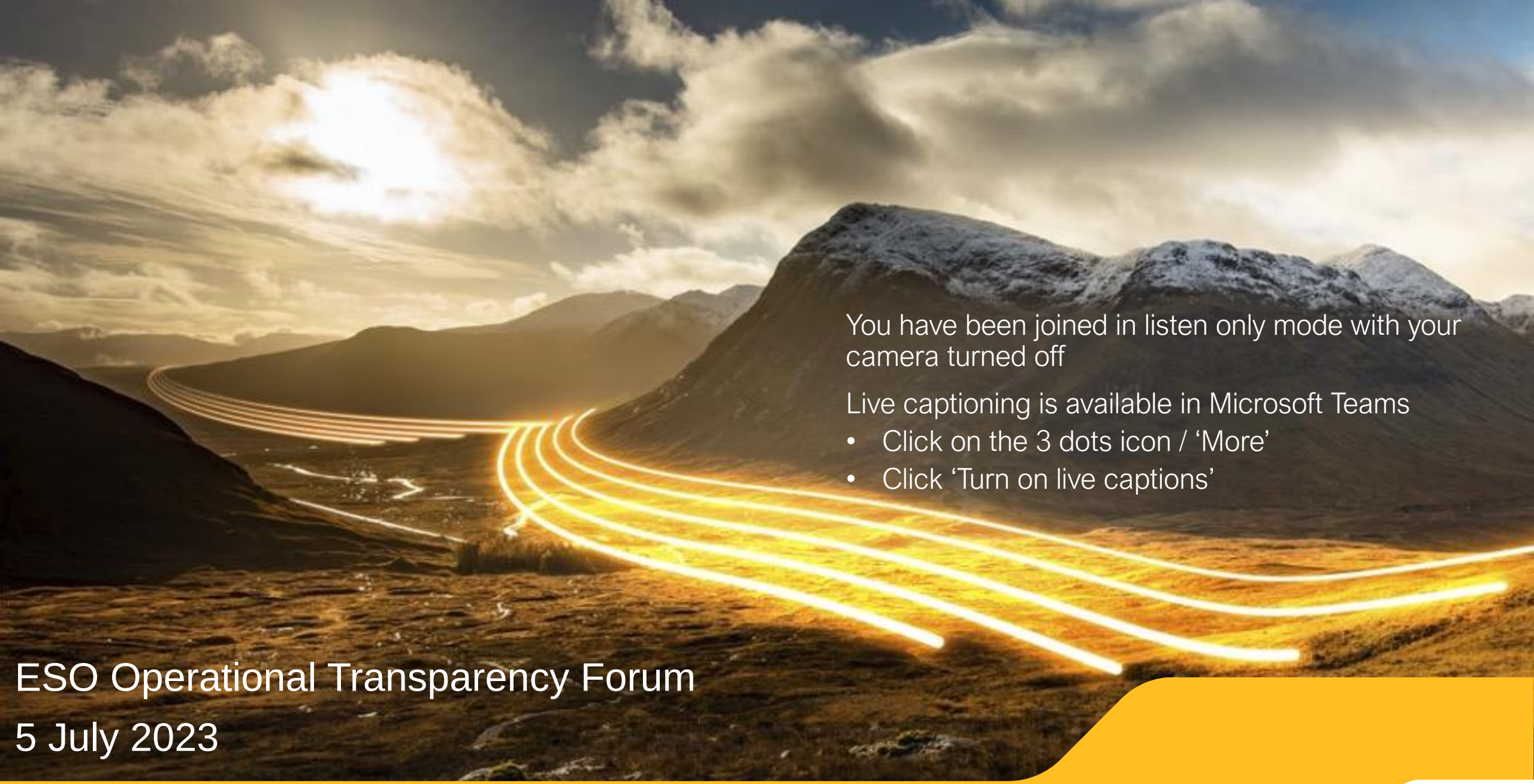


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

5 July 2023

Introduction | Sli.do code #OTF

Please visit 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. This is also helpful if we need to ask for more information before we can answer.

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

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

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

Future Energy Scenarios 2023

Monday 10 July – Watch the launch event live at 10:30am

Main report published on FES webpages

- We're publishing Future Energy Scenarios (FES) 2023 on 10 July which sets out a range of different, credible ways to achieve net zero by 2050.
- During the week of 10 July we will be hosting a series of virtual webinars to explore each chapter of the main FES report in more detail, looking at the key analysis and insights.
- If you would like to attend any of these events then please register via these links
- Any queries please contact FES@nationalgrideso.com

1. Net Zero

12 Jul, 10:00 - 11:30

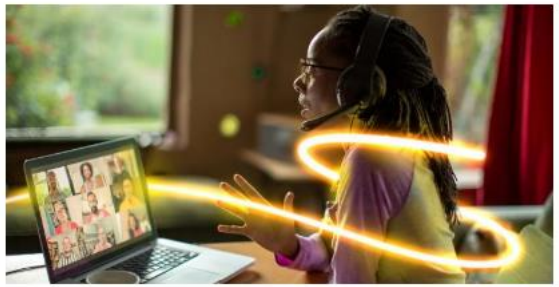
Sign-up here

2. Flexibility

12 Jul, 14:00 - 15:30

Sign-up here

3. Energy consumer



13 Jul, 10:00 - 11:30

Sign-up here

4. Energy system

13 Jul, 14:00 - 15:30

Sign-up here

Winter Contingency Contracts 23/24 Update

- At the request of Government, the ESO has undertaken discussions with the operators of two winter 2022/23 contingency coal plants to establish whether these arrangements could be extended for a further winter. These discussions have now concluded.

    - Both EDF and Drax have confirmed that they will not be able to make the coal units available next winter and have begun decommissioning their coal units.

    - Uniper's Ratcliffe-on-Soar coal unit that had a winter contingency contract last winter has returned to the market having secured a Capacity Market contract.

Next Steps

    - The sale process of the coal purchased for the winter contingency coal units 2022/23 is in progress. Any revenue from the sale will be returned to BSUoS payers in the final settlement run.

Winter Balancing Costs Review

On 7th June the Winter Balancing Costs Review was published to identify the drivers of balancing costs and their trends across the winter period (November to March)

It is split into a summary report linked with the ESO balancing costs strategy and a detailed and independant report by LCP

https://www.nationalgrideso.com/document/281776/download (Summary Report)

https://www.nationalgrideso.com/document/281781/download (Full LCP Report)

We invite you to join a workshop on the ESO balancing costs strategy, detailed review and response to your feedback on this winter balancing costs report and opportunity to have your qualitative views captured and added to an appendix.

The workshop will be held on **25th July 13.30 – 16:00.**

Please register using the QR code.

GC0154 Workgroup Consultation

- A code change modification to include interconnector ramping in the Grid Code has been raised
- Purpose is to comply with retained EU Law and to resolve the operational challenges as a result of fast simultaneous interconnector ramping
- Current arrangements allow interconnectors to ramp up to 100MW/min
- Reduced ramping rates aims to increase security of supply and to reduce GB balancing costs both now and as more interconnectors connect in the future
- A CBA conducted suggested a saving of £865m in balancing costs over the study period of 2023-2030 by reducing interconnector ramp rates.
- The Workgroup Consultation will be open from 11th July 2023

ESO Proposed
Reduce the current arrangements to a max fixed rate of 50MW/min

Workgroup Alternate
Keep the current arrangements of a max fixed ramp rate 100MW/min

The code modification page can be viewed here

Note: currently interconnector ramping arrangements are specified in interconnector operating protocols

Phase out of Dynamic FFR (DFFR)

A key milestone in frequency response reform is the phasing-out of monthly Dynamic FFR (DFFR). This will happen gradually as we develop and establish the new pre-fault dynamic frequency response products Dynamic Regulation (DR) and Dynamic Moderation (DM).

To enable a measured transition between the legacy and new suite of response services for frequency response providers and the ESO, we intend to reduce our DFFR requirements by 50MW for each EFA block per month whilst increasing the DR requirement by 30MW. Following the change in March 2023 to procure up to 200MW of DR a series of IT changes were required to facilitate further increases to the DR requirement.

