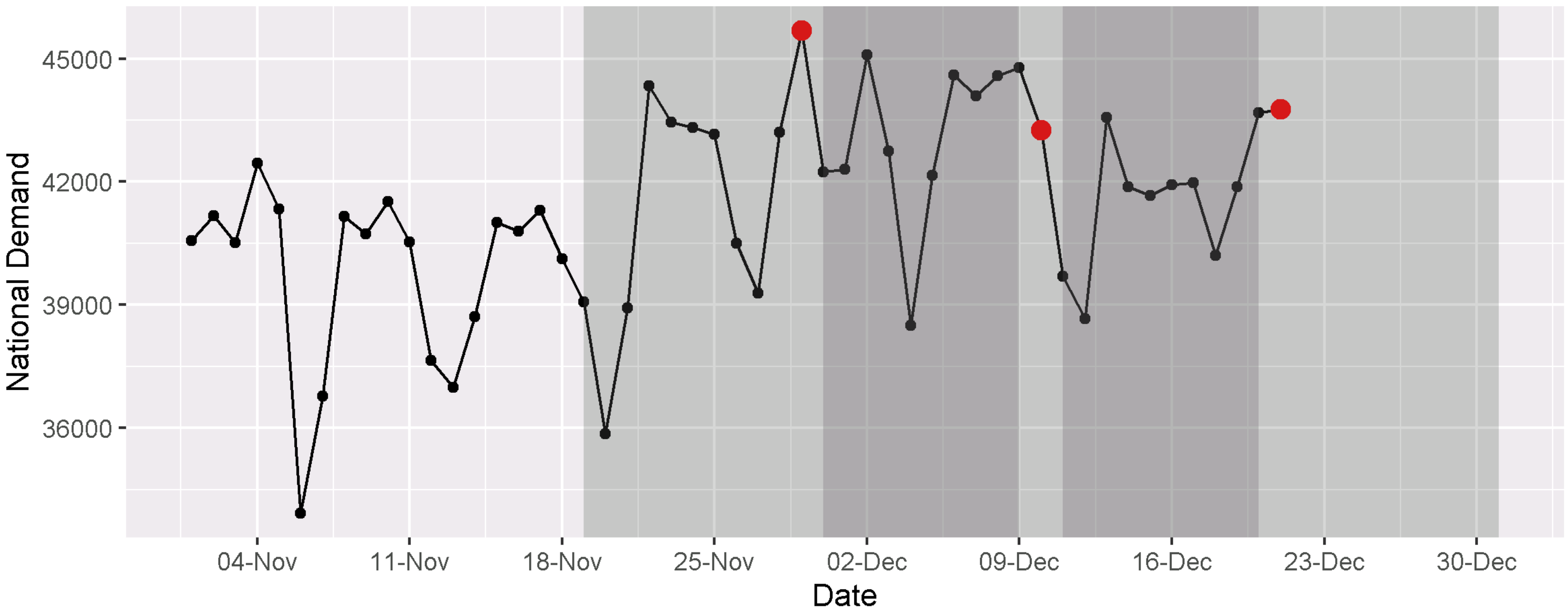
29th December - No OTF as many Subject Matter Experts (SMEs) are on holiday

05 January 2022 - OTF as usual – responding to Q&As received previously

We would like to remind people that you can always send in your questions to the following e-mail address, and we will provide answers at the beginning of the new year.

