



# ESO Operational Transparency Forum

10 May 2023

You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

- Click on the 3 dots icon / 'More'
- Click 'Turn on live captions'

## Introduction | Sli.do code #OTF

Please visit [www.sli.do](http://www.sli.do) and enter the code #OTF to ask questions & provide us with post event feedback.

We will answer as many questions as possible at the end of the session. We may have to take away some questions and provide feedback from our expert colleagues in these areas during a future forum. **Ask your questions early in the session to give more opportunity to pull together the right people for responses.**

To tailor our forum and topics further we have asked for names (or organisations, or industry sector) against Sli.do questions. If you do not feel able to ask a question in this way please use the Advanced questions option (see below) or email us at: [box.NC.Customer@nationalgrideso.com](mailto:box.NC.Customer@nationalgrideso.com)

These slides, event recordings and further information about the webinars can be found at the following location:

Advanced question can be asked here: <https://forms.office.com/r/k0AEfKnai3>

**Stay up to date on our new webpage:** <https://www.nationalgrideso.com/OTF>

## Future deep dive / focus topics

### Future

Coronation review – 17th May

If you have suggestions for future deep dives or focus topics please send them to us at:  
[.box.NC.customer@nationalgrideso.com](mailto:.box.NC.customer@nationalgrideso.com) and we will consider including them in a future forum

## Dispatch Transparency Event

We will be hosting an online event on **the morning of Friday 2<sup>nd</sup> June** for a deep dive about how we dispatch and "Skip Rates".

Content will be similar to the event held on 5 December 2022, including:

- How the ESO currently dispatches – illustrating the cumulative challenges faced by our control engineers and explaining our approach to managing this
- The future of dispatch – overview of the Open Balancing Platform roadmap highlighting how progress will improve transparency and support the control room to manage the dispatch challenges
- Current ESO Dispatch Transparency methodology – explaining the reasons for accepting bids or offers which appear to be out of merit; or not accepting those which appear to be in merit. Including risk management actions

There will also be opportunity for a Q & A session and all materials, including the event recording will be shared.

**Please register here:** <https://forms.office.com/r/LHpReRqWCp>

## Balancing Programme Engagement event

- On the **15<sup>th</sup> June** the Balancing Programme will be hosting their next engagement event in London.
- As part of our ongoing commitment to keep you, our stakeholders, informed of our progress to transform our balancing capabilities and continue to ensure our roadmap for the future has your input and meets your needs.
- The details of the event are below:

**Date:** 15<sup>th</sup> June

**Time:** 09:00 – 16:30

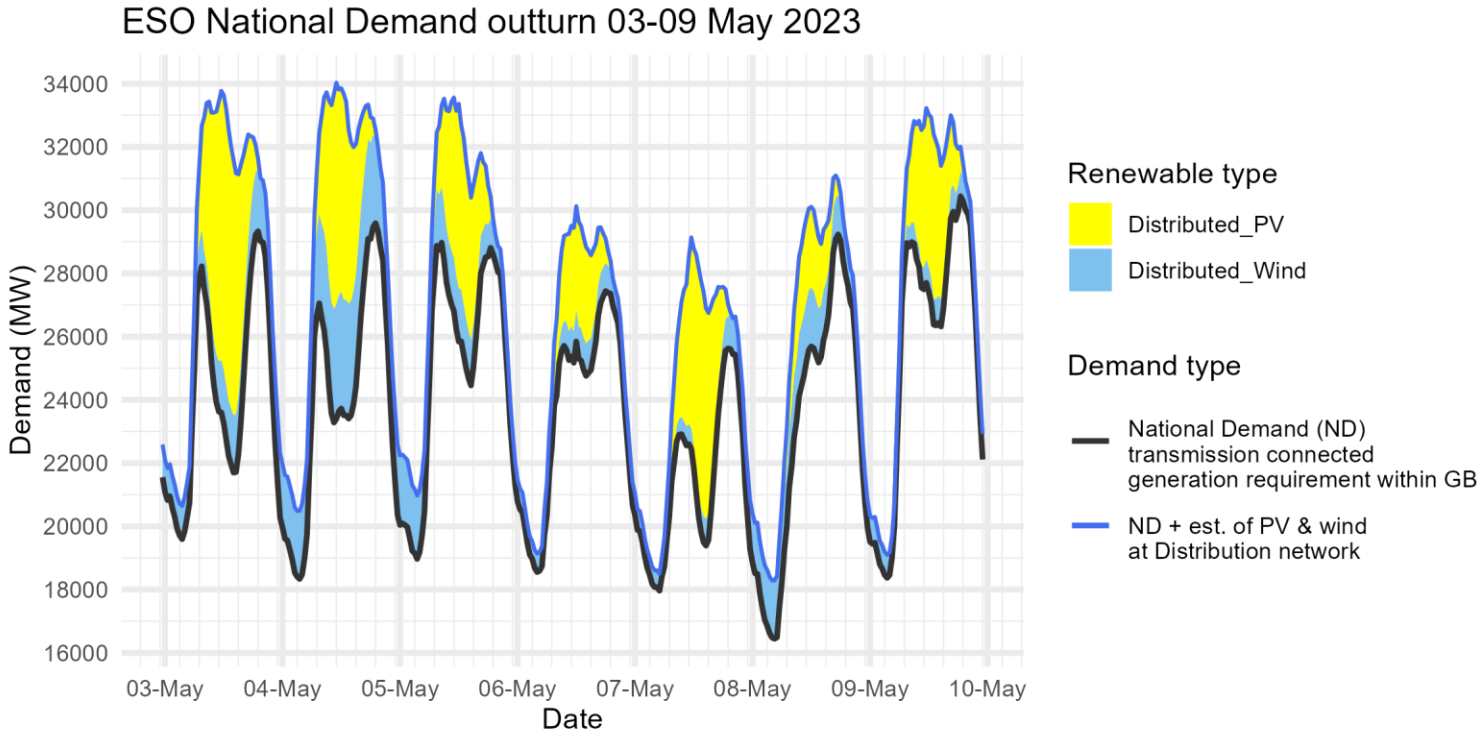
**Venue:** Hilton London Paddington, 146 Praed St, London, W2 1EE

- You can register your attendance at the event at [this link](#)

If you have any questions please get in touch by emailing [.box.balancingprogramme@nationalgrideso.com](mailto:.box.balancingprogramme@nationalgrideso.com)



# Demand | Last week demand out-turn



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

ND values **do not include** export on interconnectors or pumping or station load