There is a final IT change that raising the requirement is dependent on to ensure the visibility of non-BM units in balancing systems. This change is on track to take place in July and therefore enable the cap to be lifted from August 2023 onwards. As a result, we will procure 50MW less in this month's FFR tender round and continue to reduce the volumes as shown below:

Month of procurement	Month of Delivery	Dynamic FFR	DR Cap
July	August	200	230
August	September	150	260
September	October	100	290
October	November	0	350

Figure 1: Phasing out FFR with DR cap requirements for August 2023 onwards

We will continue to keep the impact of raising the DR volume cap under review and expect the final tender for DFFR to take place in September 2023 for volume delivery in October 2023. The requirement for this month will be 100MW.

Overview of high costs for Saturday 1st and Sunday 2nd July 2023

Over last weekend over £22m in balancing costs was incurred across the Balancing Mechanism and ESO Trades

Situation:

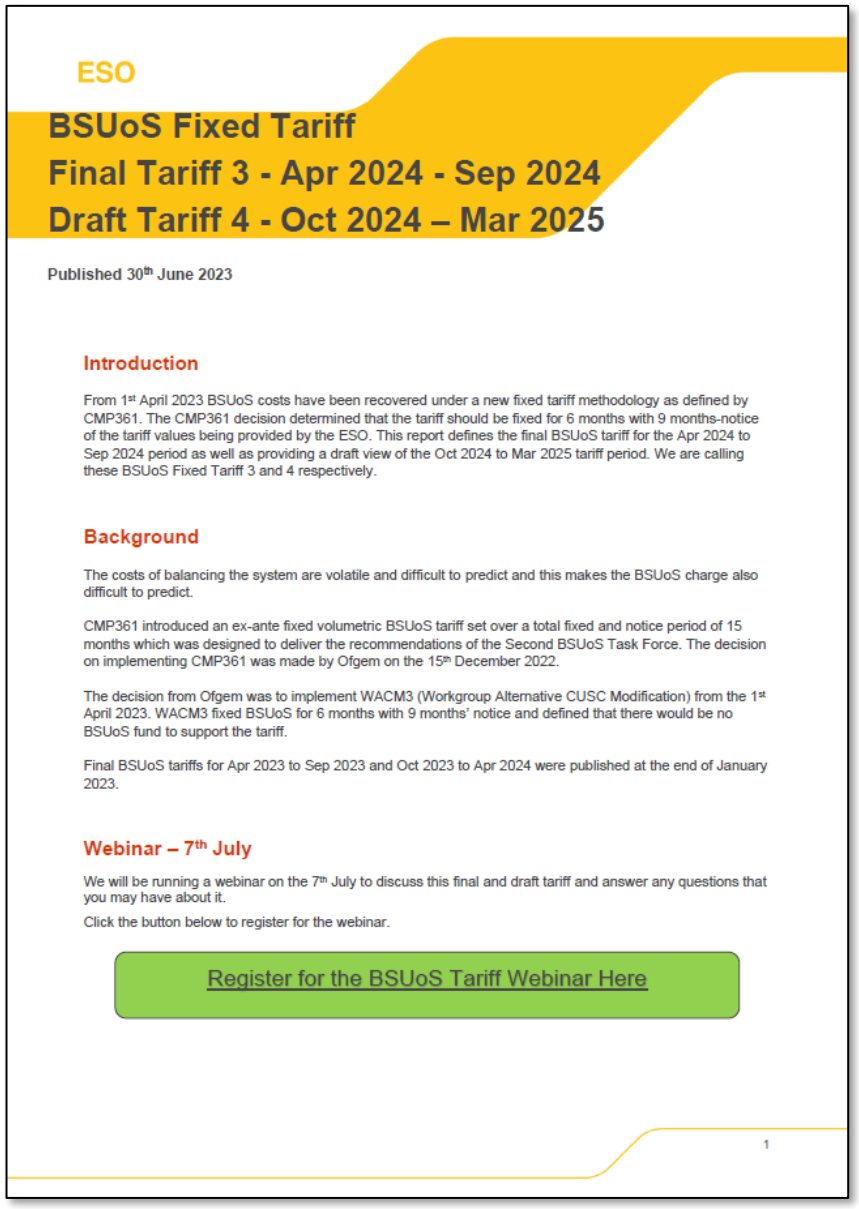
- Negative energy prices ahead of the weekend saw impact for windfarms with Contracts for Difference (CfD*) agreements
- High solar and wind output impacted on transmission demand which remained low

Actions taken over the weekend:

- Up to 5.2GW of generation was instructed down to balance energy requirements (flagged as Energy) and to manage constraints (flagged as System)
- Up to 3GW were traded on the interconnectors
- Up to 6 additional units were brought on to manage inertia and voltage

*CfD = Contracts for Difference (CfDs) is intended to provide long-term revenue stabilisation to low-carbon Generators, allowing investment to come forward at a lower cost of capital and therefore at a lower cost to consumers.

BSUoS Fixed Tariffs Published for 2024/25



ESO

BSUoS Fixed Tariff
Final Tariff 3 - Apr 2024 - Sep 2024
Draft Tariff 4 - Oct 2024 – Mar 2025

Published 30th June 2023

Introduction

From 1st April 2023 BSUoS costs have been recovered under a new fixed tariff methodology as defined by CMP361. The CMP361 decision determined that the tariff should be fixed for 6 months with 9 months-notice of the tariff values being provided by the ESO. This report defines the final BSUoS tariff for the Apr 2024 to Sep 2024 period as well as providing a draft view of the Oct 2024 to Mar 2025 tariff period. We are calling these BSUoS Fixed Tariff 3 and 4 respectively.

Background

The costs of balancing the system are volatile and difficult to predict and this makes the BSUoS charge also difficult to predict.

CMP361 introduced an ex-ante fixed volumetric BSUoS tariff set over a total fixed and notice period of 15 months which was designed to deliver the recommendations of the Second BSUoS Task Force. The decision on implementing CMP361 was made by Ofgem on the 15th December 2022.

The decision from Ofgem was to implement WACM3 (Workgroup Alternative CUSC Modification) from the 1st April 2023. WACM3 fixed BSUoS for 6 months with 9 months' notice and defined that there would be no BSUoS fund to support the tariff.

Final BSUoS tariffs for Apr 2023 to Sep 2023 and Oct 2023 to Apr 2024 were published at the end of January 2023.

Webinar – 7th July

We will be running a webinar on the 7th July to discuss this final and draft tariff and answer any questions that you may have about it.

Click the button below to register for the webinar.

Register for the BSUoS Tariff Webinar Here

1

On Friday 30th June 2023 we published BSUoS tariffs for the 2024/25 charging year.

Fixed Tariff 3 – Final – Apr 2024 to Sep 2024
Fixed Tariff 4 – Draft – Oct 2024 to Mar 2025

View the tariff document – **Download PDF**
View industry comms sent out – **Click Here**