box.NC.Customer@nationalgrideso.com

Demand | Indicative Peak National Demand

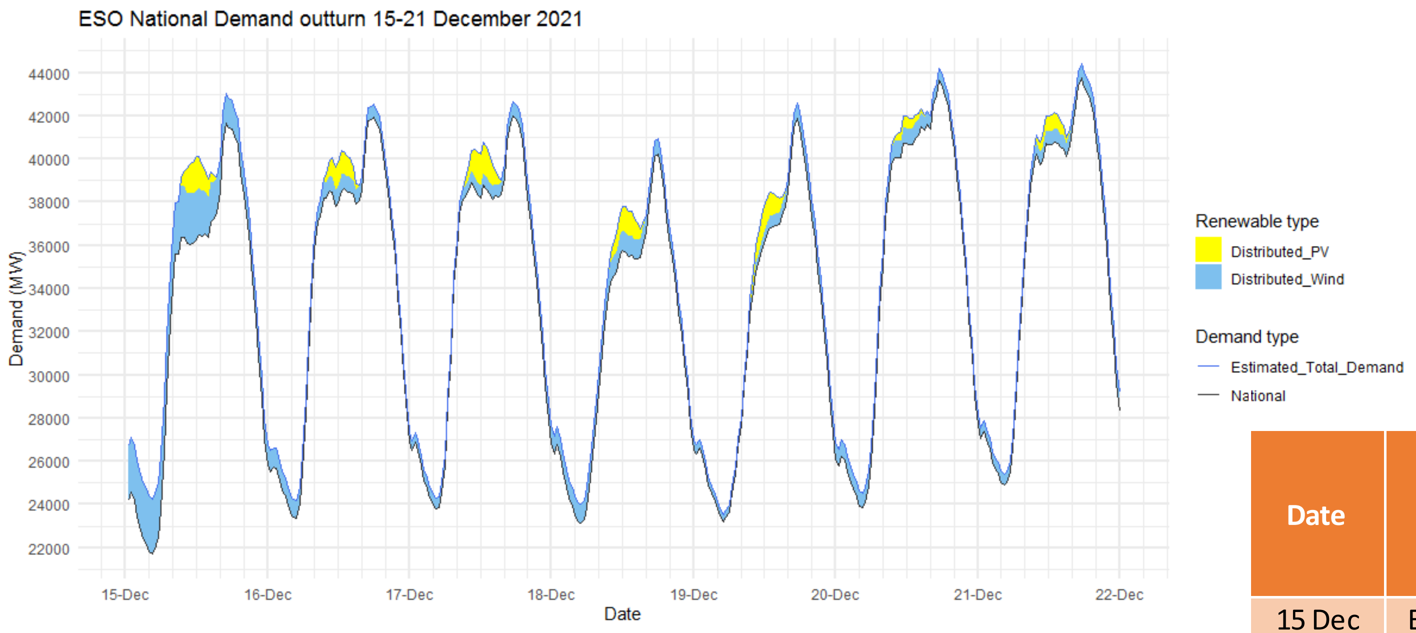


ESO operational metering			
Date	Time (HH ending)	National Demand (MW)	Estimated triad avoidance (HH corresponding with the time of the peak) (MW)
29/11/2021	1730	45679	0
21/12/2021	1730	43769	900
10/12/2021	1730	43250	0

National Demand does not include station load.

Indicative triad demand on Elexon's BMRS website quotes "GB Demand" which is based on the Transmission System Demand definition (it adds 500MW of station load onto the National Demand). It shows time as half hour beginning.

