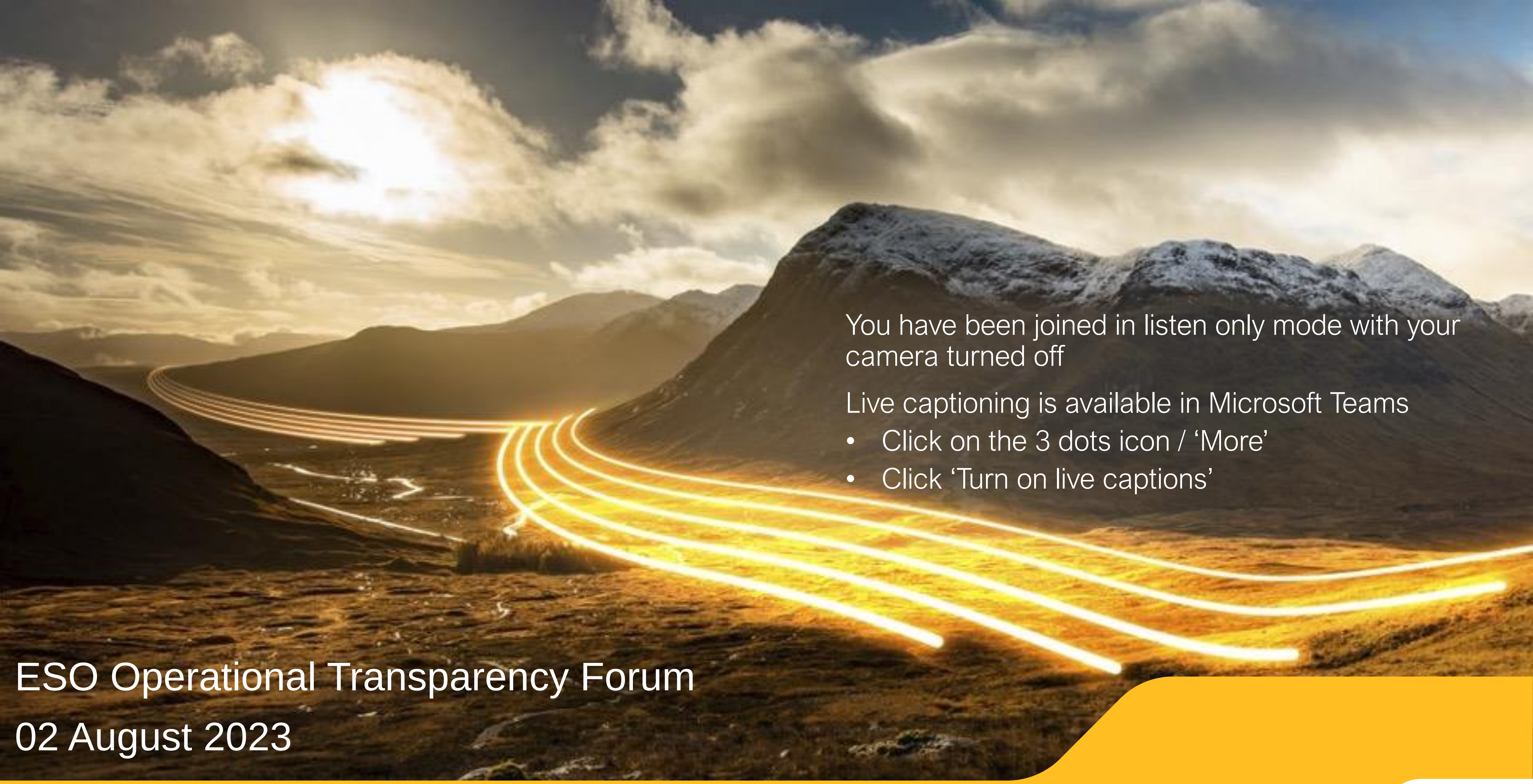

You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

02 August 2023

ESO

Purpose and scope of the ESO Operational Transparency Forum

Purpose

The Operational Transparency Forum runs once a week to provide updated information on and insight into the operational challenges faced by the control room in the recent past (1-2 weeks) and short term future (1-2 weeks). The OTF will also signpost other ESO events, provide deep dives into focus topics, and allow industry to ask questions.

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Aligns with purpose, see examples below:

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Material presented i.e.: regular content, deep dives, focus topics
ESO operational approach & challenges
ESO published data

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Data owned and/or published by other parties e.g.: BMRS is published by Elexon
Processes including consultations operated by other parties e.g.: Elexon, Ofgem, DESNZ
Data owned by other parties
Details of ESO Control Room actions & decision making
Activities & operations of particular market participants
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Formal consultations e.g.: Code Changes, Business Planning, Market development

Introduction | Sli.do code #OTF

To ask questions live and provide us with post event feedback go to Sli.do and join event code #OTF.

- **Ask your questions as early as possible** as our experts may need time to ensure a correct answer can be given live.
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Future deep dive / focus topics

Future

Scottish Oscillations – following conclusion of current investigative work. Date to be confirmed.

Constraints – September

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

System Events

31 July 08:54 – Low Frequency Event

At 08:54 an interconnector tripped whilst importing 788MW to GB, the frequency dropped to 49.663Hz and returned to operational limits at 08:57.

Phase out of Dynamic FFR (DFFR) - Update

A key milestone in frequency response reform is the phasing-out of monthly Dynamic FFR (DFFR). This is happening 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 we are reducing our DFFR requirements by 50MW for each EFA block per month whilst increasing the DR requirements by 30MW. Following the change in March 2023 to procure up to 200MW of DR a series of IT changes were required to facilitate any further increases to the DR requirement.

The final IT change that raising the volume cap is dependent on to ensure visibility of non-BM units in our balancing systems has been delayed. As a result, we need to delay the planned increase to DR procurement volumes. We are currently working to implement this change as soon as possible. As a result of this we will also delay the scheduled 50MW reduction in DFFR procurement as per the table below.

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

Figure 1: Phasing out FFR with Dynamic Regulaton requirements for August 2023 onwards

[Link to the Frequency Response Products Market Information Report – July 2023]

Balancing Reserve webinar – 17 August

We are hosting an industry webinar.

The purpose of this webinar is to update industry with our latest position on the service and provide an overview of the consultation process and documentation.

We will also hold a Q&A session at the end of the presentation for any questions that you may have.