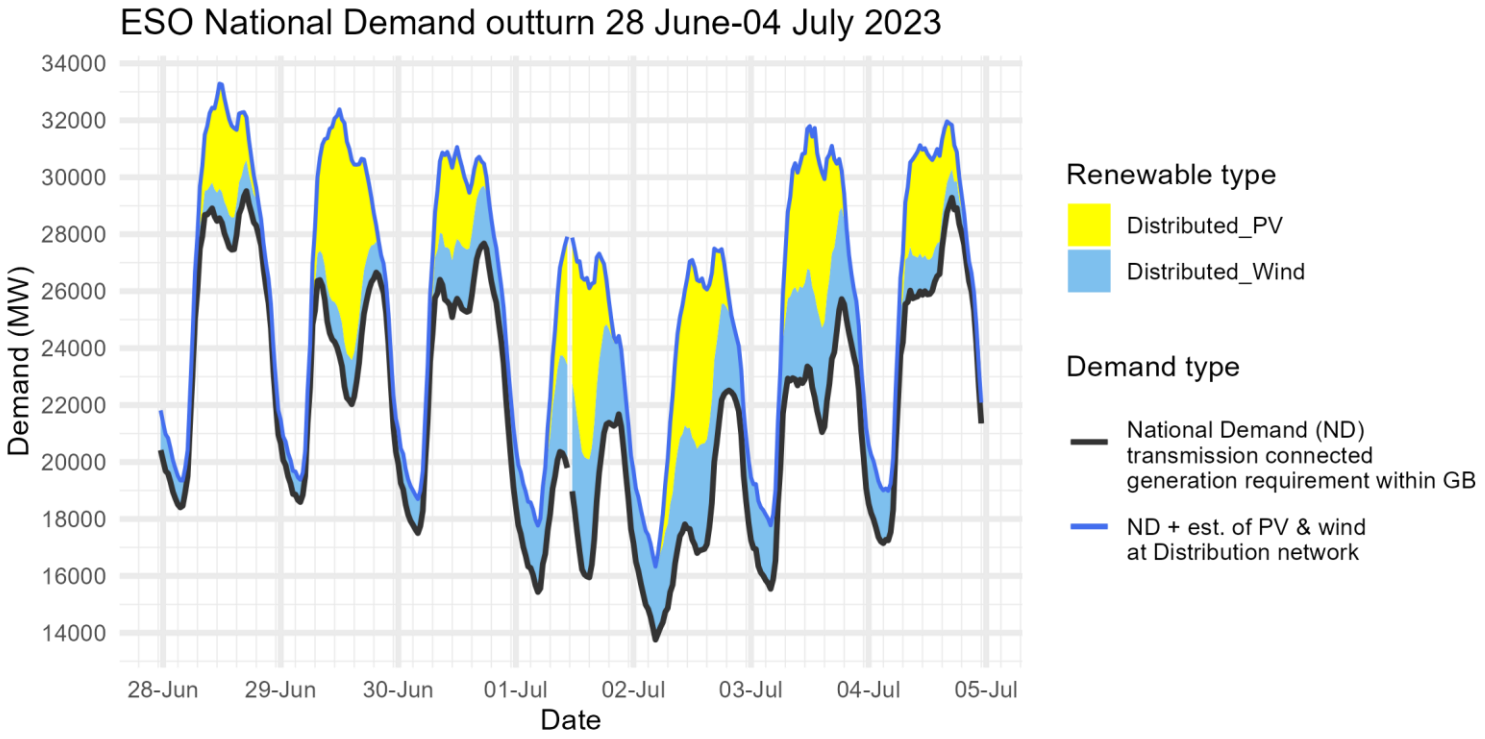
On **Friday 7th July** we will be running a webinar to talk through the tariffs and answer any questions you may have.

Register for the webinar - **Click Here**

If you would like to ask any questions ahead of the webinar then please email us at :-

bsuos.queries@nationalgrideso.com

Demand | Last week demand out-turn



		FORECAST (Wed 28 Jun)			OUTTURN		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
28 Jun	Afternoon Min	26.8	1.1	3.9	27.5	1.1	3.2
29 Jun	Overnight Min	18.3	0.8	0.0	18.6	0.8	0.0
29 Jun	Afternoon Min	23.4	1.4	5.9	22.0	1.6	7.0
30 Jun	Overnight Min	17.8	1.0	0.2	17.5	1.2	0.0
30 Jun	Afternoon Min	22.7	2.6	4.4	25.3	2.2	2.3
01 Jul	Overnight Min	15.4	2.3	0.0	15.4	2.3	0.0
01 Jul	Afternoon Min	15.4	3.3	6.7	15.9	4.1	6.0
02 Jul	Overnight Min	14.6	2.0	0.4	13.8	2.5	0.0
02 Jul	Afternoon Min	15.2	3.0	7.3	16.8	3.7	5.9
03 Jul	Overnight Min	15.8	2.1	0.0	15.5	2.2	0.0
03 Jul	Afternoon Min	21.3	2.9	6.6	21.0	3.7	5.4
04 Jul	Overnight Min	17.0	1.7	0.0	17.1	1.9	0.0
04 Jul	Afternoon Min	21.7	2.5	6.4	25.9	1.2	3.6

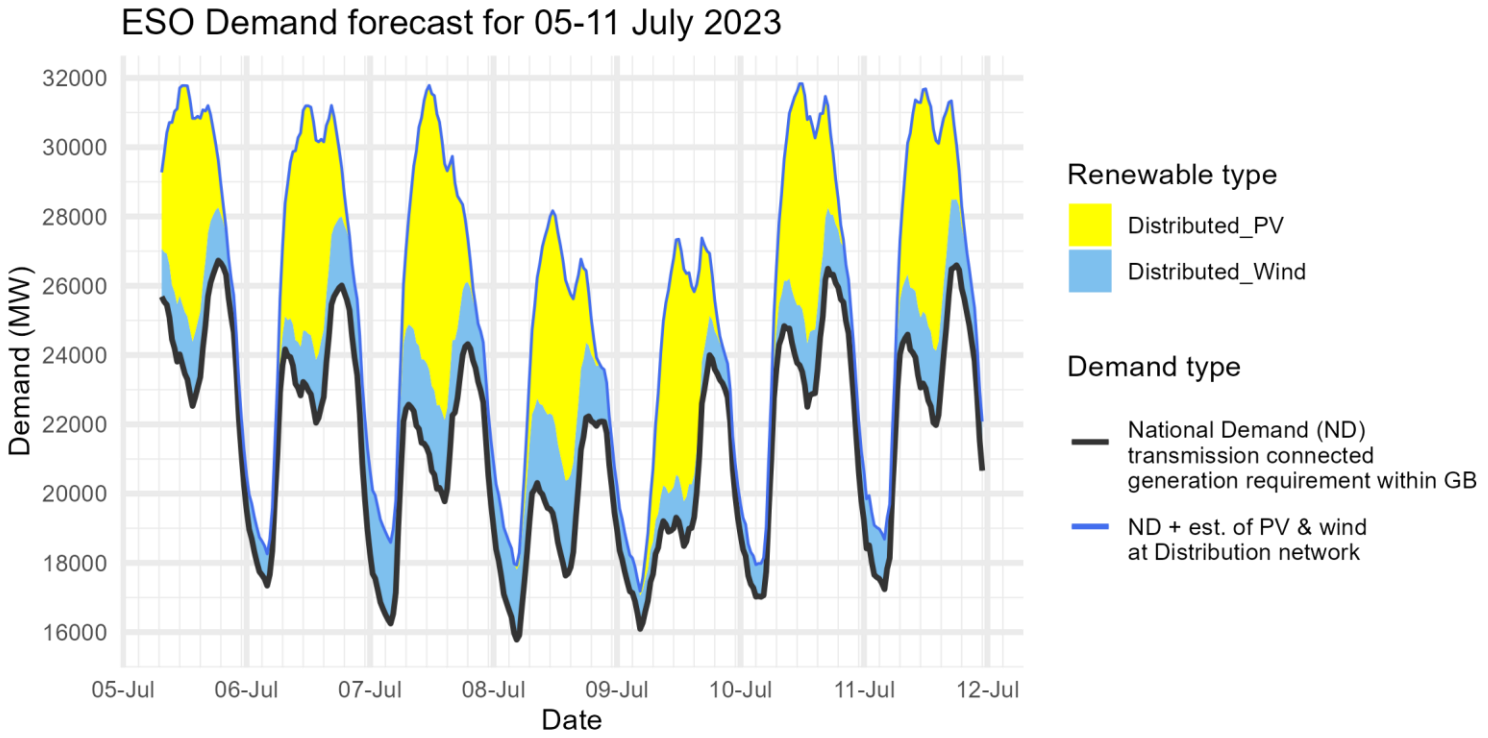
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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

Demand | Week Ahead



		FORECAST (Wed 05 Jul)		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
05 Jul 2023	Afternoon Min	22.5	1.9	6.4
06 Jul 2023	Overnight Min	17.3	0.9	0.0
06 Jul 2023	Afternoon Min	22.0	1.8	6.3
07 Jul 2023	Overnight Min	16.2	2.3	0.0
07 Jul 2023	Afternoon Min	19.8	2.4	7.4
08 Jul 2023	Overnight Min	15.8	2.0	0.1
08 Jul 2023	Afternoon Min	17.6	2.7	5.8
09 Jul 2023	Overnight Min	16.1	1.0	0.1
09 Jul 2023	Afternoon Min	18.5	1.3	6.7
10 Jul 2023	Overnight Min	17.0	1.0	0.0
10 Jul 2023	Afternoon Min	22.5	1.8	6.5
11 Jul 2023	Overnight Min	17.2	1.4	0.0
11 Jul 2023	Afternoon Min	22.0	2.1	6.1