Demand | Last 7 days outturn

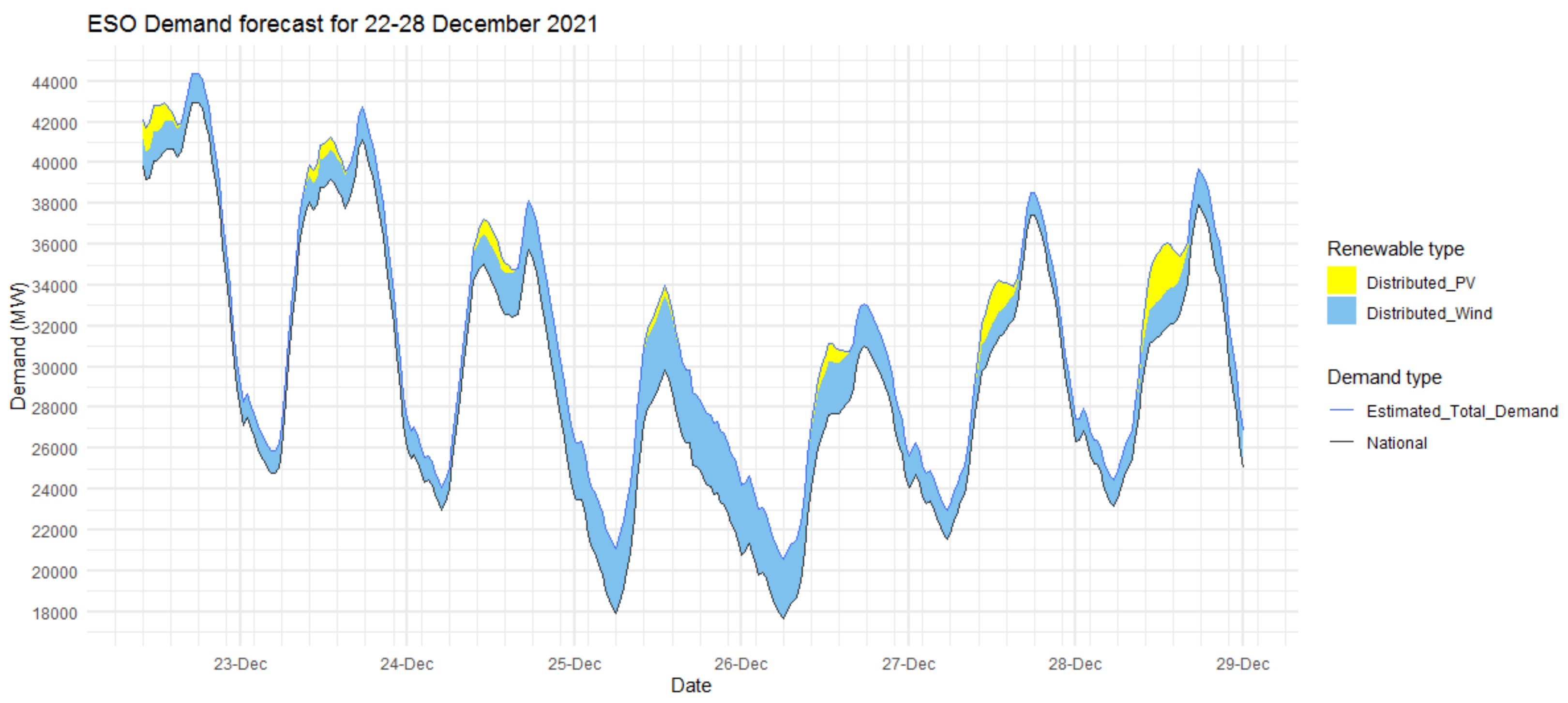


The black line (National Demand) is the measure of portion of total GB customer demand that is supplied by the transmission network.

Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it does not include demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

		FORECAST (Wed 15		OUTTURN			
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Triad Avoidance est. (GW)	N. Demand adjusted for TA (GW)	Dist. wind (GW)
15 Dec	Evening Peak	42.3	1.3	41.7	0.0	41.7	1.4
16 Dec	Overnight Min	23.8	0.8	23.4	n/a	n/a	0.8
16 Dec	Evening Peak	44.0	0.6	41.9	0.5	42.4	0.6
17 Dec	Overnight Min	25.1	0.3	23.8	n/a	n/a	0.5
17 Dec	Evening Peak	43.9	0.4	42.0	0.6	42.6	0.6
18 Dec	Overnight Min	24.1	0.6	23.1	n/a	n/a	0.9
18 Dec	Evening Peak	40.3	0.7	40.2	0.0	40.2	0.7
19 Dec	Overnight Min	23.7	0.4	23.2	n/a	n/a	0.3
19 Dec	Evening Peak	42.0	0.4	41.9	0.0	41.9	0.7
20 Dec	Overnight Min	25.1	0.4	23.8	n/a	n/a	0.7
20 Dec	Evening Peak	46.6	0.4	43.6	0.5	44.1	0.6
21 Dec	Overnight Min	26.5	0.4	24.9	n/a	n/a	0.5
21 Dec	Evening Peak	46.7	0.6	43.8	0.9	44.7	0.7