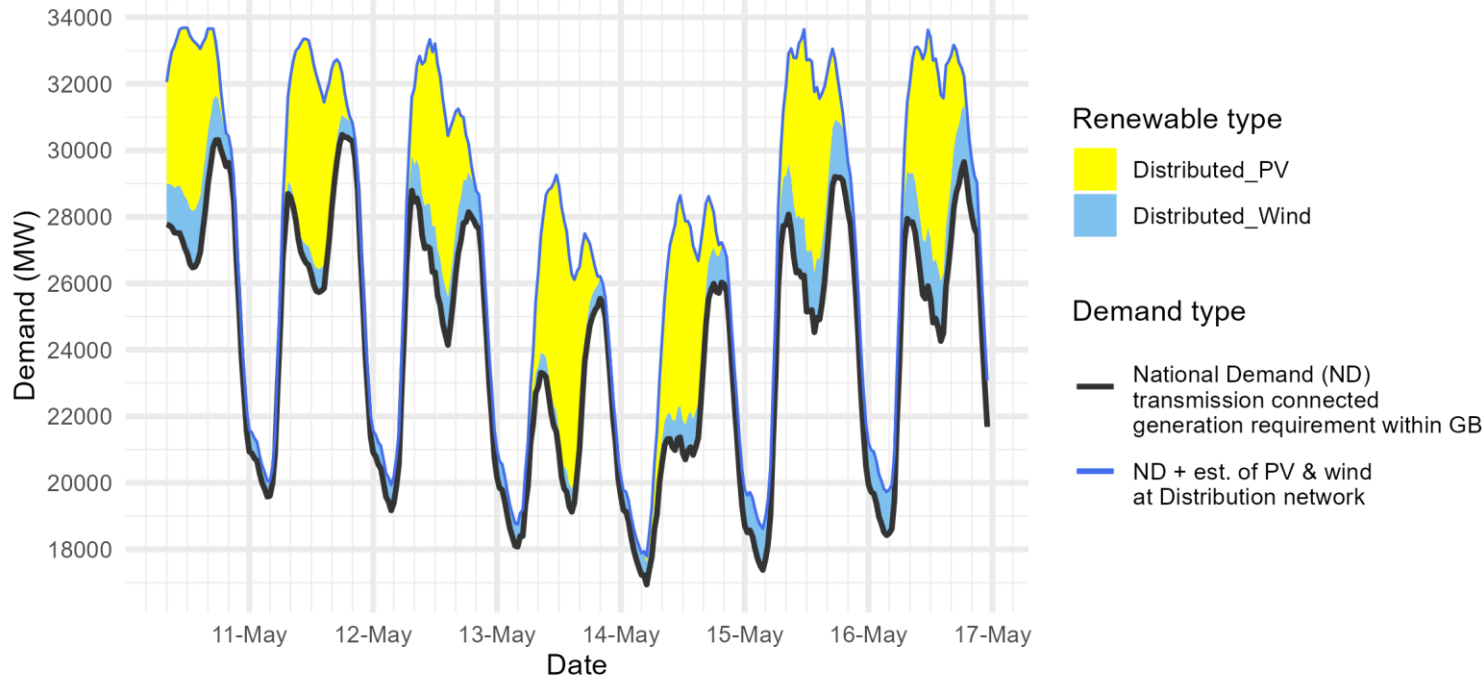
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it **does not include** demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

Historic out-turn data can be found on the [ESO Data Portal](#) in the following data sets: [Historic Demand Data](#) & [Demand Data Update](#)

Date	Forecasting Point	FORECAST (Wed 03 May)			OUTTURN		
		National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
03 May	Afternoon Min	22.6	1.8	8.3	21.7	1.8	8.1
04 May	Overnight Min	18.7	2.1	0.0	18.3	2.2	0.0
04 May	Afternoon Min	22.6	3.6	5.4	23.4	3.6	5.5
05 May	Overnight Min	18.9	1.5	0.0	19.0	2.0	0.0
05 May	Afternoon Min	24.1	1.5	5.1	24.5	1.4	4.5
06 May	Overnight Min	18.5	0.8	0.0	18.6	0.6	0.0
06 May	Afternoon Min	21.9	1.3	3.8	24.8	1.0	3.0
07 May	Overnight Min	17.7	0.7	0.0	18.0	0.5	0.0
07 May	Afternoon Min	20.6	1.0	5.5	19.4	0.8	6.7
08 May	Overnight Min	16.3	0.9	0.0	16.4	1.8	0.0
08 May	Afternoon Min	21.8	1.4	3.8	25.2	1.7	2.3
09 May	Overnight Min	19.0	1.0	0.0	18.4	0.7	0.0
09 May	Afternoon Min	25.0	1.3	5.2	26.3	0.9	4.2

# Demand | Week Ahead

ESO Demand forecast for 10-16 May 2023



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

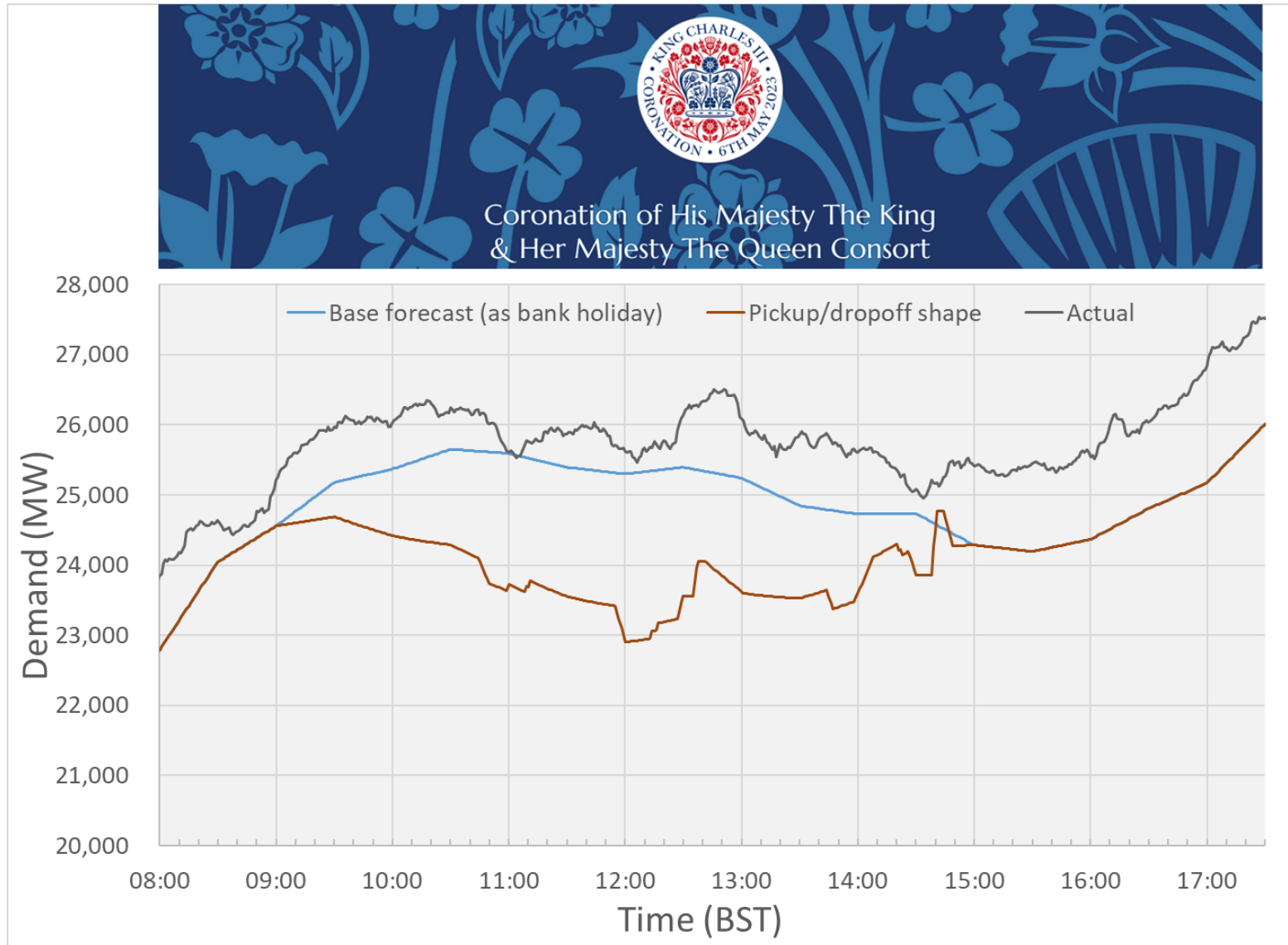
ND values **do not include** export on interconnectors or pumping or station load

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 10 May)		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
10 May 2023	Afternoon Min	26.5	1.7	5.2
11 May 2023	Overnight Min	19.6	0.5	0.0
11 May 2023	Afternoon Min	25.7	0.7	5.6
12 May 2023	Overnight Min	19.2	0.8	0.0
12 May 2023	Afternoon Min	24.1	1.4	4.8
13 May 2023	Overnight Min	18.1	0.7	0.0
13 May 2023	Afternoon Min	19.1	0.7	6.4
14 May 2023	Overnight Min	16.9	0.7	0.2
14 May 2023	Afternoon Min	20.7	1.0	6.1
15 May 2023	Overnight Min	17.4	1.2	0.0
15 May 2023	Afternoon Min	24.5	1.8	5.4
16 May 2023	Overnight Min	18.4	1.3	0.0
16 May 2023	Afternoon Min	24.3	1.8	5.6