Agenda

- Updates on the Balancing Reserve service
- Consultation documentation and process overview
- Timeline
- Q&A
- Next steps & close

Sign up for the webinar here

Microsoft Virtual Events Powered by Teams

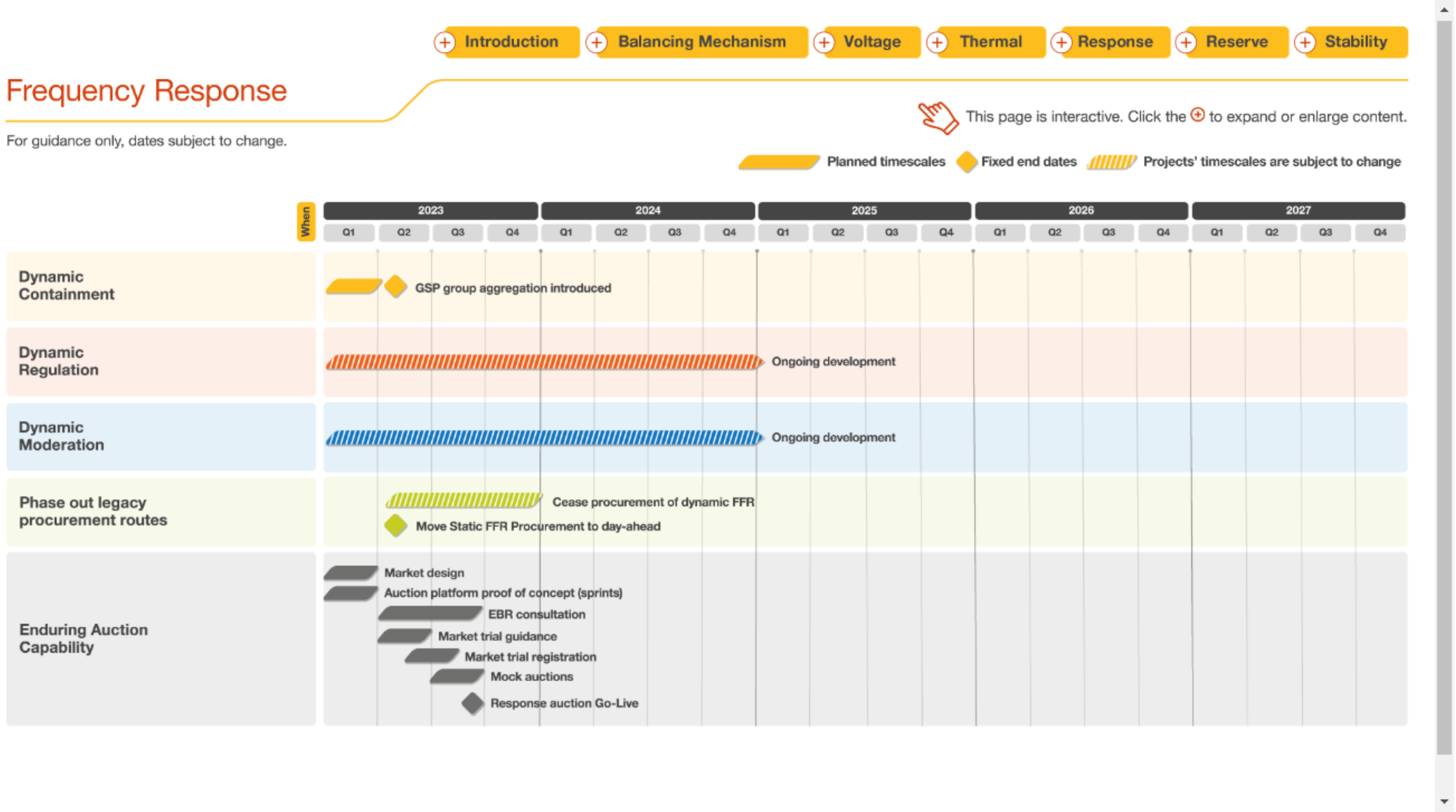
Sli.do code #OTF

Live Markets Roadmap delivery plans now on website

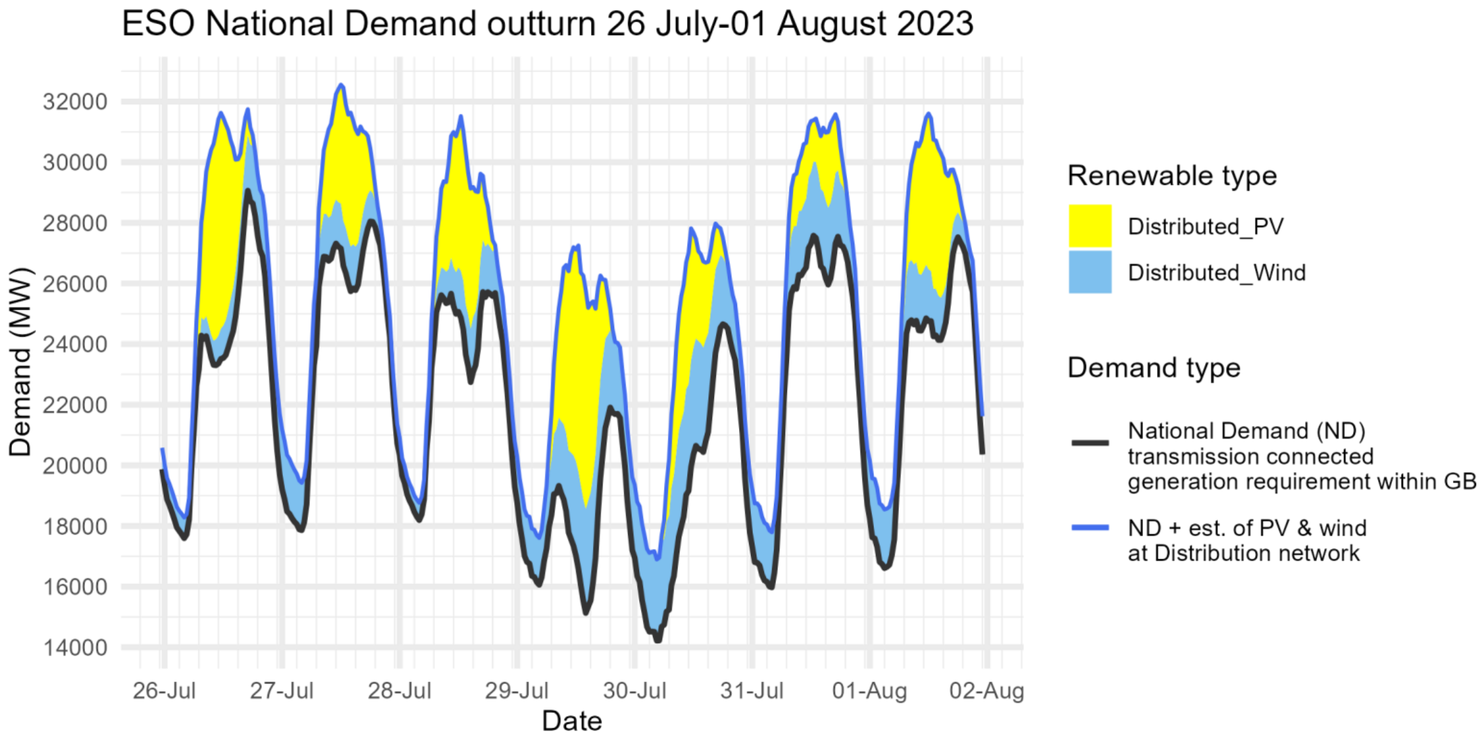
Stakeholder feedback: need more regular updates of Markets Roadmap delivery plans.