Demand | Week Ahead



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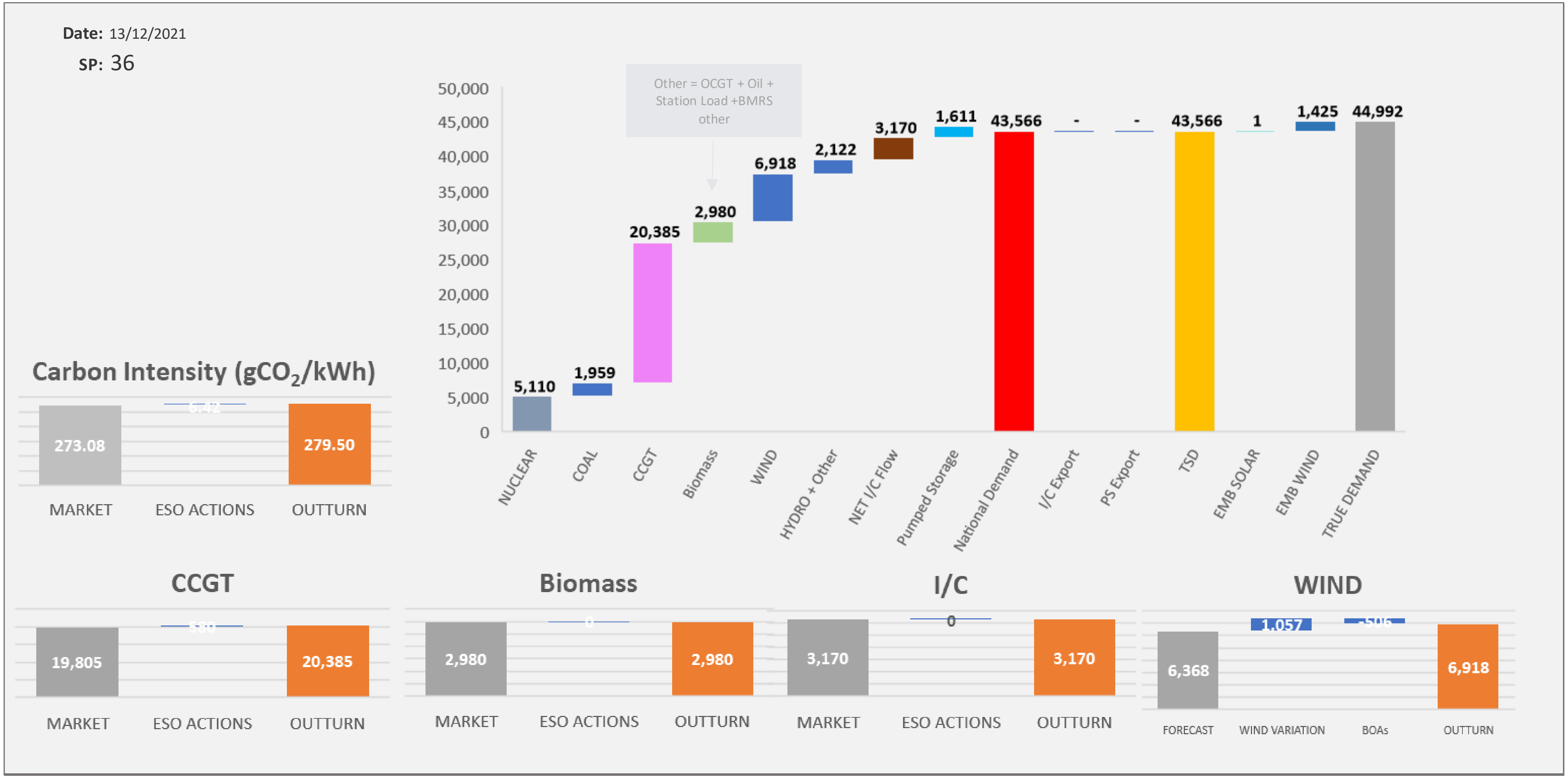
		FORECAST (Wed 22	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
22 Dec 2021	Evening Peak	43.0	1.4
23 Dec 2021	Overnight Min	24.8	1.1
23 Dec 2021	Evening Peak	41.1	1.6
24 Dec 2021	Overnight Min	23.0	1.1
24 Dec 2021	Evening Peak	35.7	2.4
25 Dec 2021	Overnight Min	17.9	3.2
25 Dec 2021	Evening Peak	25.2	3.5
26 Dec 2021	Overnight Min	17.6	2.9
26 Dec 2021	Evening Peak	31.0	2.1
27 Dec 2021	Overnight Min	21.5	1.4
27 Dec 2021	Evening Peak	37.4	1.1
28 Dec 2021	Overnight Min	23.1	1.3
28 Dec 2021	Evening Peak	37.9	1.8