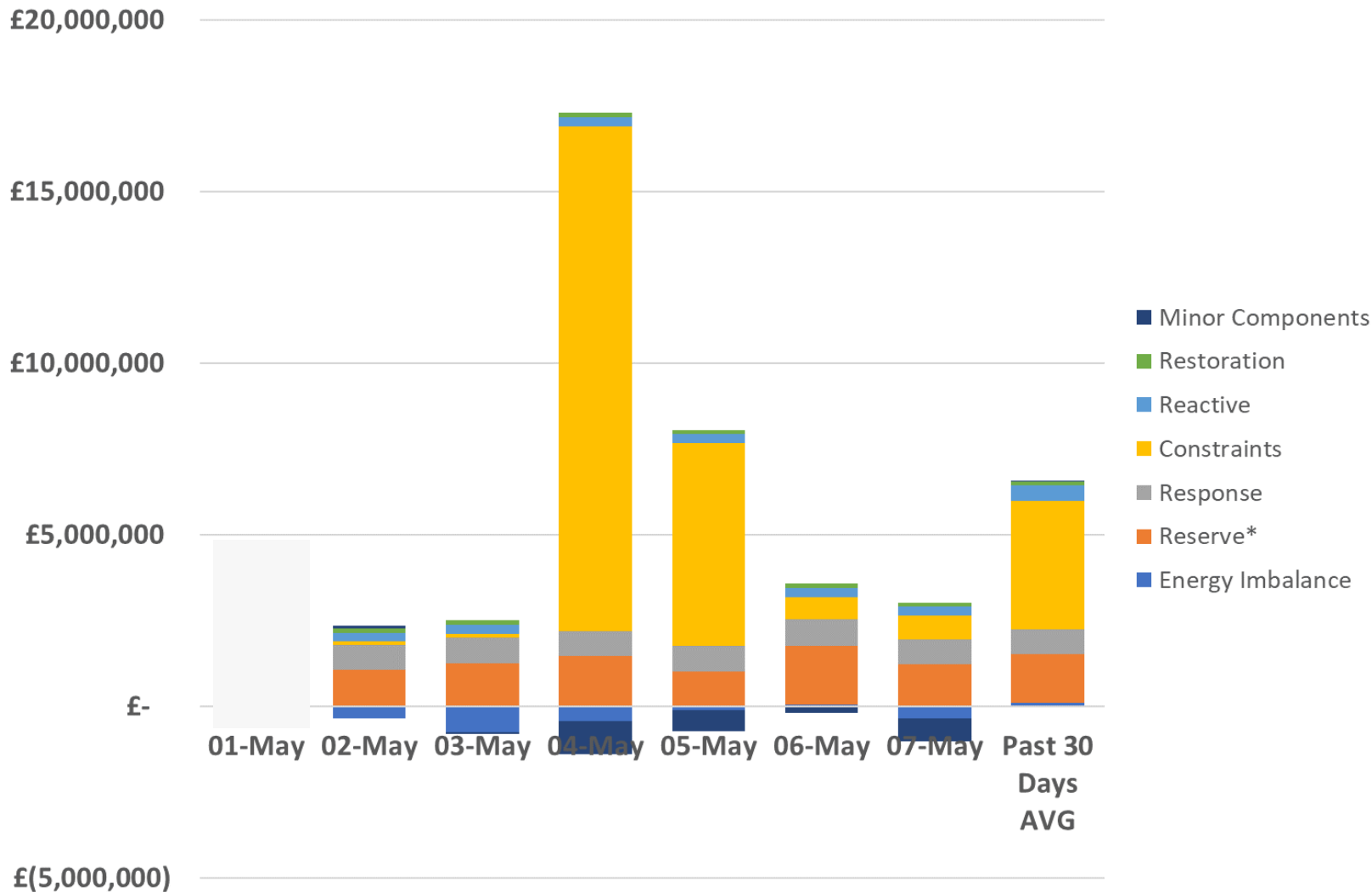
Historic out-turn data can be found on the [ESO Data Portal](#) in the following data sets: [Historic Demand Data](#) & [Demand Data Update](#)

# Demand | Coronation teaser





# ESO Actions | Category costs breakdown for the last week



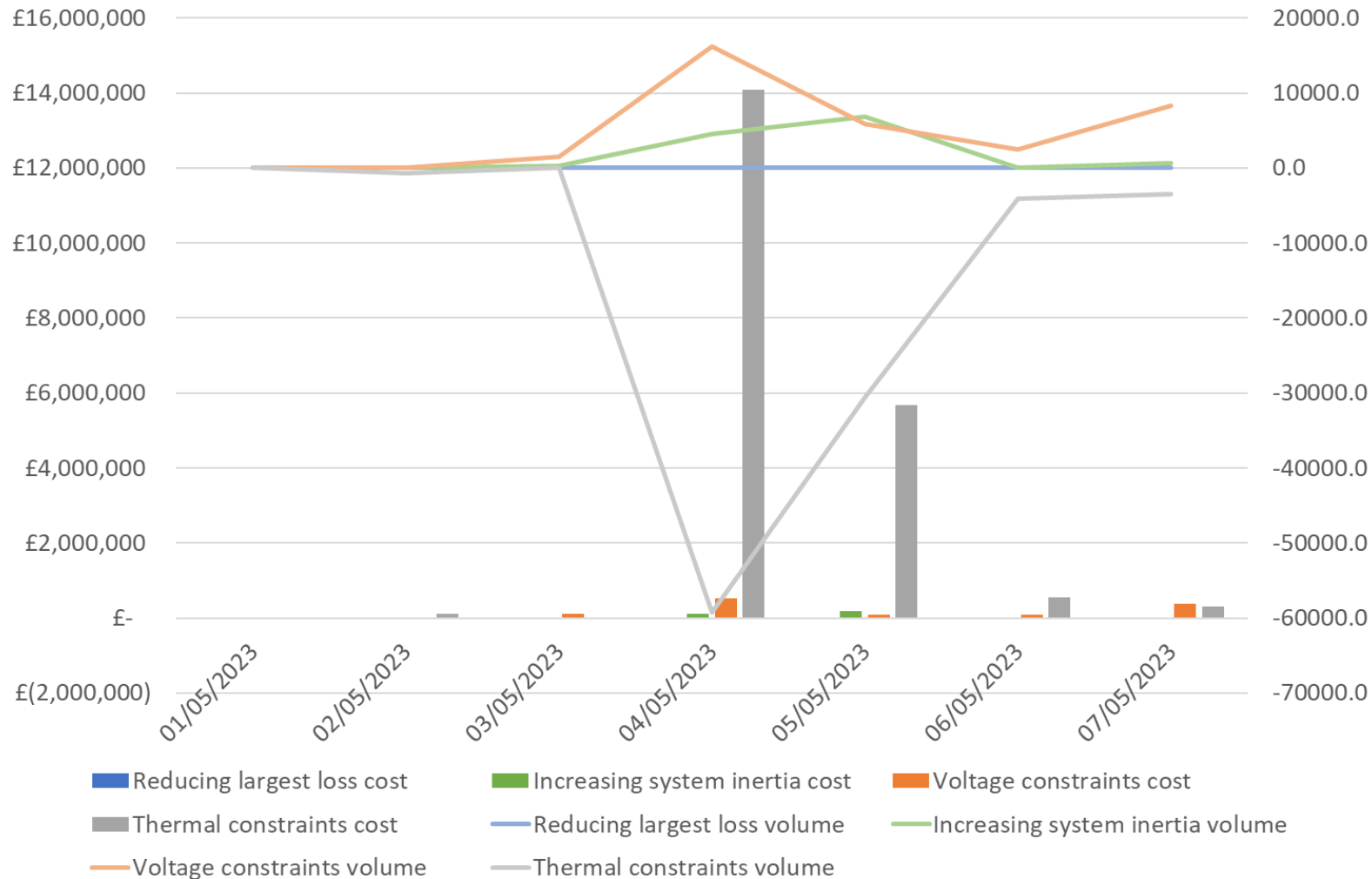
Date	Total (£m)
01/05/2023	
02/05/2023	2.0
03/05/2023	1.7
04/05/2023	15.9
05/05/2023	7.3
06/05/2023	3.4
07/05/2023	2.0
<b>Weekly Total</b>	<b>32.2</b>

Constraints costs were the key cost component throughout the week.