We will now update plans for all Markets areas **every month**.

Visit the ESO Markets Roadmap webpage to see these live plans.



Demand | Last week demand out-turn



		FORECAST (Wed 26 Jul)			OUTTURN		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
26 Jul	Afternoon Min	23.7	1.1	6.4	23.6	1.2	6.4
27 Jul	Overnight Min	16.9	1.8	0.0	17.9	1.6	0.0
27 Jul	Afternoon Min	23.8	2.2	4.2	25.7	1.5	4.4
28 Jul	Overnight Min	18.3	0.5	0.0	18.2	0.6	0.0
28 Jul	Afternoon Min	22.7	1.7	4.9	22.7	1.8	4.6
29 Jul	Overnight Min	16.2	1.4	0.1	16.1	1.5	0.0
29 Jul	Afternoon Min	16.5	2.9	6.1	15.1	3.4	7.2
30 Jul	Overnight Min	14.5	2.1	0.1	14.2	2.7	0.0
30 Jul	Afternoon Min	16.8	3.1	5.4	20.4	3.5	2.8
31 Jul	Overnight Min	15.5	2.1	0.0	16.0	1.8	0.0
31 Jul	Afternoon Min	23.1	2.8	4.0	26.0	2.5	2.5
01 Aug	Overnight Min	16.8	1.8	0.0	16.6	1.9	0.0
01 Aug	Afternoon Min	22.2	2.4	6.0	24.1	1.5	4.9

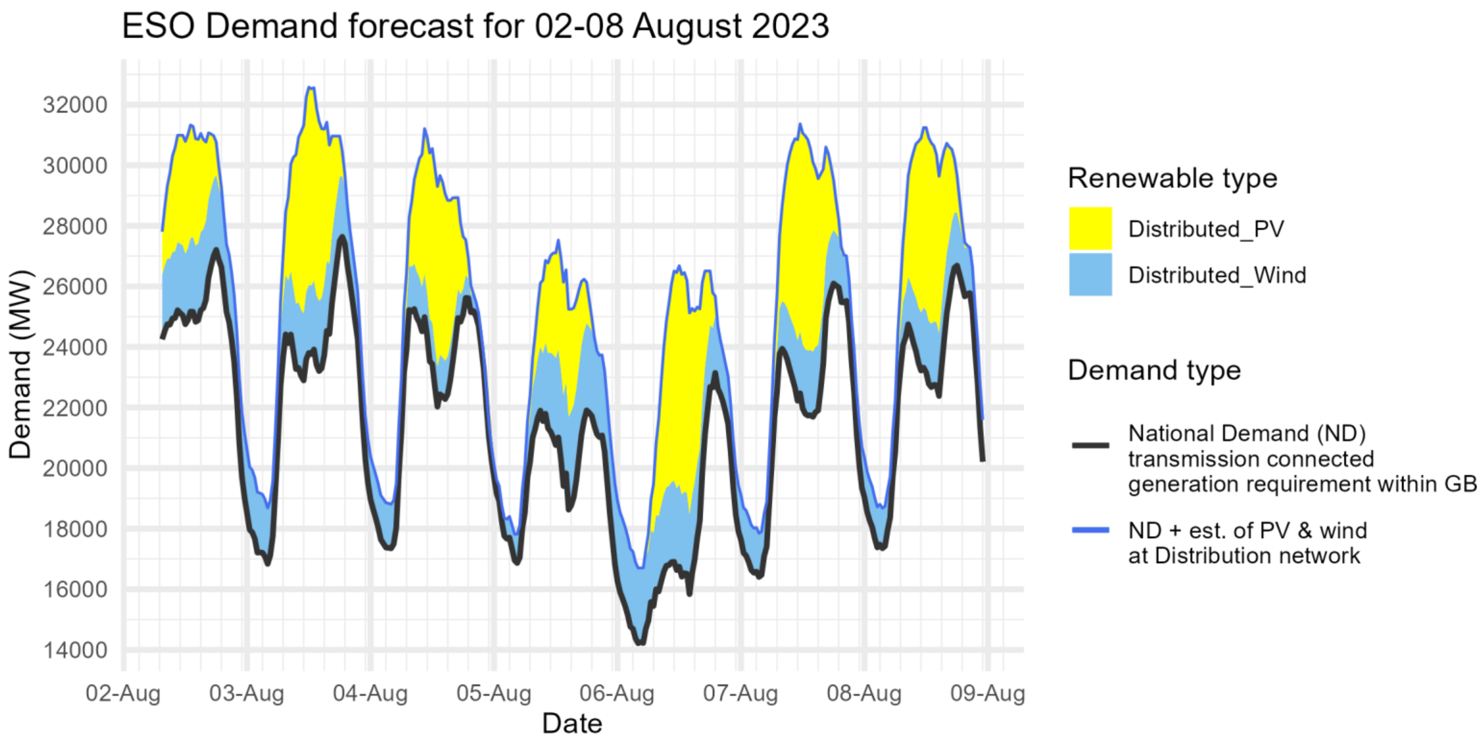
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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 02 Aug)		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
02 Aug 2023	Afternoon Min	24.8	2.5	3.5
03 Aug 2023	Overnight Min	16.8	1.8	0.0
03 Aug 2023	Afternoon Min	23.2	2.3	5.9
04 Aug 2023	Overnight Min	17.4	1.5	0.0
04 Aug 2023	Afternoon Min	22.0	1.3	5.9
05 Aug 2023	Overnight Min	16.9	1.0	0.0
05 Aug 2023	Afternoon Min	18.6	3.1	3.6
06 Aug 2023	Overnight Min	14.2	2.5	0.0
06 Aug 2023	Afternoon Min	15.8	2.6	6.6
07 Aug 2023	Overnight Min	16.4	1.4	0.0
07 Aug 2023	Afternoon Min	21.7	2.2	6.2
08 Aug 2023	Overnight Min	17.4	1.3	0.0
08 Aug 2023	Afternoon Min	22.4	2.1	5.2