ESO Actions | Monday 13 December Peak



Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

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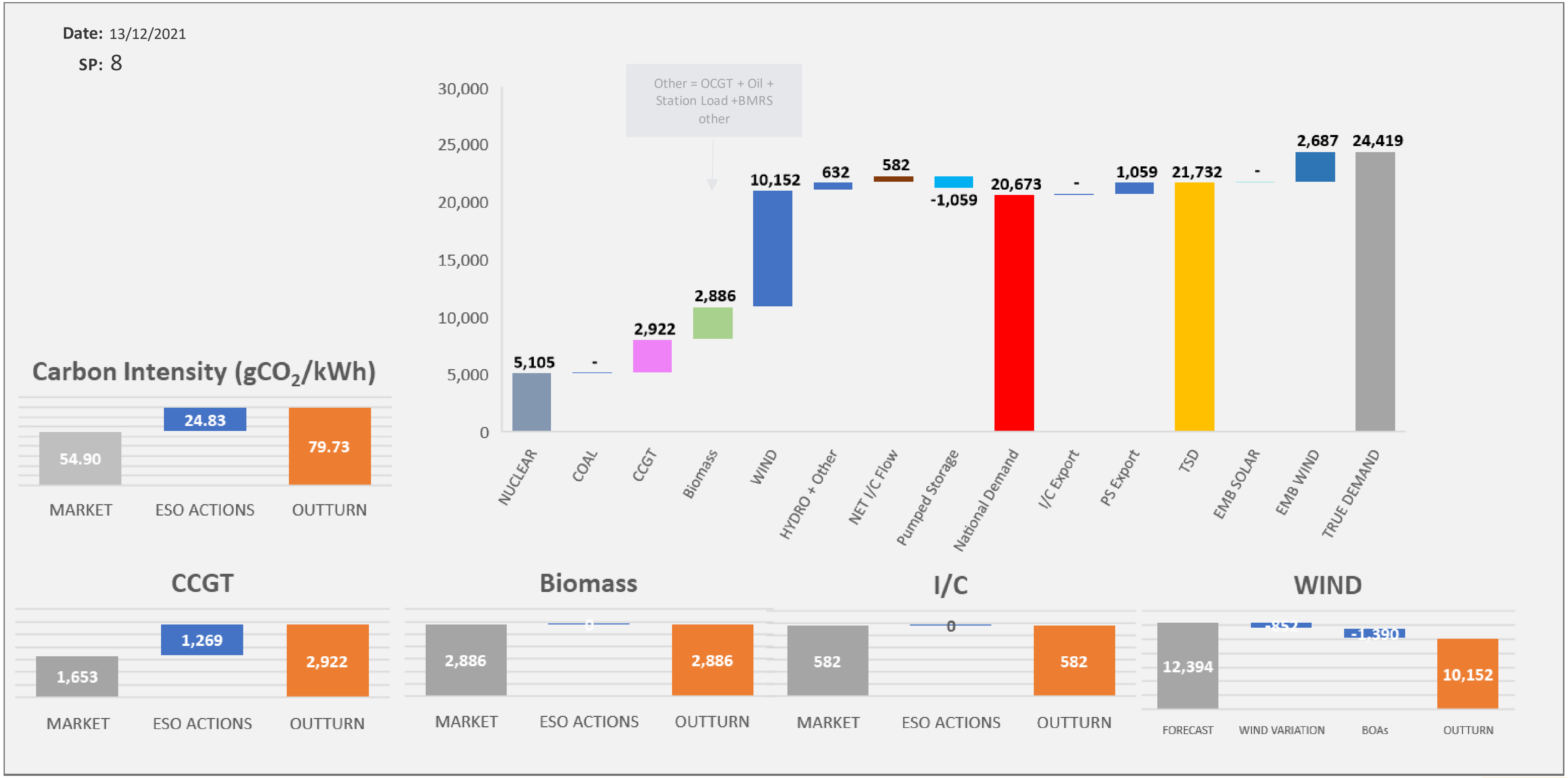
ESO Actions | Monday 13 December Minimum



Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

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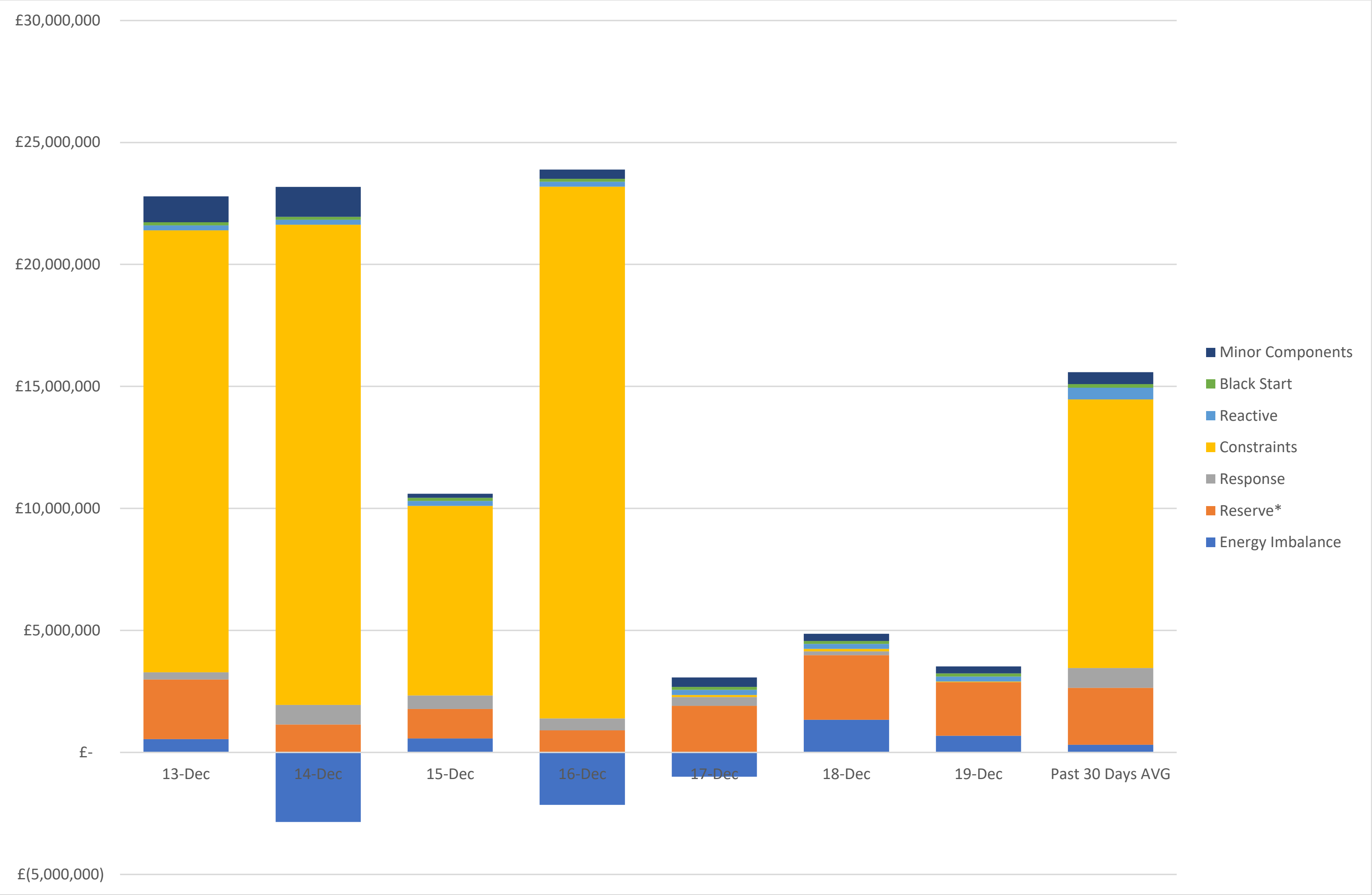
Transparency | Costs for the last week



The first part of the week shows high daily costs triggered by large volume BM actions to reduce generation to manage thermal constraints due to windy weather.

Monday, Tuesday and Thursday daily costs were above £20m, Wednesday around £10m.

Over the weekend daily costs remained below £5m. With Reserve being the main cost component.