Please note that all the categories are presented and explained in the MBSS.

**Data issue:** Please note that due to a data issue on a few days over the last few months, the Minor Components line in Non-Constraint Costs is capturing some costs on those days which should be attributed to different categories. It has been identified that a significant portion of these costs should be allocated to the Operating Reserve Category. Although the categorisation of costs is not correct, we are confident that the total costs are correct in all months. We continue to investigate and will advise when we have a resolution.

# ESO Actions | Constraint Cost Breakdown



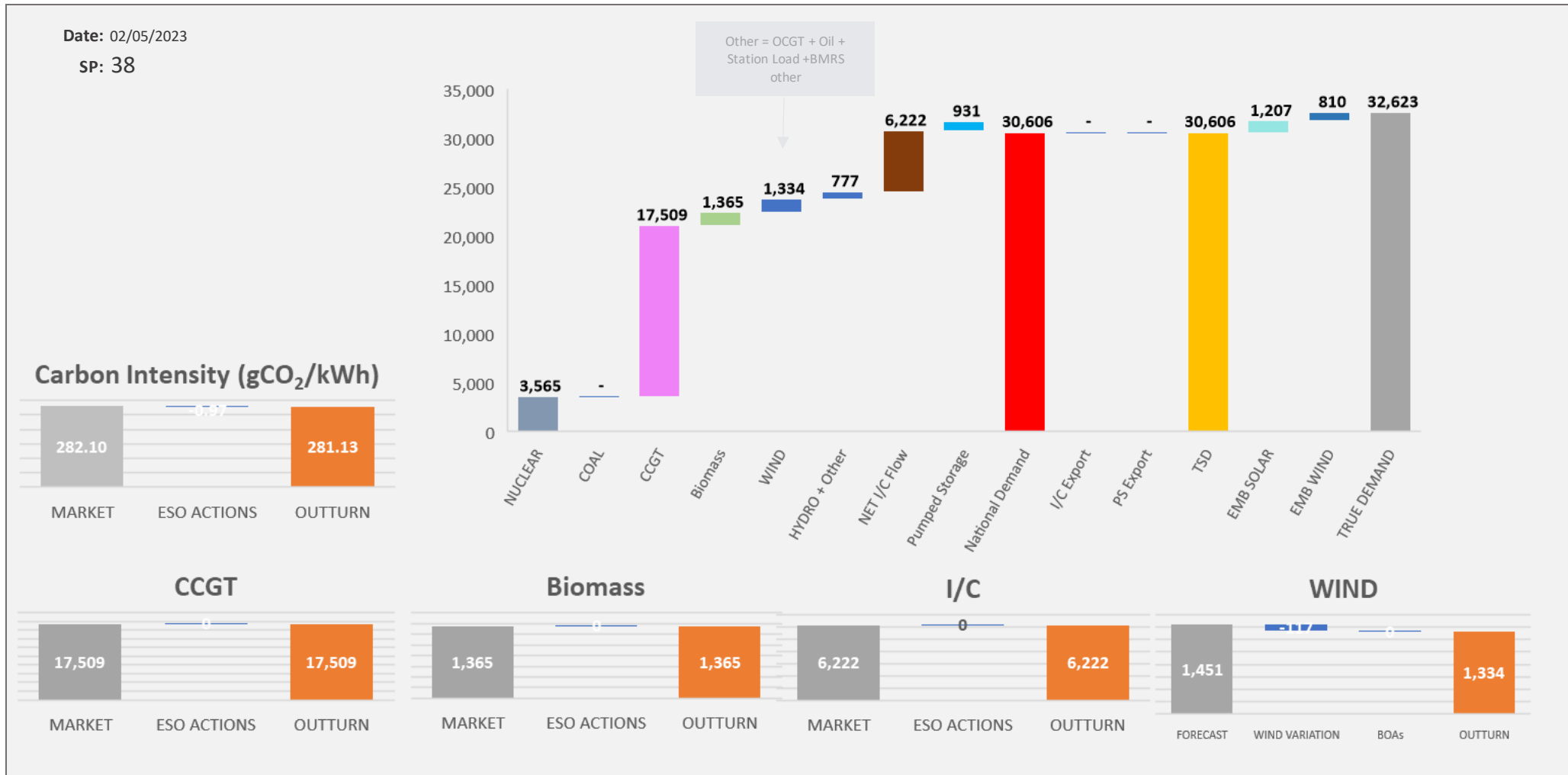
**Thermal – network congestion**  
 Actions required to manage Thermal Constraints throughout the week with the highest costs on Thu.

**Voltage**  
 Intervention was required to manage voltage levels from Wed onwards.

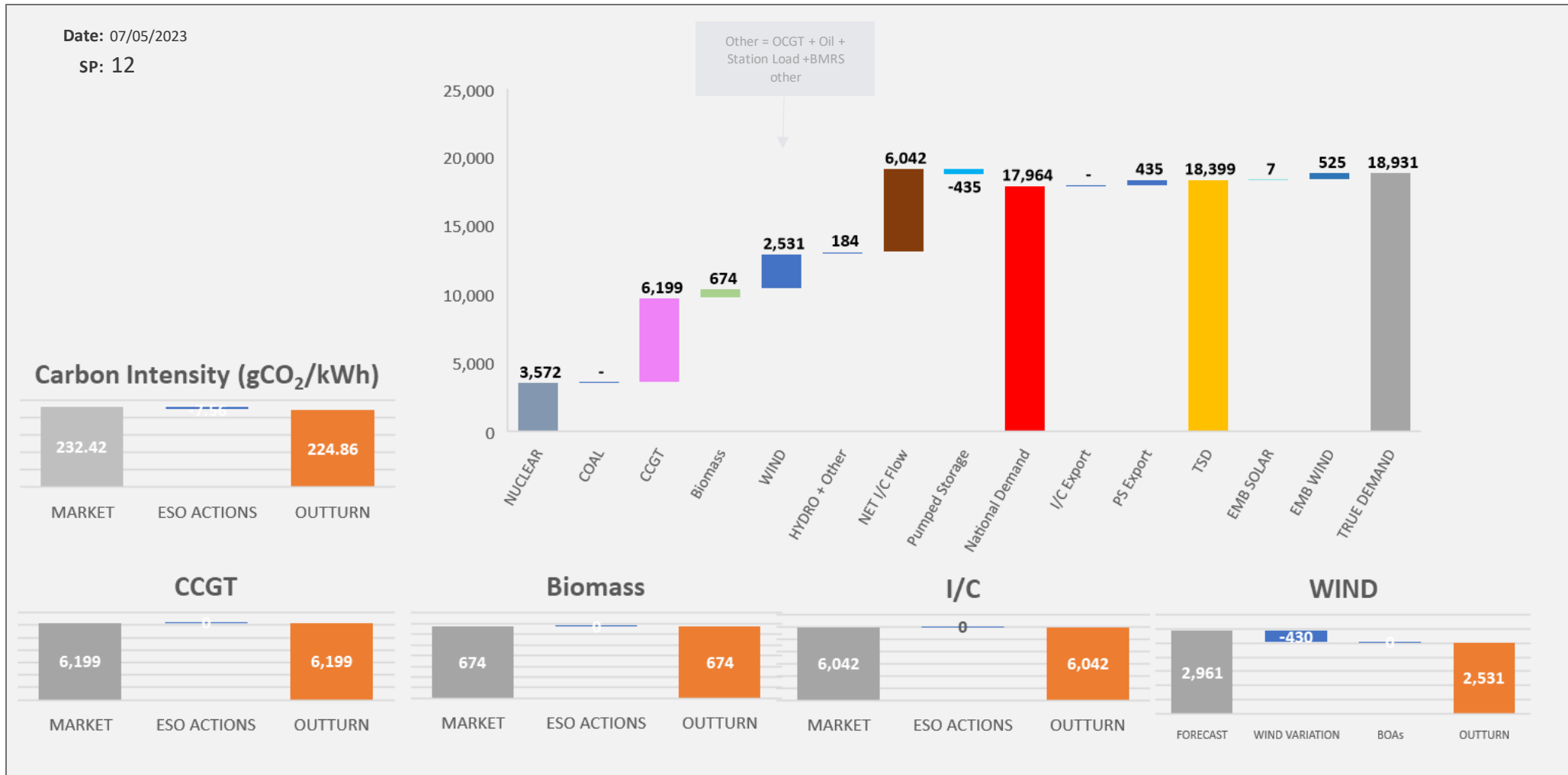
**Managing largest loss for RoCoF**  
 No intervention was required to manage largest loss.