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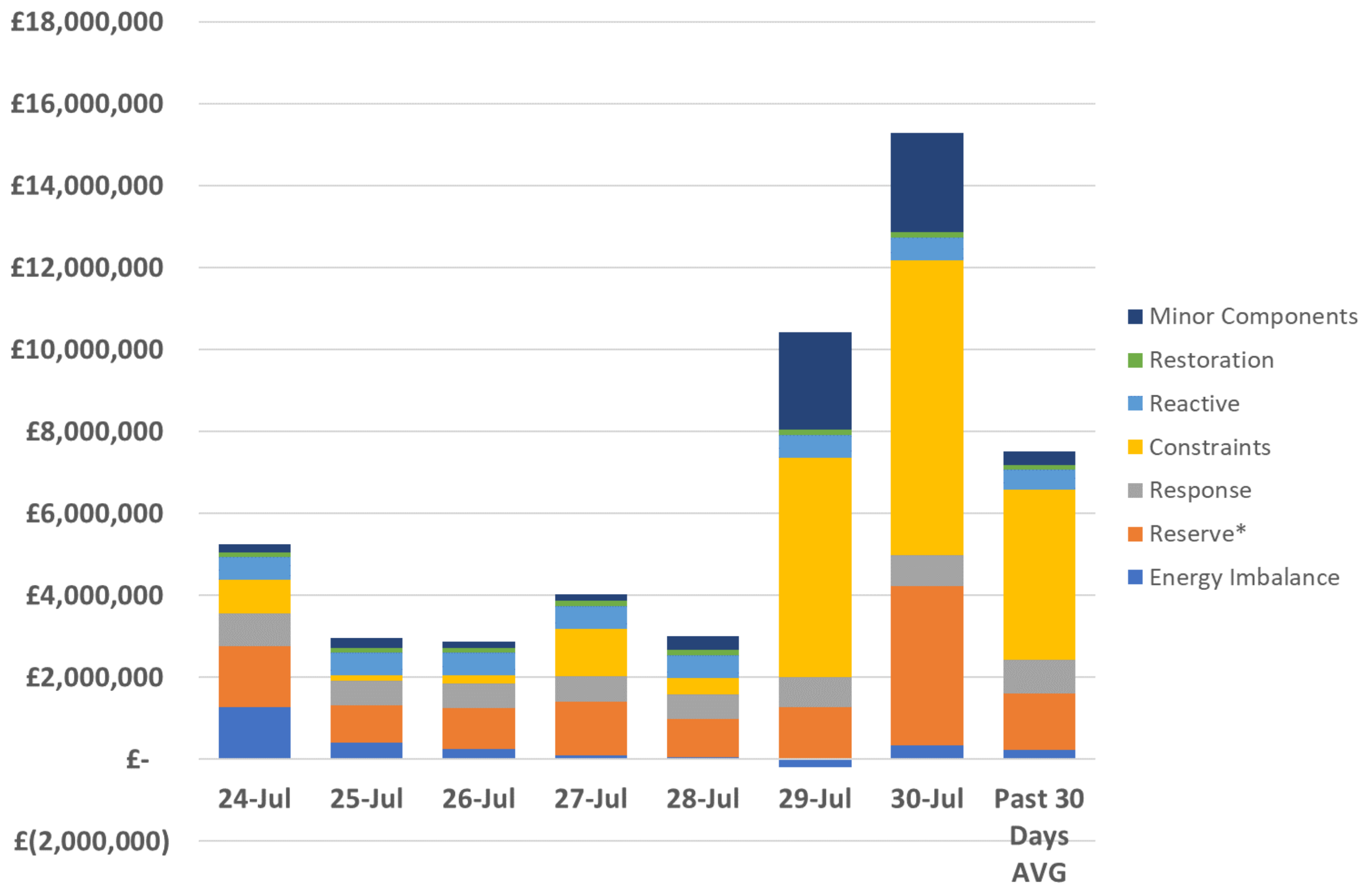
ESO Actions | Category costs breakdown for the last week



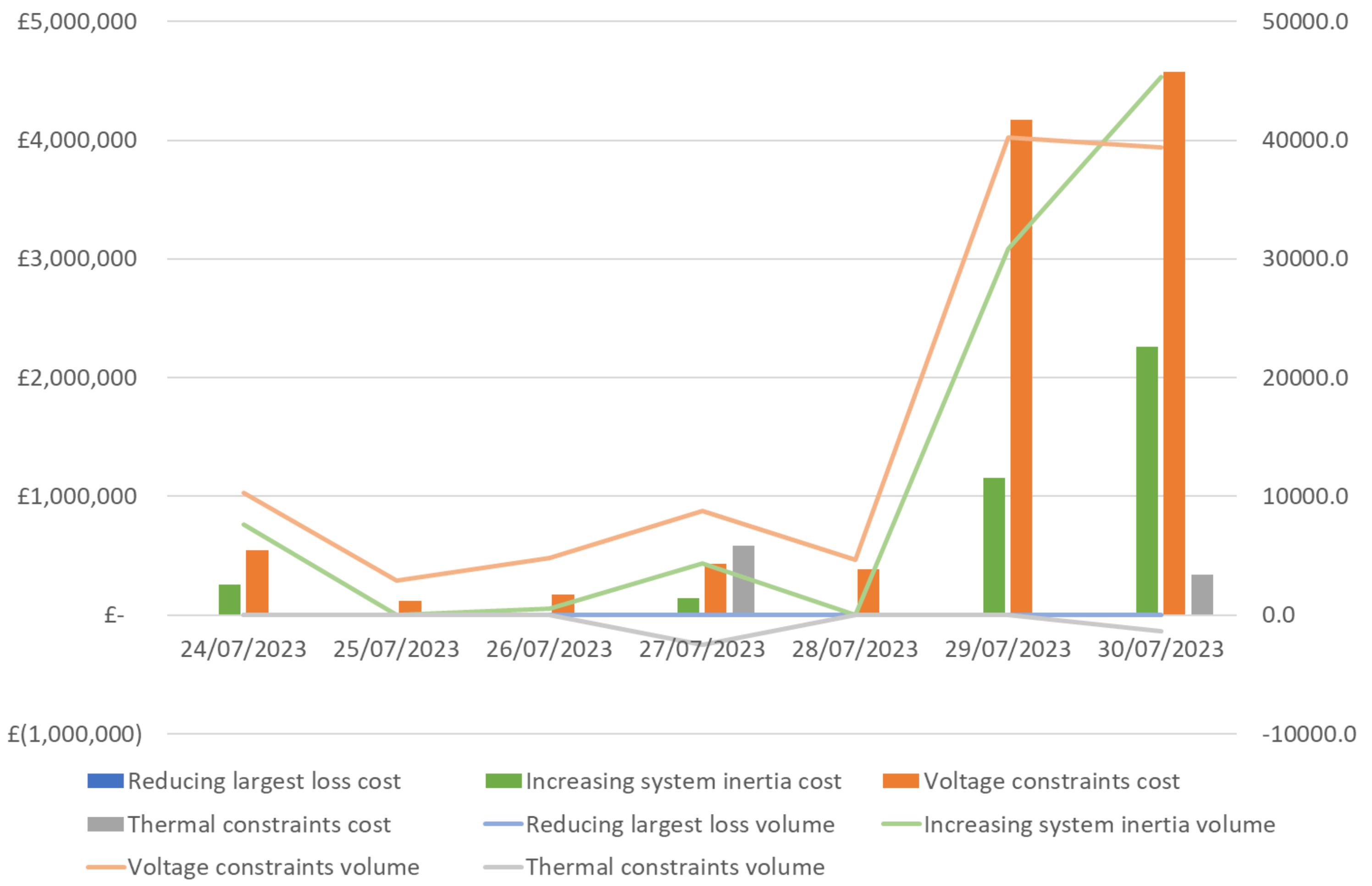
Date	Total (£m)
24/07/2023	5.2
25/07/2023	3.0
26/07/2023	2.9
27/07/2023	4.0
28/07/2023	3.0
29/07/2023	10.2
30/07/2023	15.3
Weekly Total	**43.7**
Previous Week	**32.4**