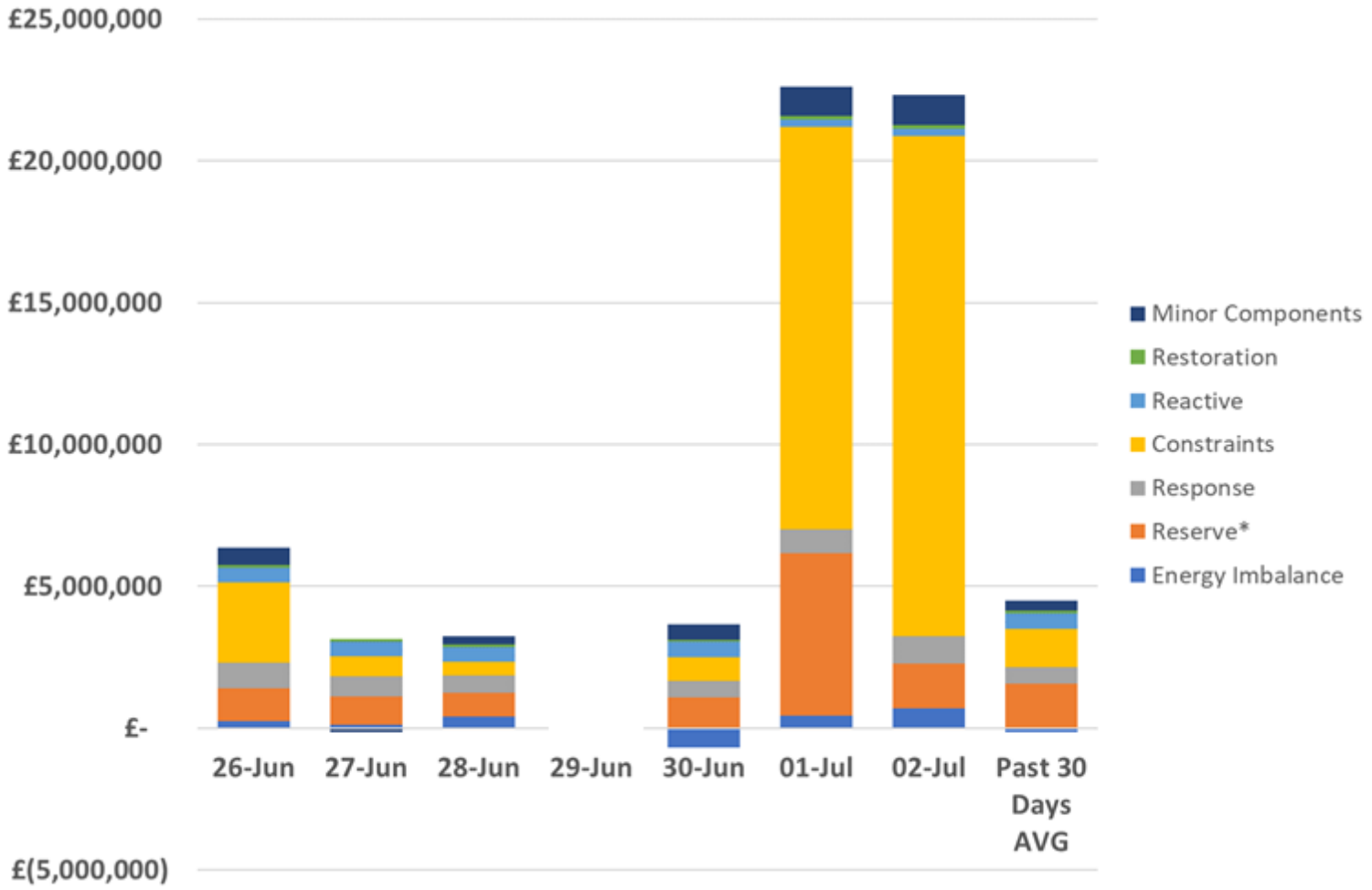
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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

ESO Actions | Category costs breakdown for the last week



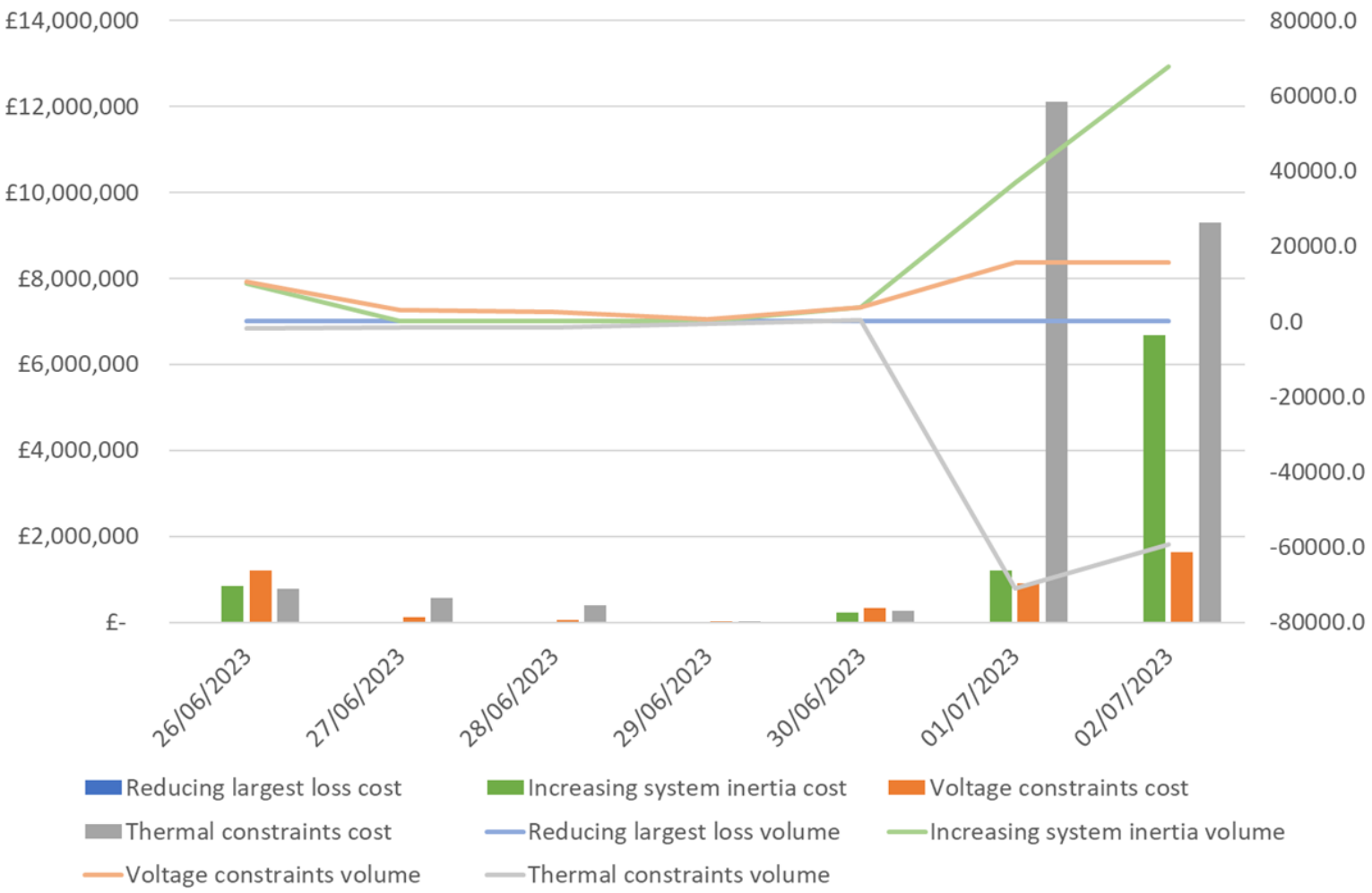
Date	Total (£m)
26/06/2023	6.4
27/06/2023	3.0
28/06/2023	3.2
29/06/2023	
30/06/2023	3.0
01/07/2023	22.6
02/07/2023	22.3
Weekly Total	60.5
Previous Week	33.4

Constraints costs were the key cost component for 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