**Increasing inertia**  
 Intervention was required to manage system inertia on Thu & Fri.

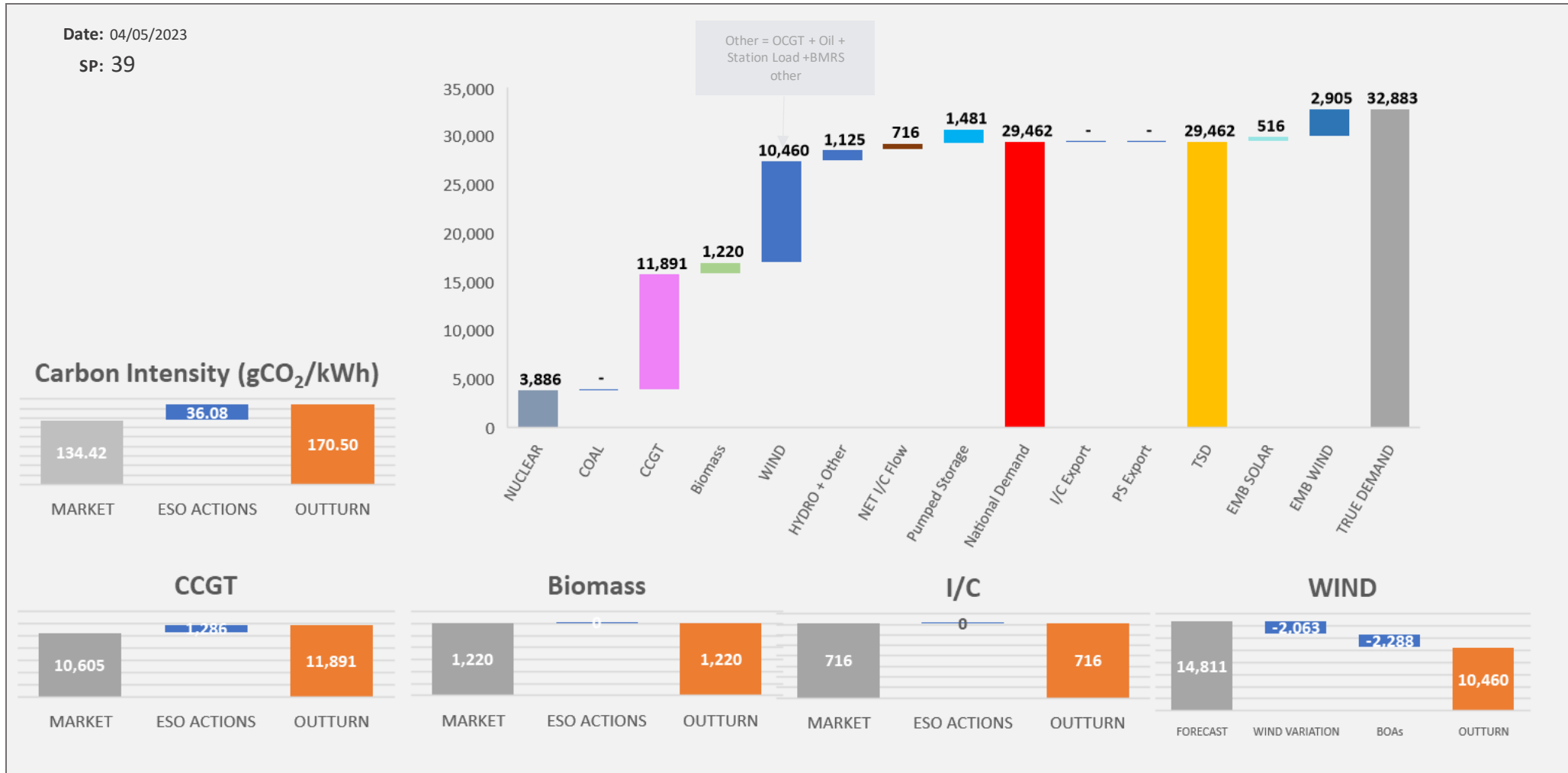
# ESO Actions | Tuesday 2 May – Peak Demand – SP spend ~£19k