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



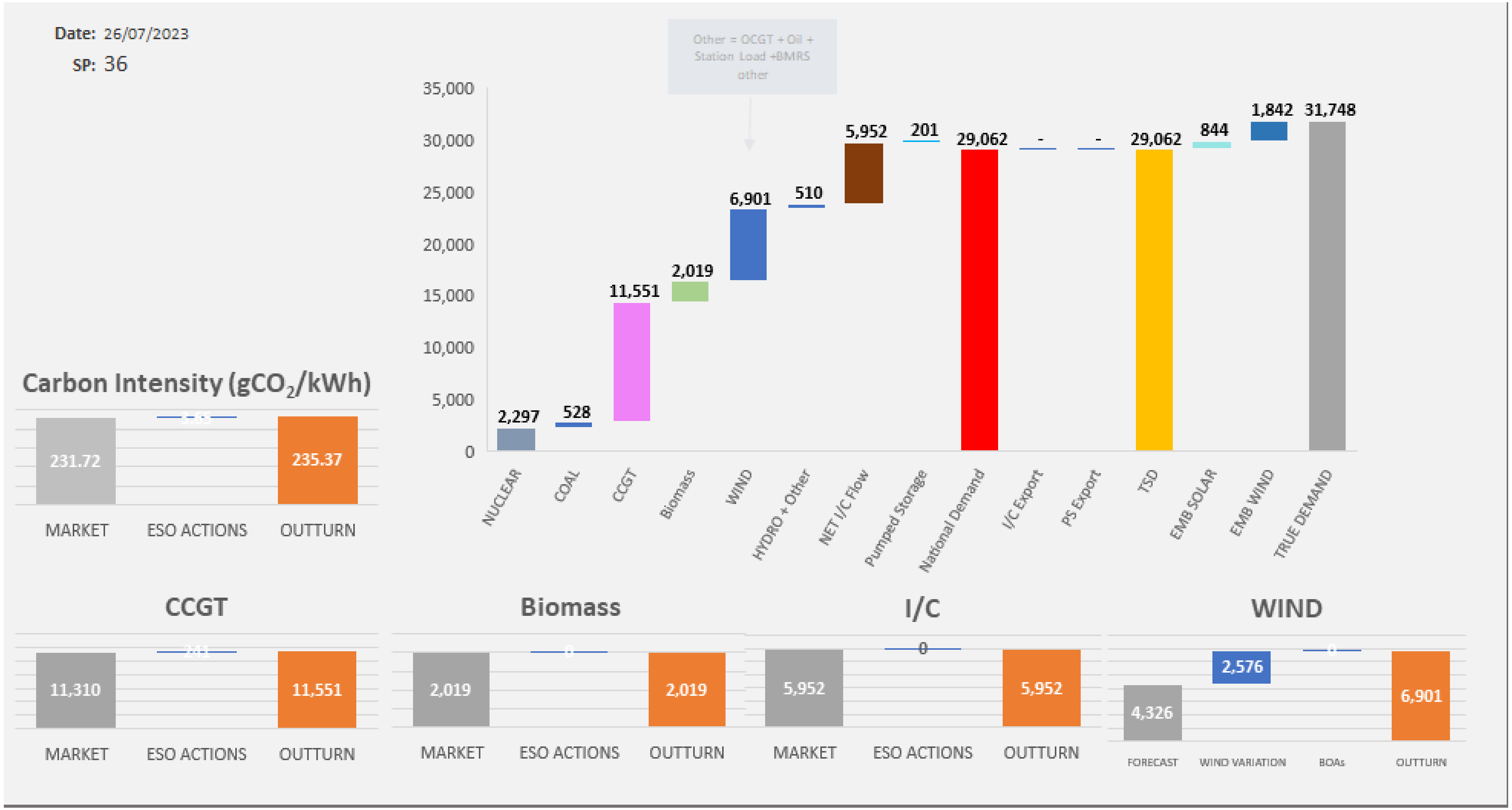
Thermal – network congestion
Actions were required to manage thermal constraints Thursday and Sunday with the most significant costs on Thursday.

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, Thurs, Sat and Sun.