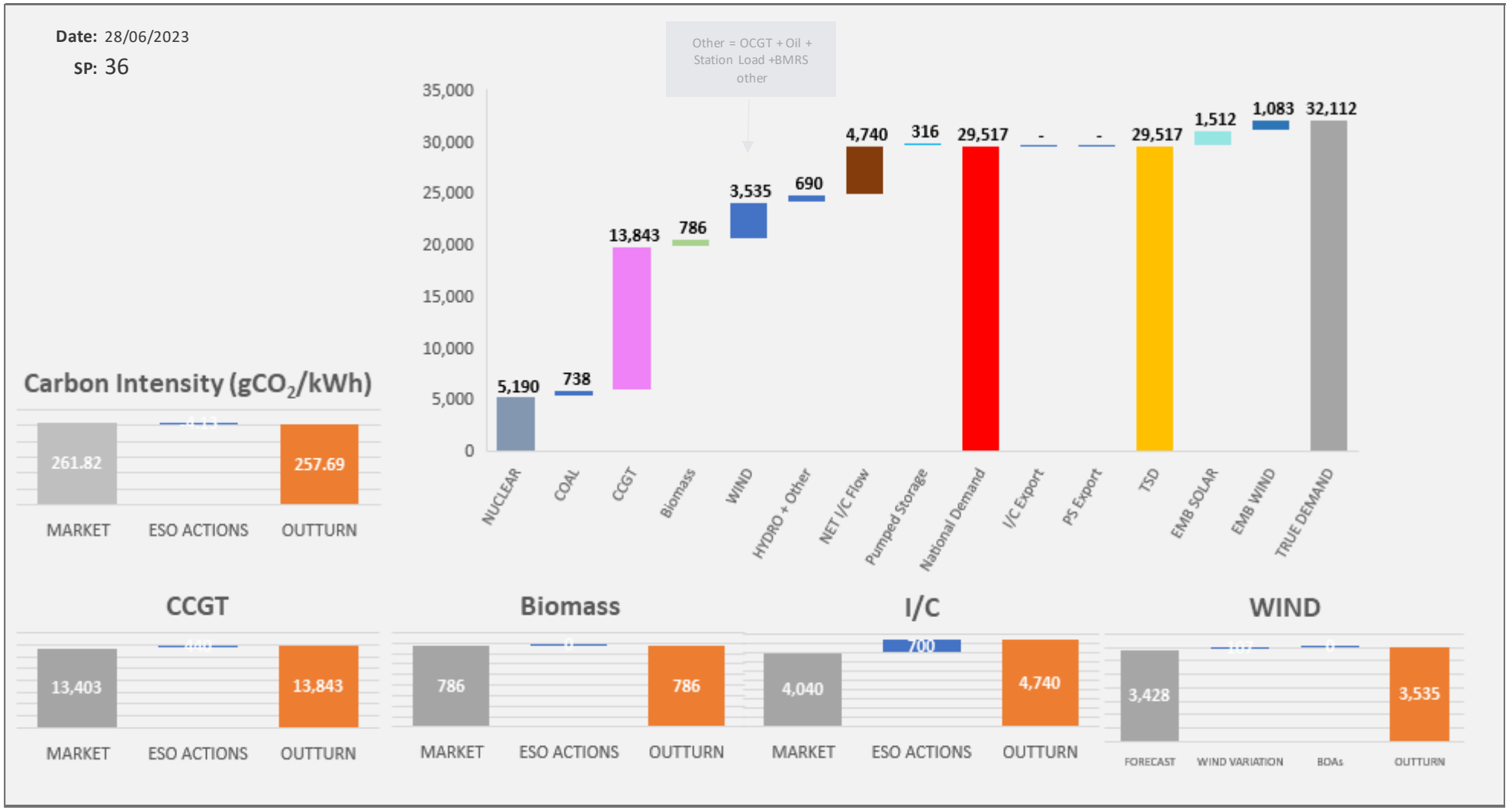
Thermal – network congestion
Actions were required to manage thermal constraints every day with the most significant costs on Saturday and Sunday.

Voltage
Intervention was required to manage voltage levels throughout the week.

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

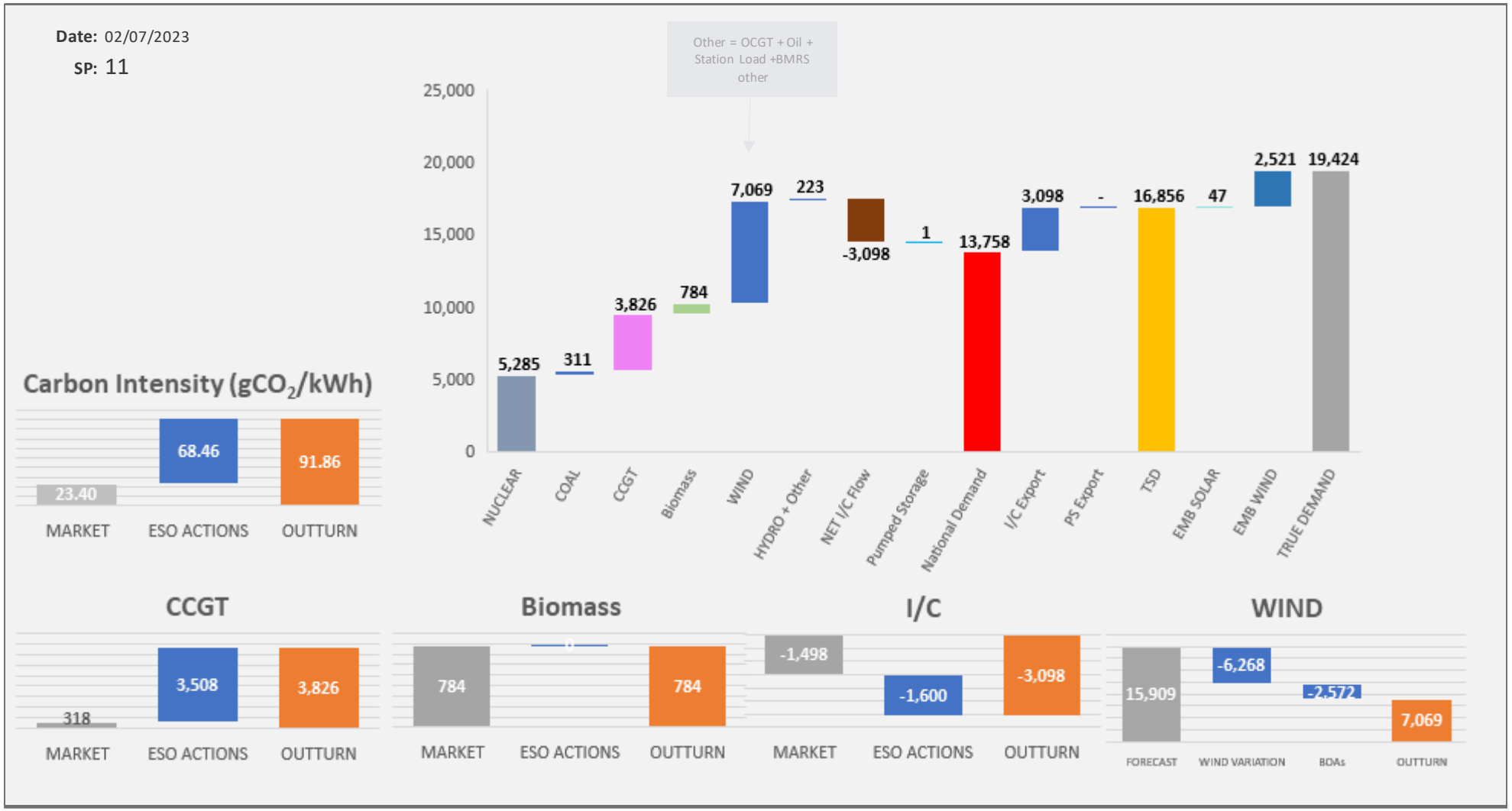
Increasing inertia
Intervention was required to manage system inertia on Mon, Fri, Sat and Sun.