# ESO Actions | Sunday 7 May – Minimum Demand – SP Spend ~£26k

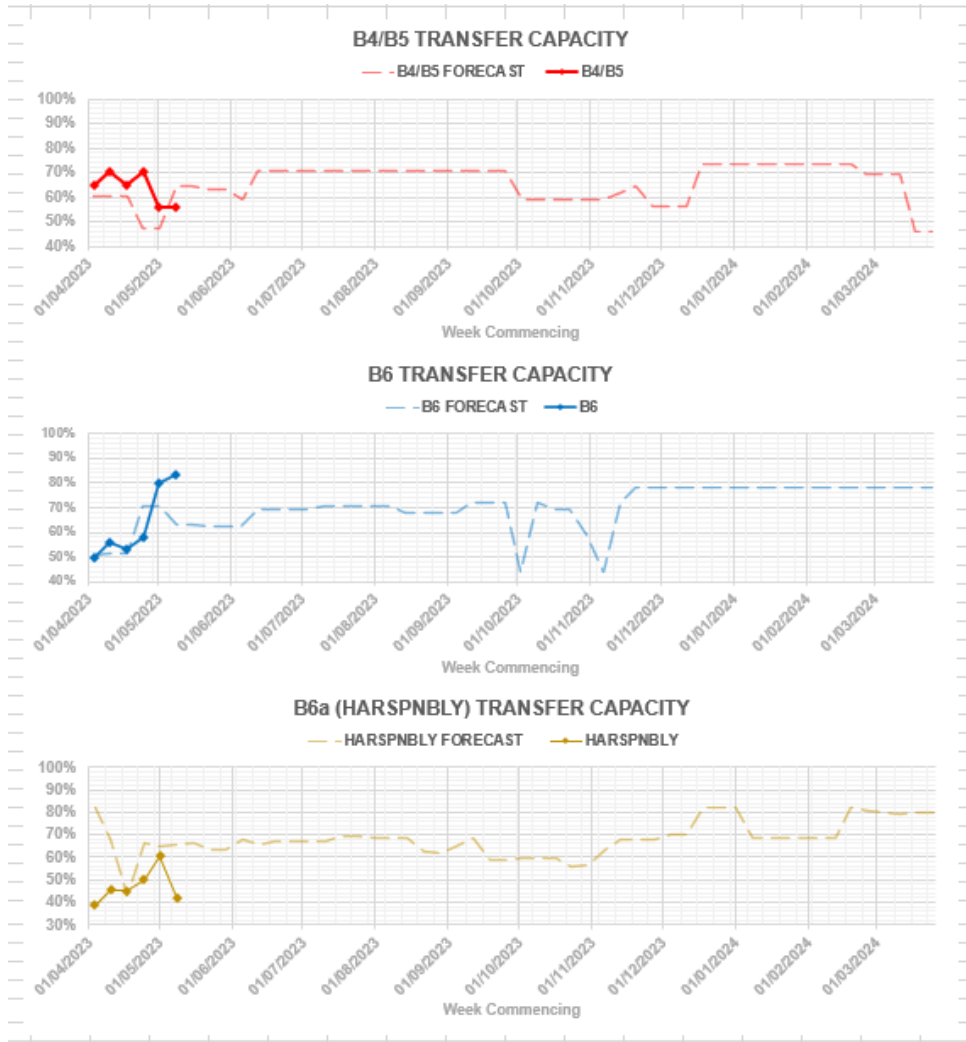


# ESO Actions | Thursday 4 May – Highest SP Spend ~£638k

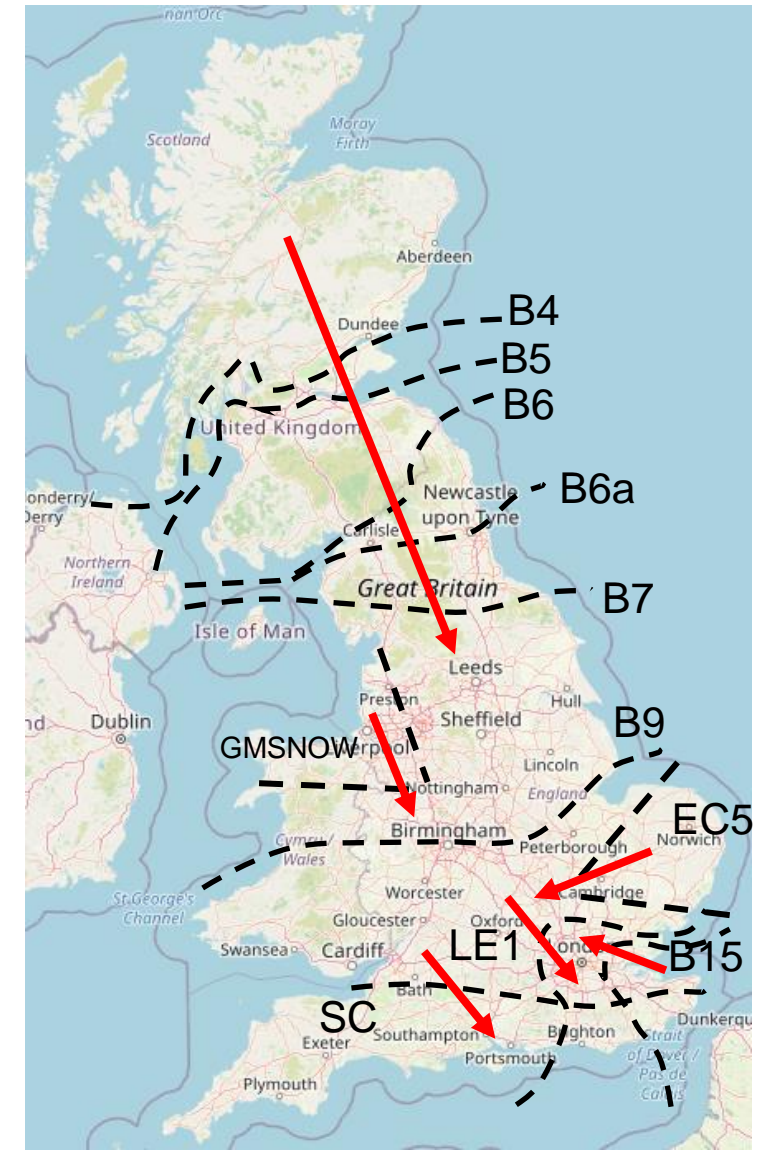


Carbon Intensity data on data portal: <https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions>

# Transparency | Network Congestion



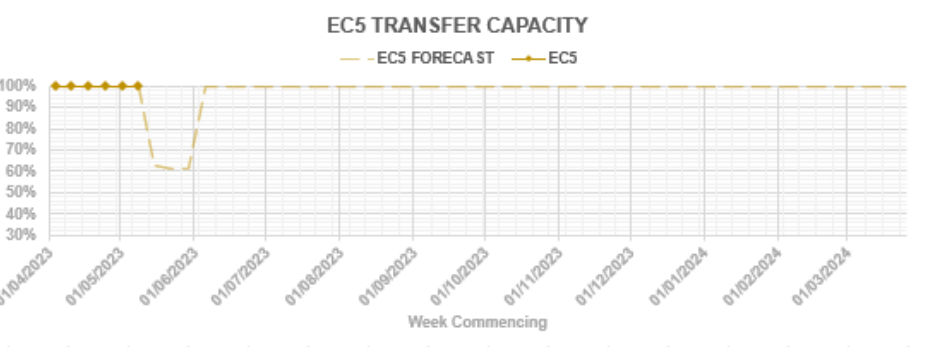
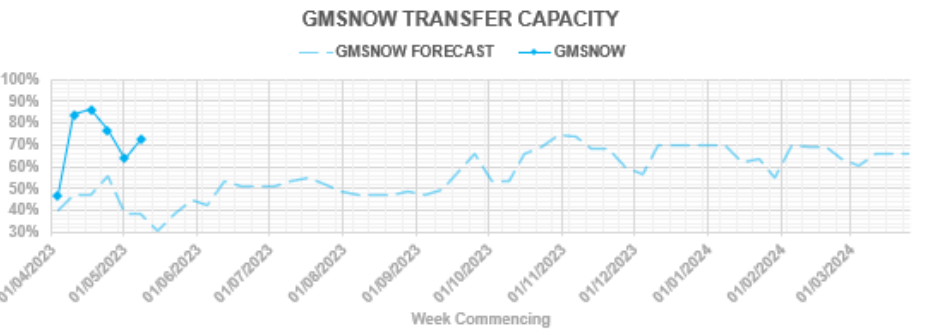
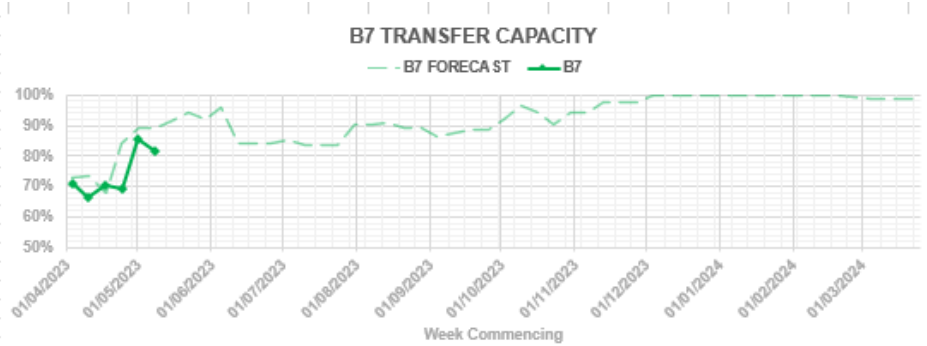
Boundary	Max. Capacity (MW)
B4/B5	1900
B6	5650
B6a	3350
B7	6800
GMSNOW	3400
B9	9800
EC5	5000
LE1	5500
B15	7500
SC	4650