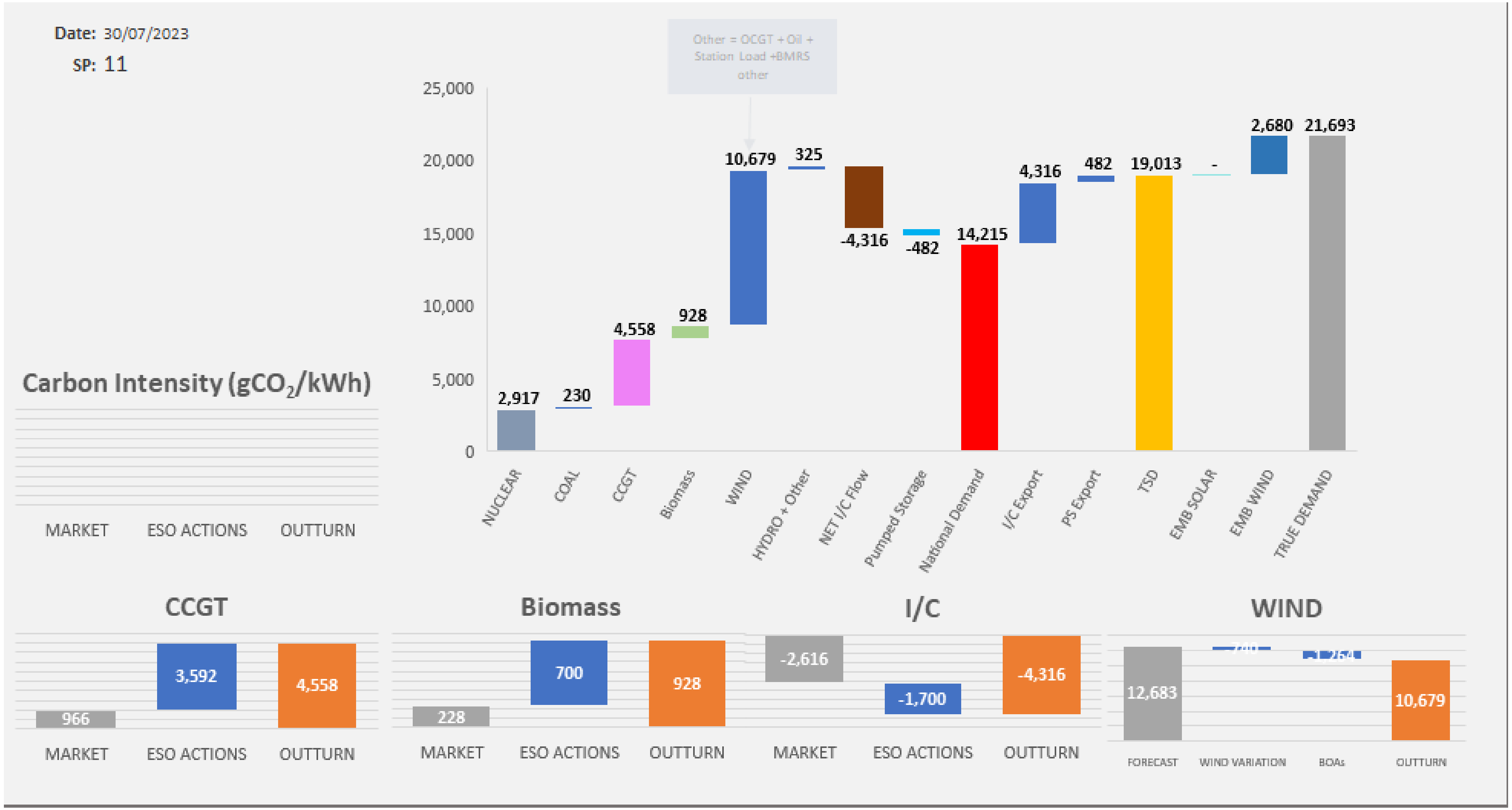
ESO Actions | Wednesday 26 July – Peak Demand – SP spend ~£-5900



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

Sli.do code #OTF

ESO Actions | Sunday 30 July – Minimum Demand – SP Spend ~£390k



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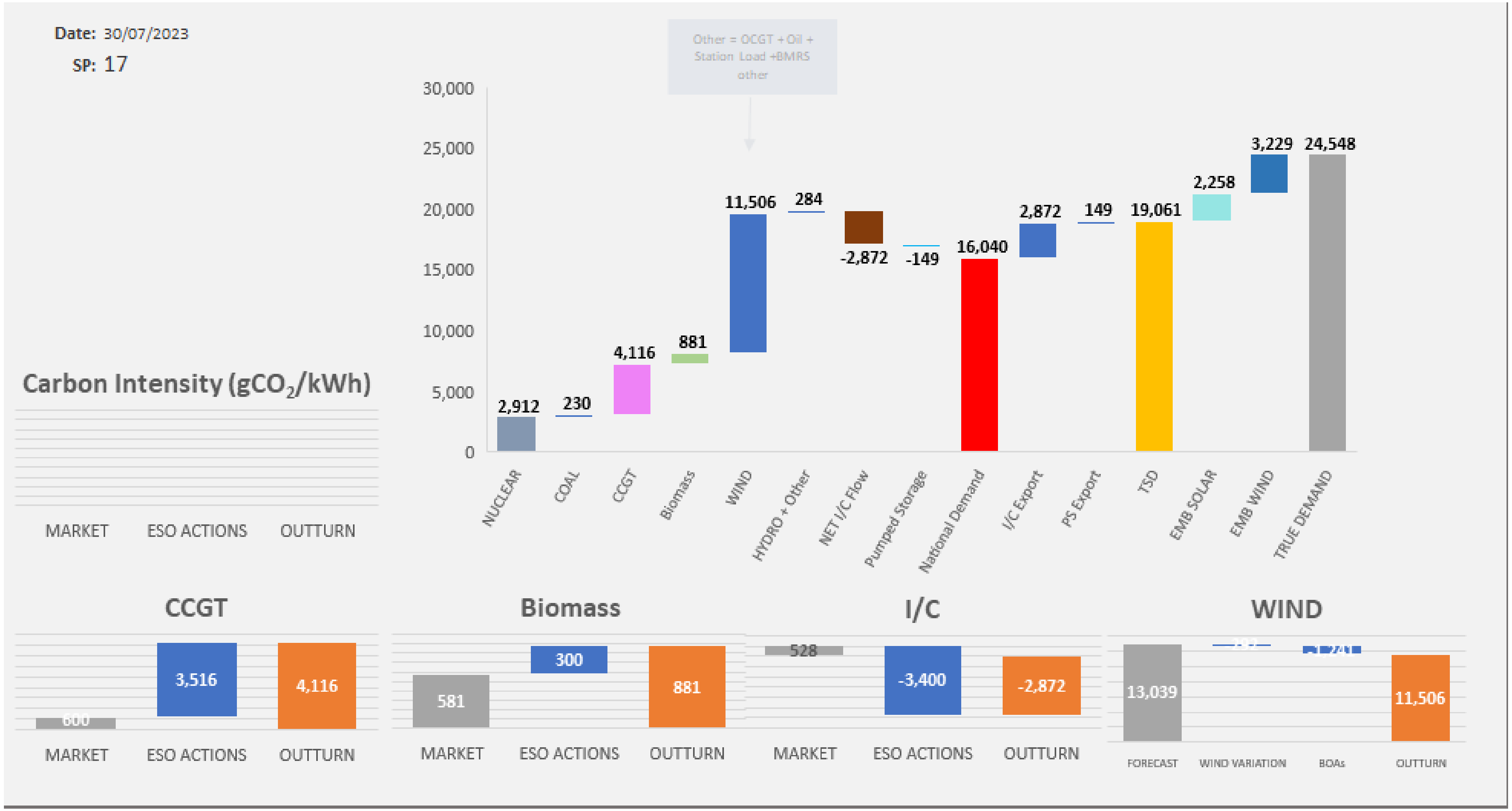
ESO