ESO Actions | Wednesday 28 June – Peak Demand – SP spend ~£51k



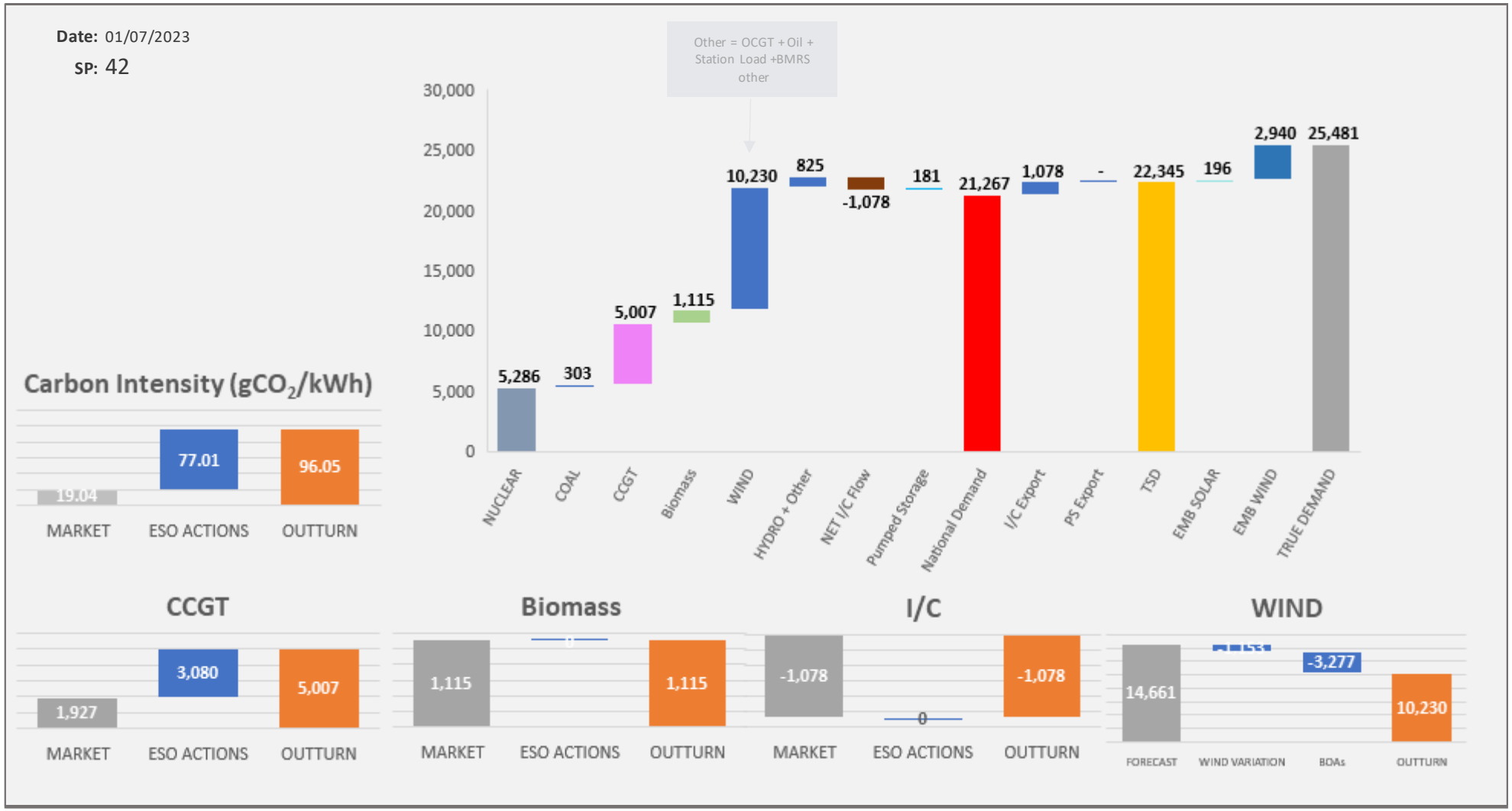
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Sunday 2 July – Minimum Demand – SP Spend ~£483k



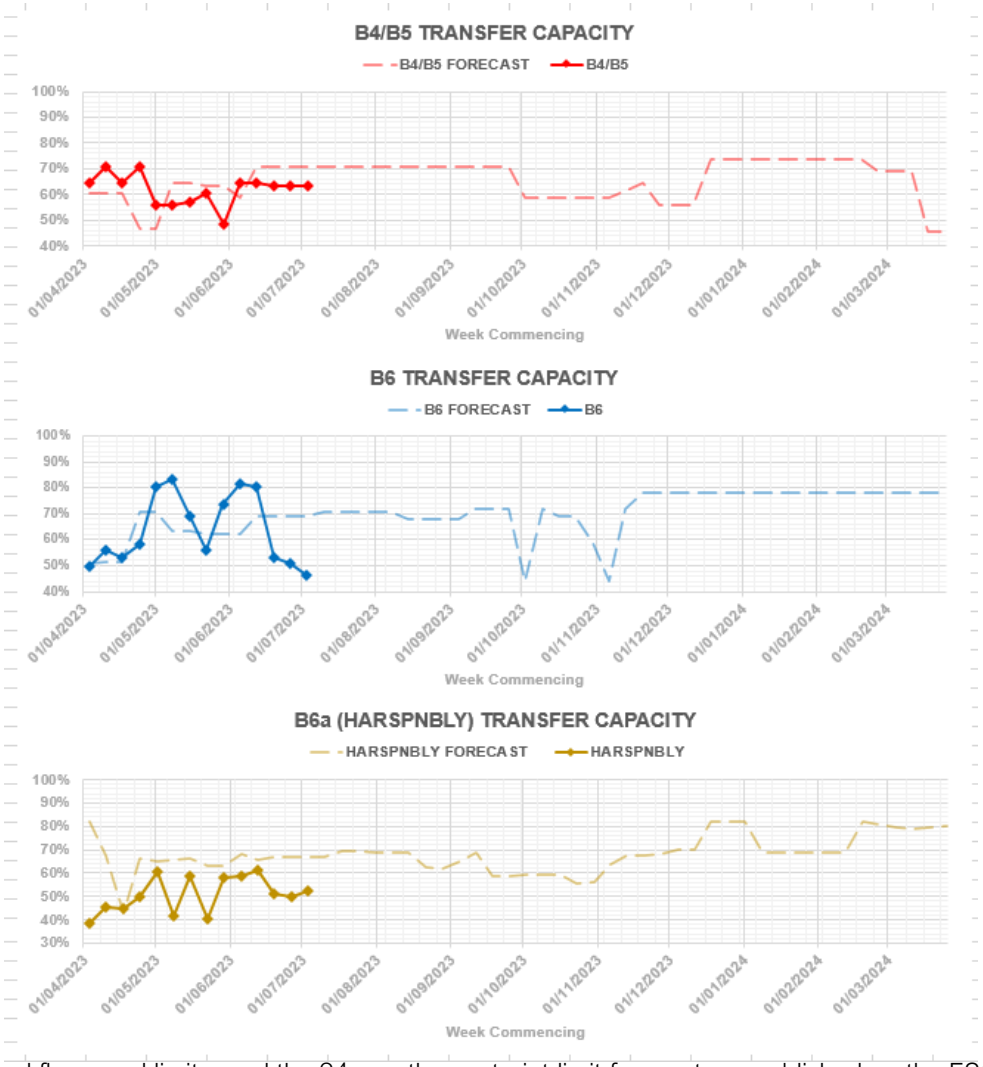
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Saturday 1 July – Highest SP Spend ~£599k