Past 30 Days Average added

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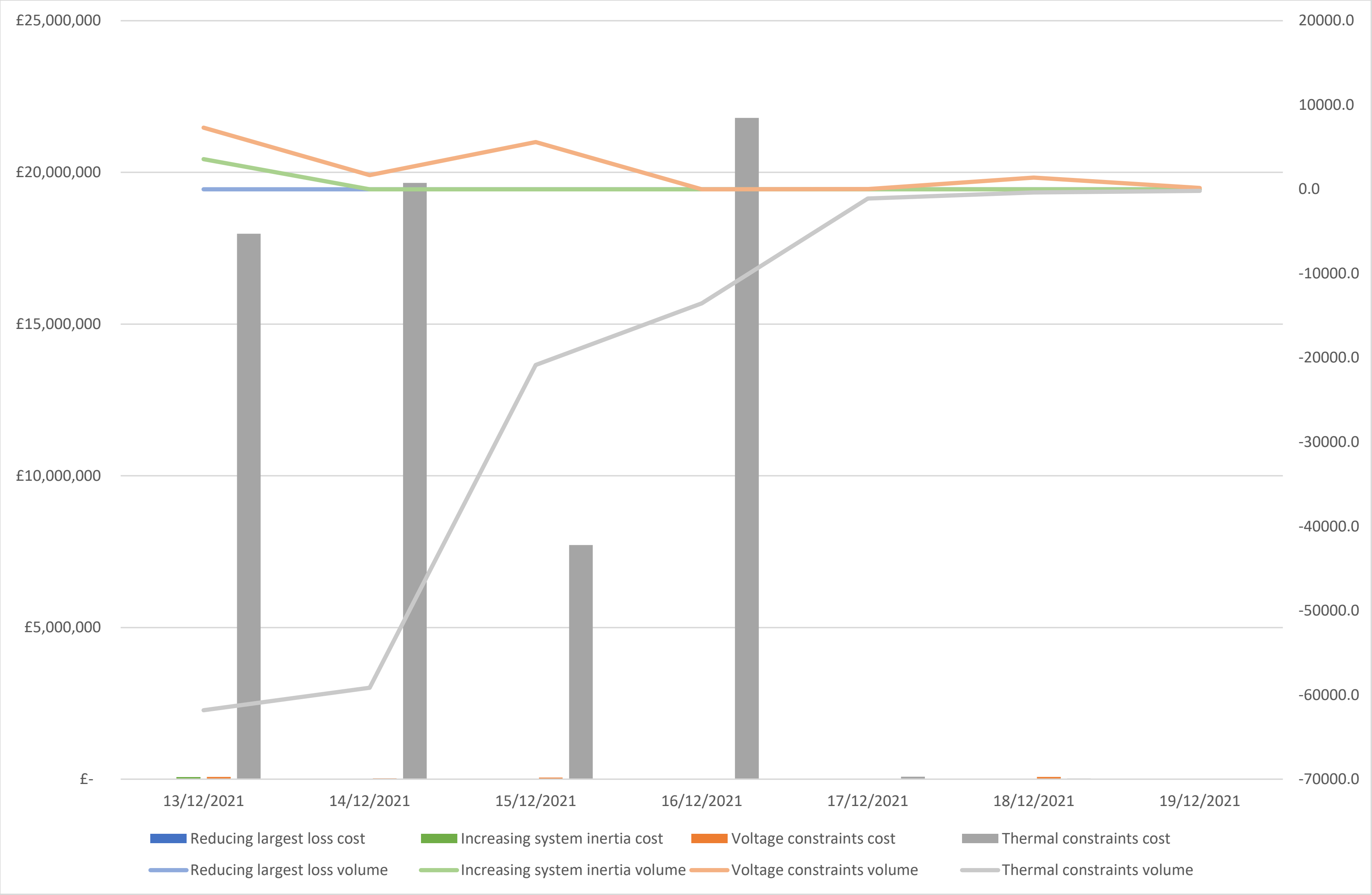
Transparency | Constraint cost breakdown



Thermal
Monday through Thursday, high volume of actions required to manage thermal constraints.

Voltage
Monday, Wednesday, Saturday some action required to synchronise generation to meet voltage requirements

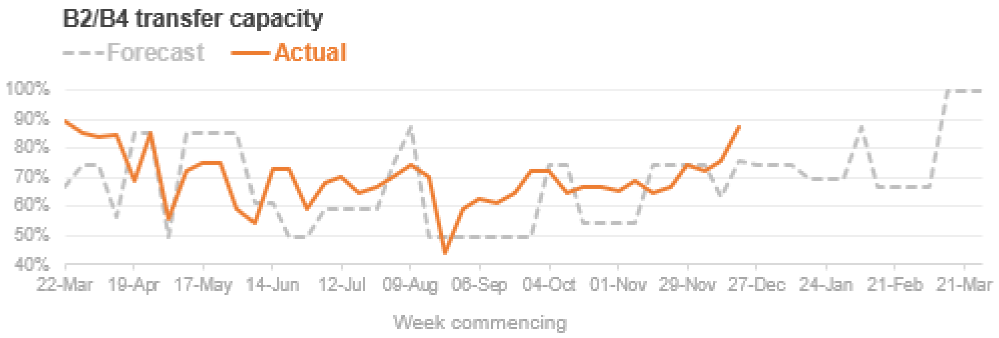
Managing largest loss for RoCoF
No action required to manage largest loss on interconnectors.