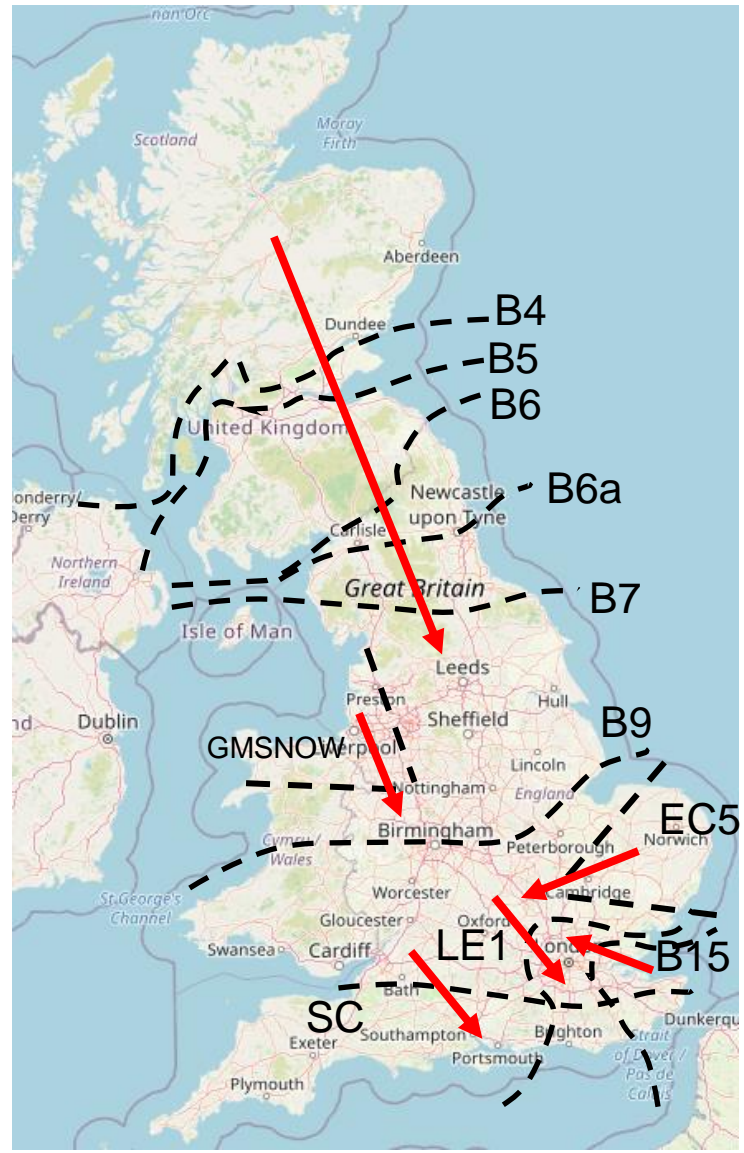
Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>



# Transparency | Network Congestion

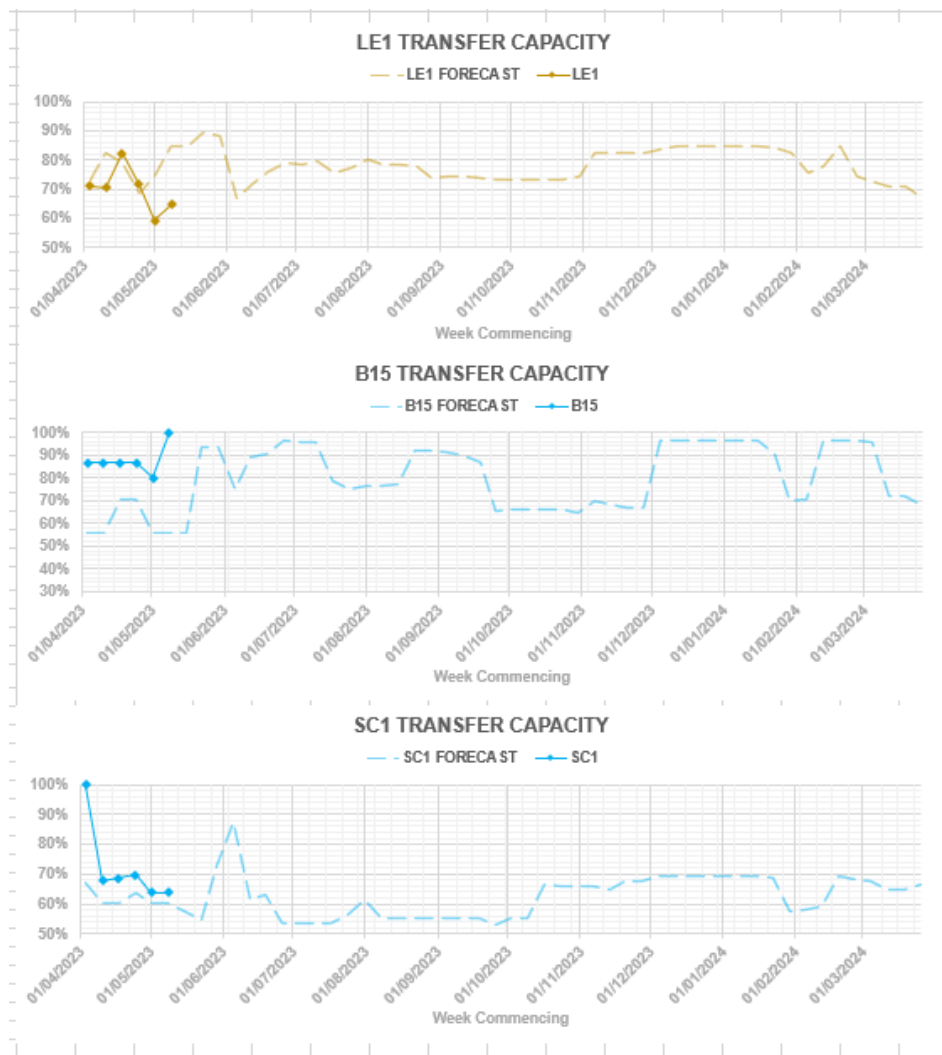


Boundary	Max. Capacity (MW)
B4/B5	1900
B6	5650
B6a	3350
B7	6800
GMSNOW	3400
B9	9800
EC5	5000
LE1	5500
B15	7500
SC	4650