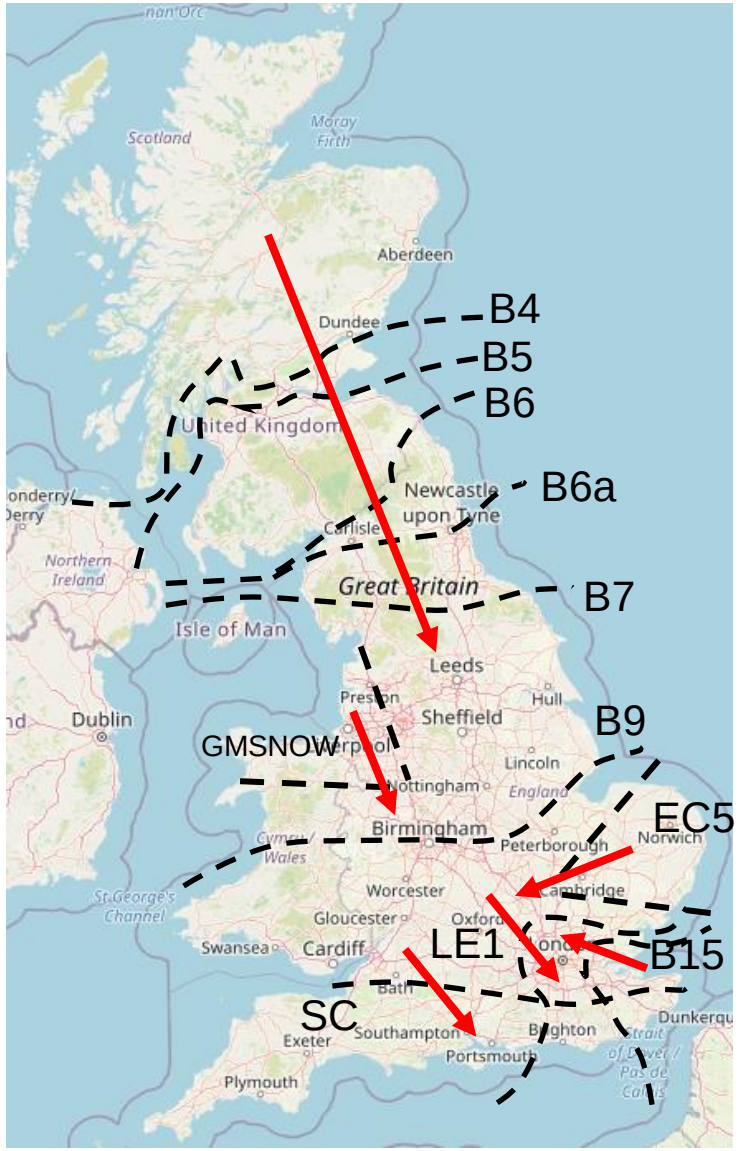


Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

Transparency | Network Congestion

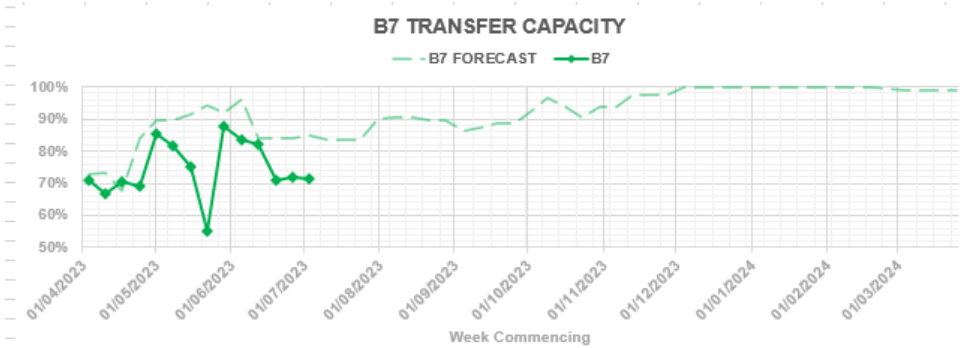


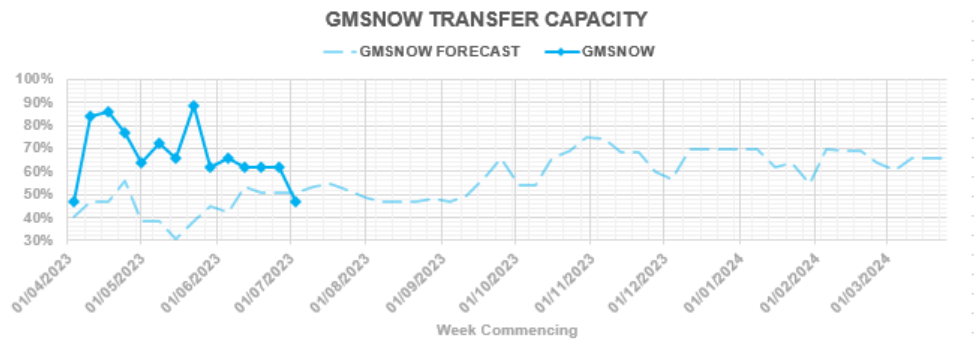
Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300