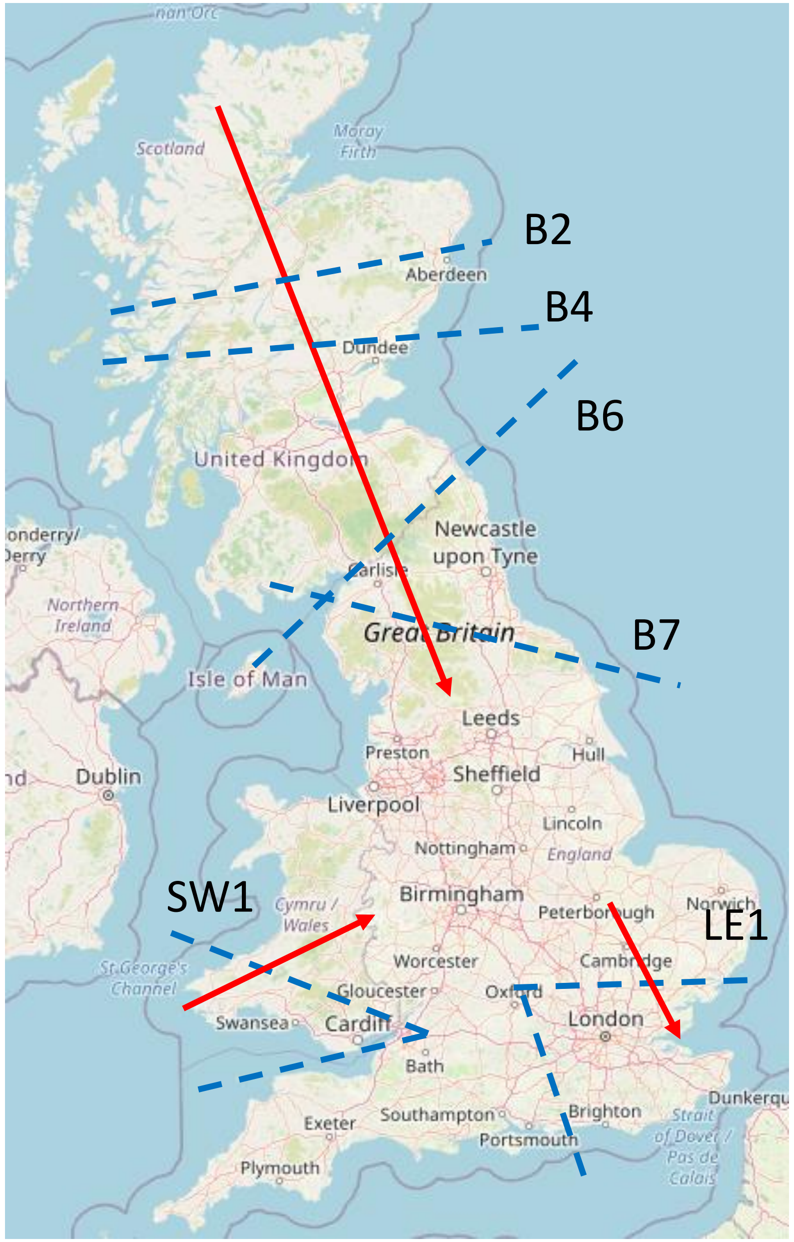
Increasing inertia
Monday intervention required to increase minimum inertia.

https://data.nationalgrideso.com/balancing/constraint-breakdown

Transparency | Constraint Capacity

100% transfer capacity (MW)	
B6	5400
B7	8250
B2/B4	2700





Balancing Market Review

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Register your interest to participate in the Balancing Market review

Terms of reference for the review are available on our webpage: https://www.nationalgrideso.com/news/balancing-market-review-terms-reference

Contact the Market Monitoring team at: MarketReporting@nationalgrideso.com

Q&A

As we don’t have a live Q&A session today, any questions asked via Slido (code #OTF) or via email will be responded to at January’s OTF on the 5th January 2022.

Please continue to use your normal communication channels with ESO.

If you have any questions after the event, please contact the following email address:
box.NC.Customer@nationalgrideso.com

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