ESO Actions | Sunday 30 July – Highest SP Spend ~£420k



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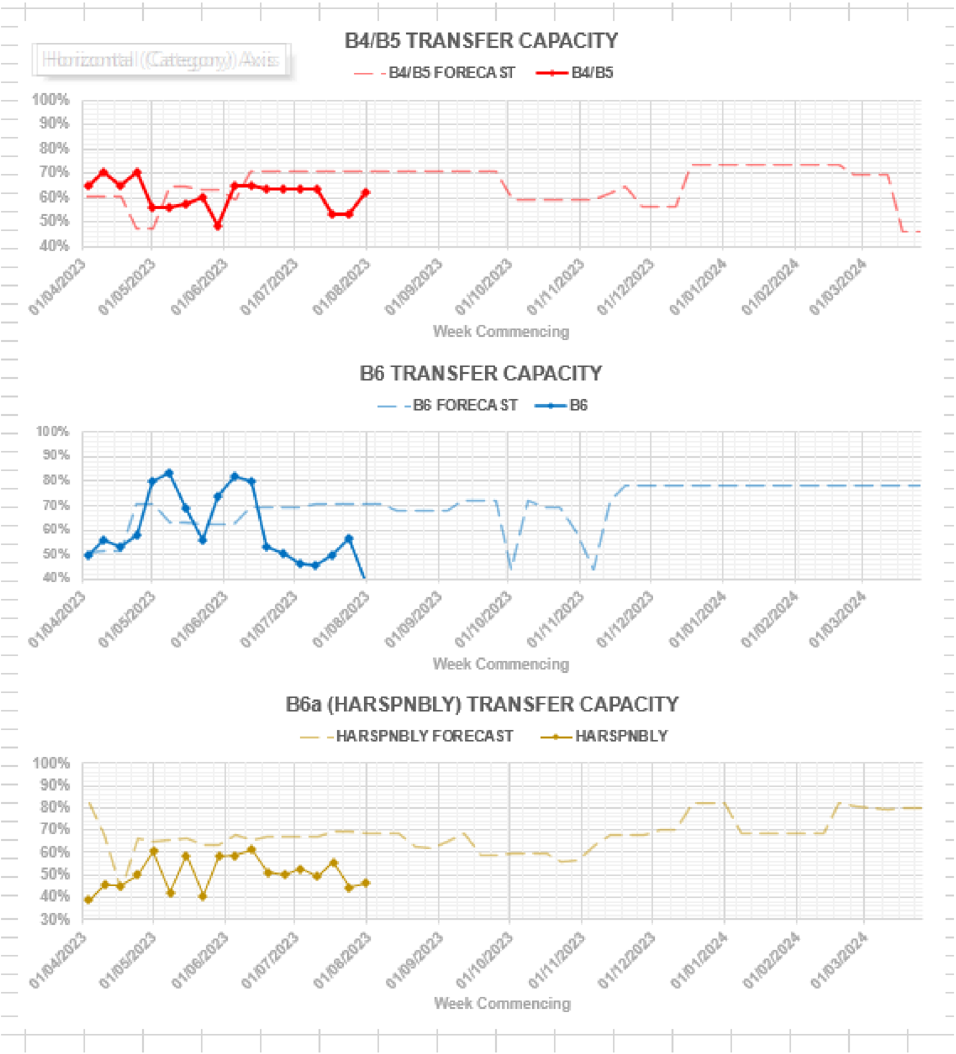
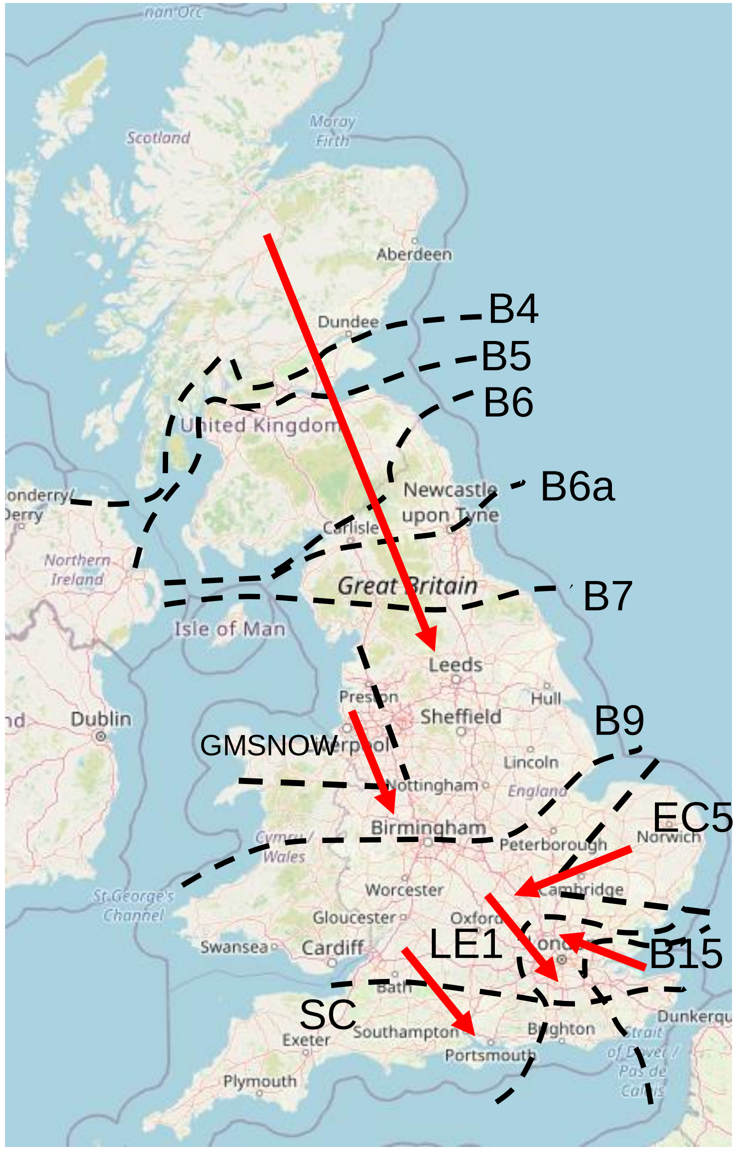
Transparency | Network Congestion