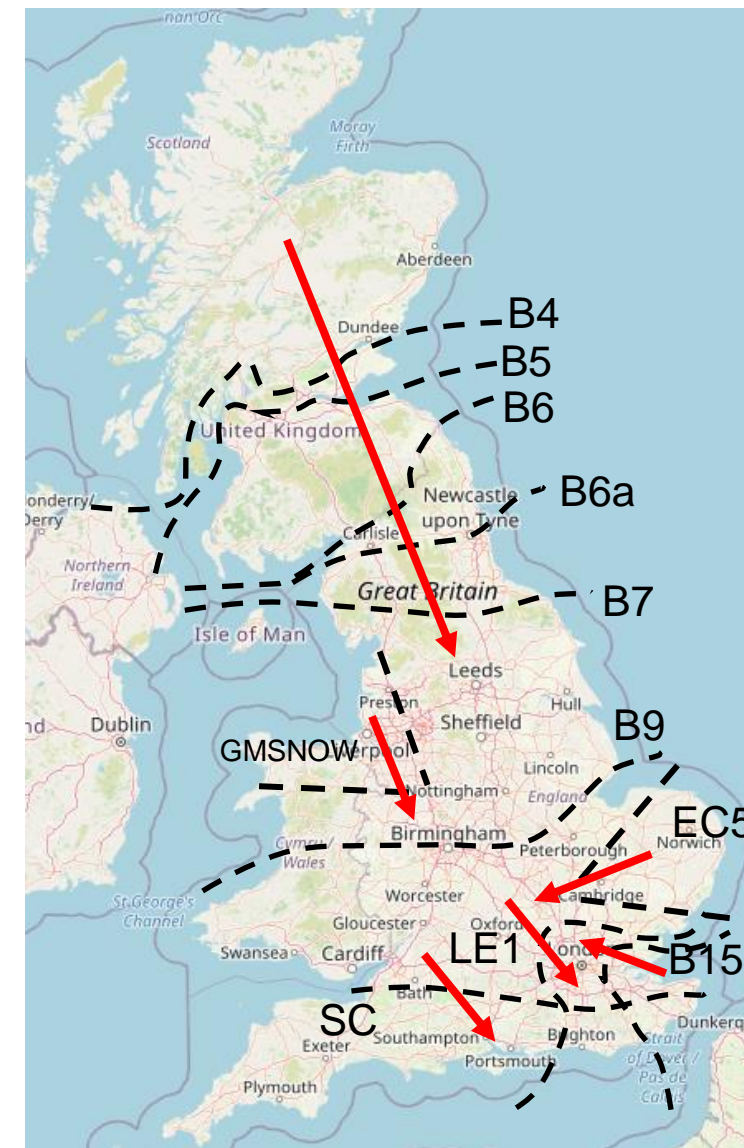


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

# Transparency | Network Congestion



Boundary	Max. Capacity (MW)
B4/B5	1900
B6	5650
B6a	3350
B7	6800
GMSNOW	3400
B9	9800
EC5	5000
LE1	5500
B15	7500
SC	4650



Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

## Update on questions asked and answered in 26 April forum

Q: BMRS doesn't show "battery" as a technology type, but there's > 1 GW battery capacity in the UK already. We understand this depends on National Grid. Could you please add this technology as separate from others?

A: Thank you for raising this issue which currently affects over 100 registered battery BMU. Our registration team will be raising this issue with Elexon since both Elexon and the ESO register generators in accordance with the BSC (Balancing and Settlement Code) procedures. Separately the ESO team are also in discussion with the control room about arranging to add Battery as a fuel type to our internal systems to help inform dispatch decisions.

Q: For info I have raised the issue on batteries as a fuel type with Elexon. They said it is an easy change if NGENSO can send the data to them.

A: Thanks again, as in the response to the earlier question the ESO Registration team will be taking this forward with Elexon.

**Update 10 May 2023:** changes are being made to the ESO Balancing Mechanism systems to classify battery units separately from other storage types. We expect the internal changes to be made on 17 May 2023 but don't have details on how this will roll out across the datasets published on the data portal. If you are concerned about how this change may impact a dataset you currently use (i.e: includes fuel/technology categories) please raise your queries to: [.box.openData.ESO@nationalgridESO.com](mailto:.box.openData.ESO@nationalgridESO.com) and the data portal team will ensure they reach the correct ESO team.

We can also confirm we have shared your questions with Elexon and they are considering what steps need to be taken to implement a change to fuel/technology categories in their BMRS data including whether the BSC (Balancing and Settlements Code) will need to be updated.

## Advance Questions

Q: Hi, I recently enquired about STOR transparency. Although STOR hours are published, they are not always easy to see or find. Could these please be populated with the CSV file/API? - This makes any changes and bank holiday reductions much more obvious for a better insight into expenditure.

A: Thank you for your feedback. Please will you email [.box.NC.customer@nationalgrideso.com](mailto:.box.NC.customer@nationalgrideso.com) to clarify which CSV file/API you are asking about and what information you would like to have added. This will help us to identify the appropriate team to answer your question.

For information: there are 6 published datasets which include STOR data (Short Term Operating Reserve) on the [ESO Data Portal](#). To suggest improvements to these datasets or request publication of additional data please contact: [.box.OpenData.ESO@nationalgrideso.com](mailto:.box.OpenData.ESO@nationalgrideso.com)

## Questions from last week

Q: ETYS - when is NGENSO going to move to modelling the whole system? So we know GB demand not just TO demand, for example.

A: Our approach to whole system demand is explained in our FES modelling methods.  
[https://www.nationalgrideso.com/document/263871/download\\_page\\_17](https://www.nationalgrideso.com/document/263871/download_page_17)

Q: For ETYS – as the FSO it seems you are going to be giving more detailed local forecasts. Should we not want FSO to provide models of say embedded gencos, like solar, vs TO solar, etc.?

A: The Future System Operator is still being established and we welcome your views on the information you would find useful and how you intend to use it. As System Operator, we do not own or operate any generation plant and so are not in a position to provide technical models of different generator types. Our role involves producing a range of credible future energy scenarios that drive our planning processes. We provide a regional breakdown of demand (including embedded wind, solar, storage etc) as ETYS - APPENDIX E (<https://www.nationalgrideso.com/document/263896/download>)

This provides the breakdown of different levels of demand for the Future Energy Scenarios (FES) Scenarios. We also published our work on Regional FES that explores using a bottom-up approach to help us understand future energy policy at a local level. <https://www.nationalgrideso.com/future-energy/future-energy-scenarios-fes/regionalisation-fes>.



## Questions from last week

Q: Can you give examples of frequency response and also for reserve?

A: Last week's slides include examples for Response. We will communicate for reserve areas in future deep dive or other engagement opportunities.

More information about Reserve can be found at: <https://www.nationalgrideso.com/industry-information/balancing-services/reserve-services>

Q: Re: "If further detail is needed re: calculations for reserve and frequency, with worked examples, we can post worked examples on the website" - yes please!

A: We will look to provide these at a later date.

Q: Which plants are in scope for the requirement to provide Frequency Sensitive Mode / Limited Frequency Sensitive Mode outside the 0.5Hz window?

A: The FSM and LFSM service are defined in Grid Code. New services we designed, developed and implemented are sitting within the GC envelope. We would be happy to discuss particular queries on this in our response webinar and roadshows if that helps to clarify the requirements.



## Questions from last week

Q: Is there any data to identify (industrial) Demand Side Response? Good data on DFS on ESO data portal, can't find equivalent data on industrial DSR. Are DSR units in the BM? If so, is there a list of DSR BMUs anywhere? If not, how do they submit prices/receive instructions? Thanks very much.

A: Thank you for the feedback on the DFS data we have published.

In response requirement calculations we do consider the effect from demand side in relating to frequency change. From service providers point of view, we do have response services provided from demand side and we treat them same as other service providers and do not publish their submitted price or any of commercial information from ESO.

Q: Slide 30, MFR Cost components - Positioning costs & Reserve for response costs. What's the difference between these two? They seem to be the same.

A: Thank you for the question - the main difference is that reserve, including reserve for response is schedule from day ahead based on the high-level system wide view of requirements. Positioning BOAs are issued when response is armed in real-time in order to move specific machines to more optimal output levels for provision of response.

## Questions from last week

Q: Thank you for the Freq. Response deep dive & understanding of how it is intrinsically related to inertia levels. On this point when are you going to publish the Real-time inertia measurements/ forecasts from the work you're doing with GE and Reactive Technologies that was due/ promised 12 months ago?

A: Our current contractual agreements prevent us from publishing the data in real-time. We are discussing the ability to publish the data with Reactive Technology (the GE system is currently restricted to Scotland only)

These systems are first-of-their-kind installations and we are continuing to work with the suppliers to assess accuracy of the data they produce.

Q: Do MFR plants cover the whole service range / envelope (DC/ DR, Static at 49.5, 49.2 levels etc) or just a certain range, if so what ranges? Thanks.

A: The technical requirements for MFR can be found on our website. We expect MFR to react to frequency deviation between 49.5 to 50.5 Hz, so MFR provides support for both pre-fault and post-fault frequency.

<https://www.nationalgrideso.com/industry-information/balancing-services/frequency-response-services>

## Questions from last week

Q: Do you have specific resilience requirement for control and communication used for aggregated Secondary Static FFR?

A: The requirements for participating in secondary static FFR are set out as part of the service terms

**slido**

## **Audience Q&A Session**

ⓘ Start presenting to display the audience questions on this slide.

# Feedback

Please remember to use the feedback poll in sli.do after the event.

We welcome feedback to understand what we are doing well and how we can improve the event for the future.

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