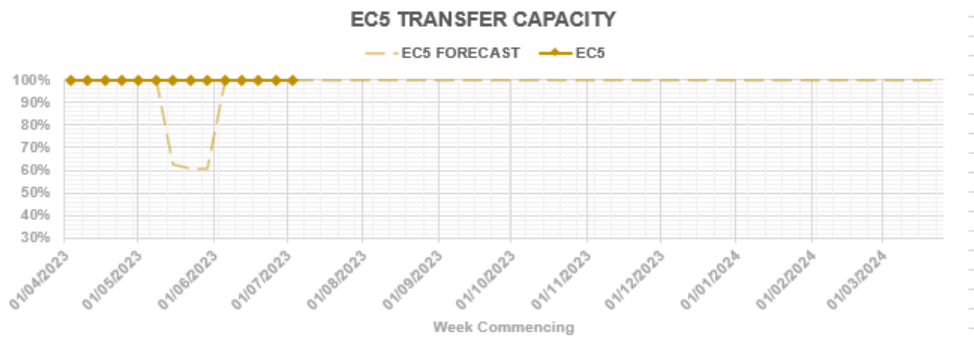


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

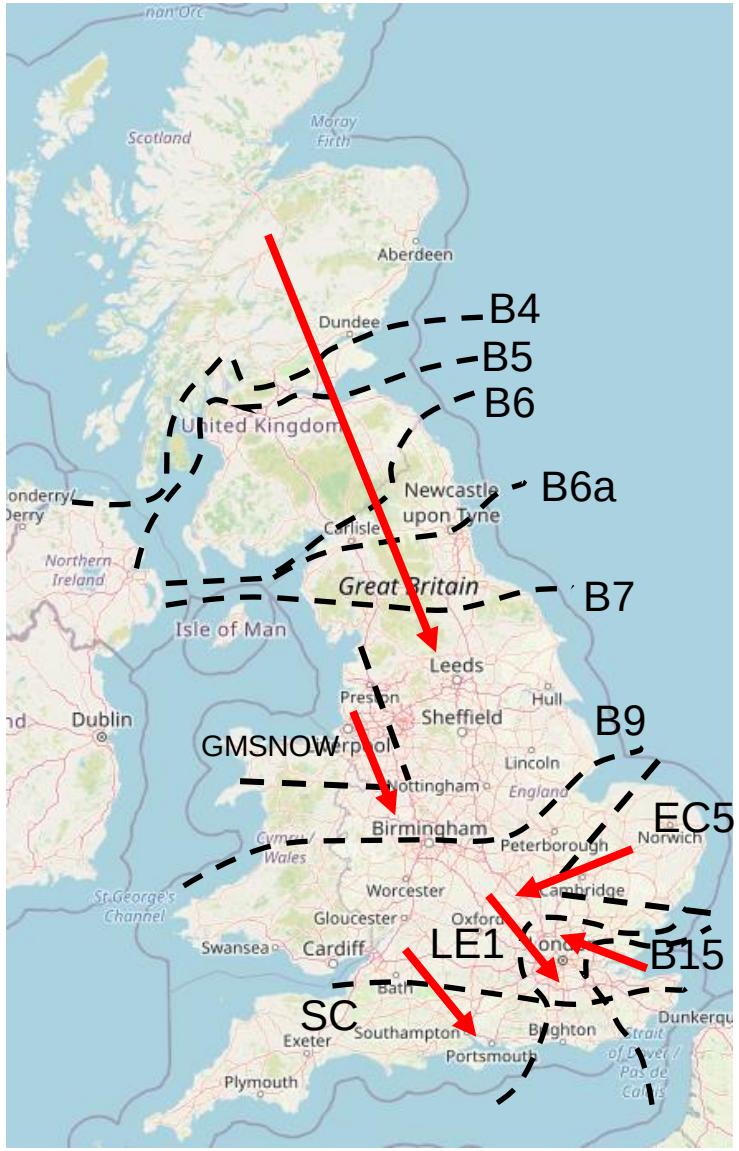
Transparency | Network Congestion





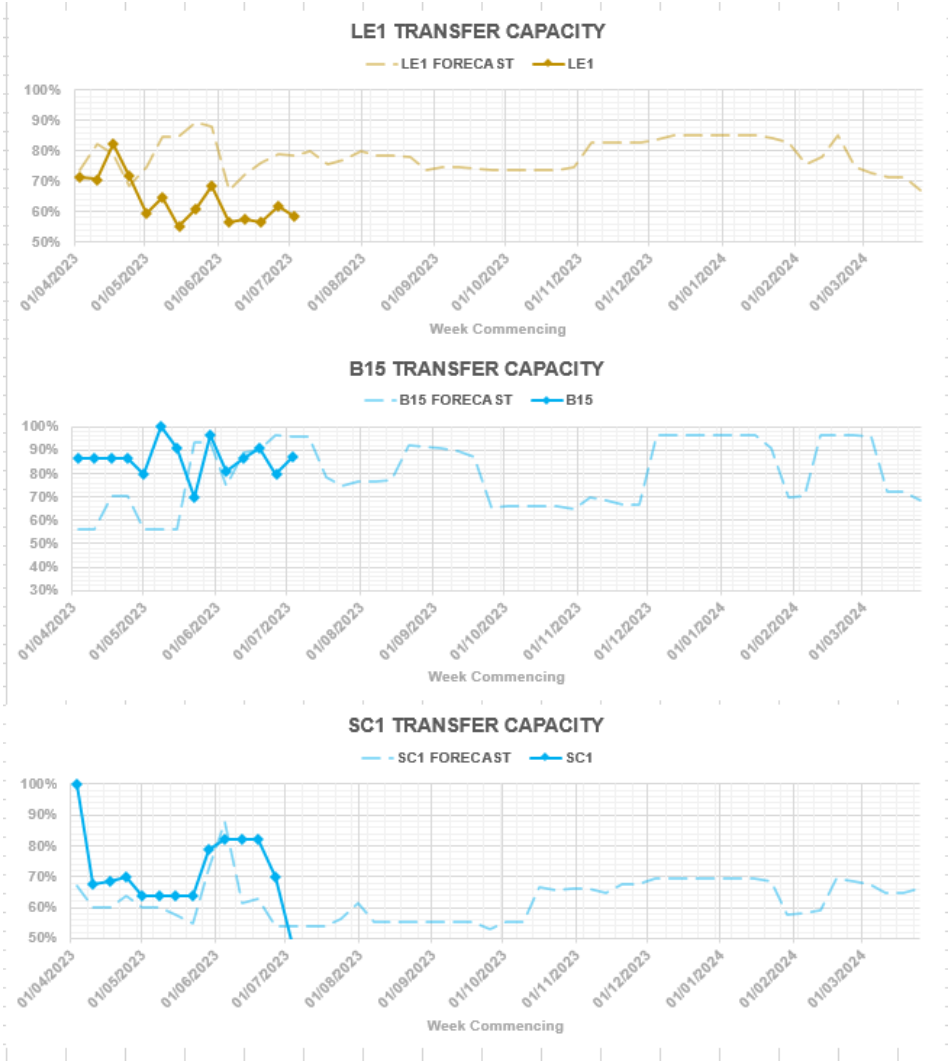


Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300

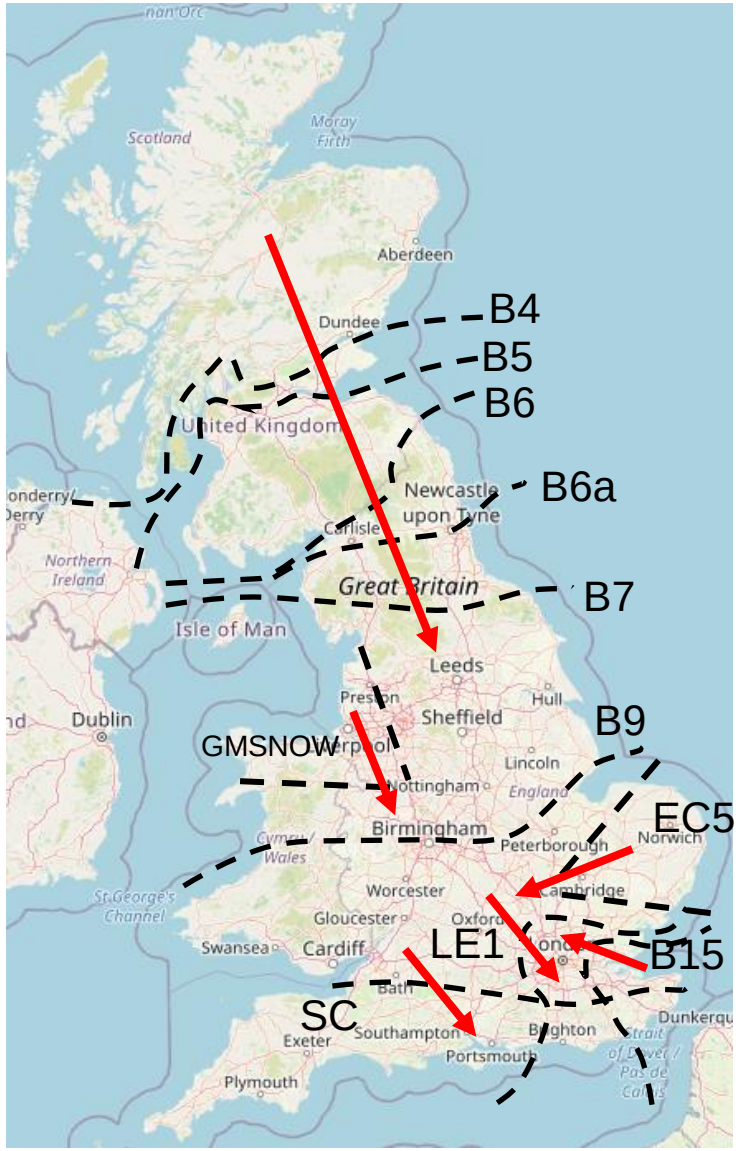


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Transparency | Network Congestion



Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300



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

Questions from last week

Q: ESO actions slide Sunday 25th June. What caused the c.6GW error in wind forecast?

A: Weather forecasts for that day included a front arriving from the west, bringing potent thunderstorms and complex wind conditions. We are investigating internally if any other factors contributed to the large forecast errors.

Q: Why was the 25th June such an expensive and tricky day to balance at £14m? Why was so much inertia procured at £4m/day? Thanks

A: Additional plant was run for inertia throughout the day. This was partly due to the wind outturn being lower than forecast so additional inertia was needed to stabilise the system.

Questions from last week

Q: Re. Balancing costs - you say true balancing actions costs have come down (by stripping out Ancillary services) but then you say the volume and cost of actions went up as took more last winter compared to 2021/22?

A: Ancillary services change between years and therefore for the comparative analysis needs to be done on like for like markets. Therefore, we removed ancillary service costs from all the years in the comparison. Similarly, the day ahead and intraday markets consider the energy position and thus are analogous to offer acceptances in the balancing mechanism but are not analogous to the price of an ancillary services.

Actions taken to facilitate ancillary services ie. Synchronisation for voltage are included but only the direct cost and volume of the offer acceptance that led to that synchronisation were considered in this analysis. Therefore, payments for the reactive power regulation (MVArhs) are excluded but the energy (MWhs) needed to synchronise the machine are included.

Overall volumes of energy (MWh) increased slightly between winters, with key influencers of these volumes being called out in the slide. Both the system and the energy tagged actions which make up these energy volumes are considered in both the volume of actions assessment and the costs assessment regardless of if they facilitate an ancillary capability, but any utilisation payments of that ancillary capability are excluded.

Questions from last week

Q. Please can you wait to see if more questions arise before closing the call early? Its tricky to keep up and type new Qs and it seems a wasted opportunity when you have over 200 industry participants on the call?

A: Thank you for raising this point.

We can certainly leave Sli.do open until 12:00 starting from today to capture any additional questions however these may need to wait until the following week to be answered.

We will continue to answer as many questions as possible live before we close the call.

Advance Questions

Q: Since mid June we have noticed a number of c.10Hz oscillation events on the transmission system in South Scotland. Are ESO investigating this, do you understand what is causing these oscillations, and what is being proposed to resolve?

A: There have been 4 days in June where we have experienced 8Hz frequency oscillations on the electricity transmission system. The period of oscillations have been of limited duration, generally in the area of 30 seconds.

This is not a new phenomenon and has been seen before on our network, and also occurs on other networks across the world. It is understood to relate to the interaction of power electronics.

We are working in partnership with industry and academia to investigate the situation. We are analysing data and system conditions to understand the root cause. We have taken measures to ensure system security, including holding increased levels of response and synchronised generation to manage the inertia and fault levels and the network configuration has been optimised.

We will share a further update when available.

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