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:
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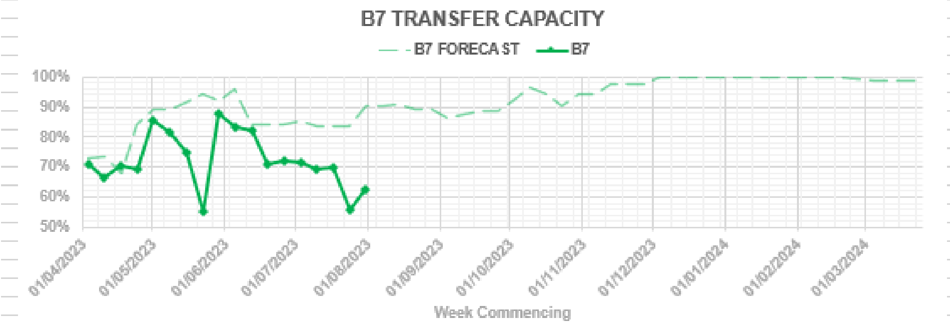

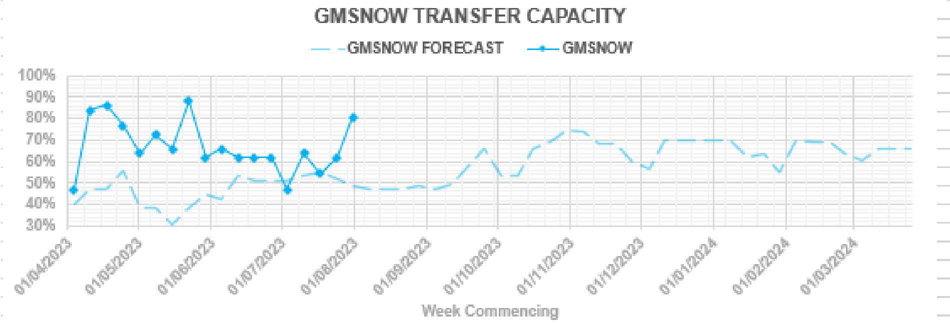

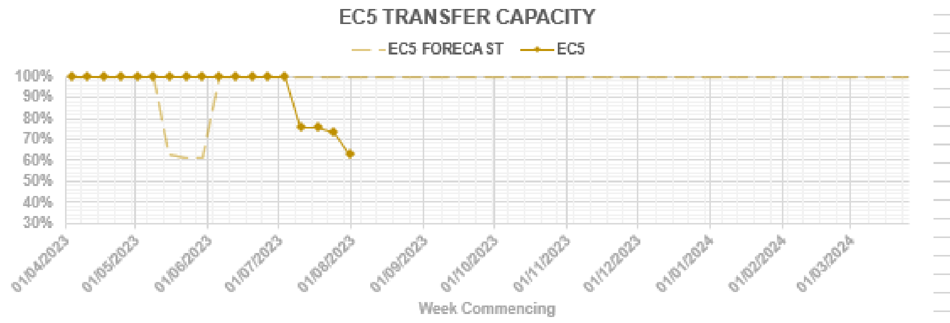

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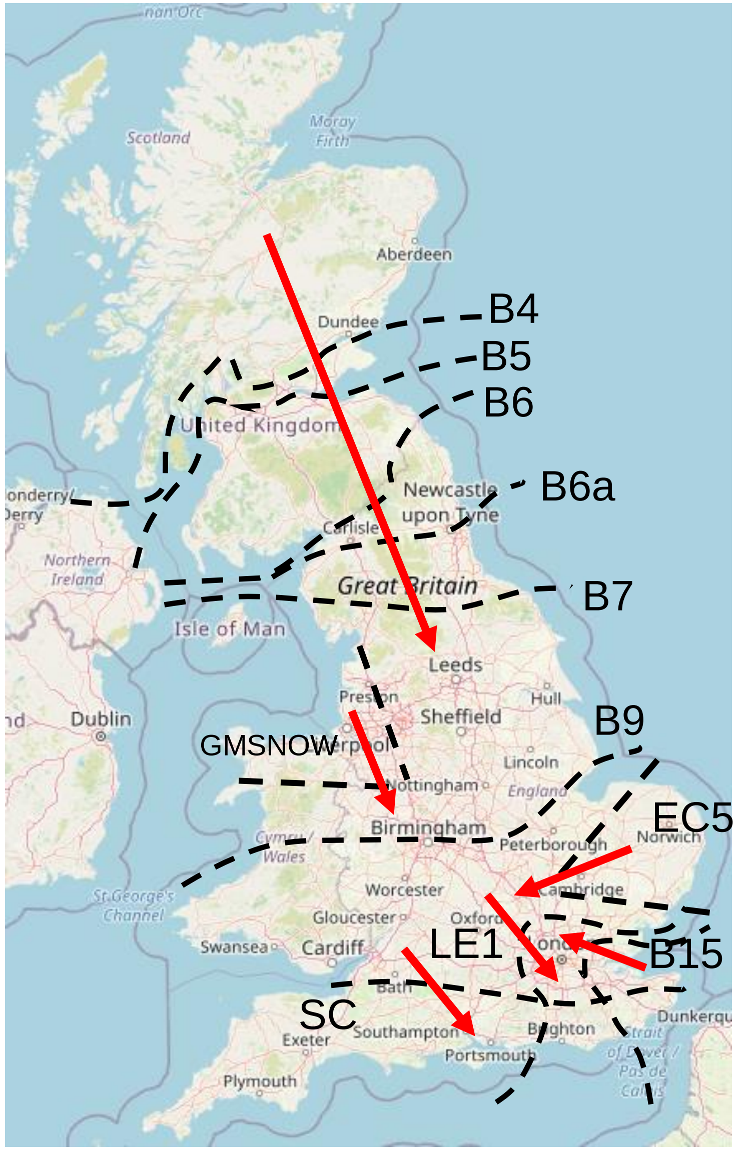

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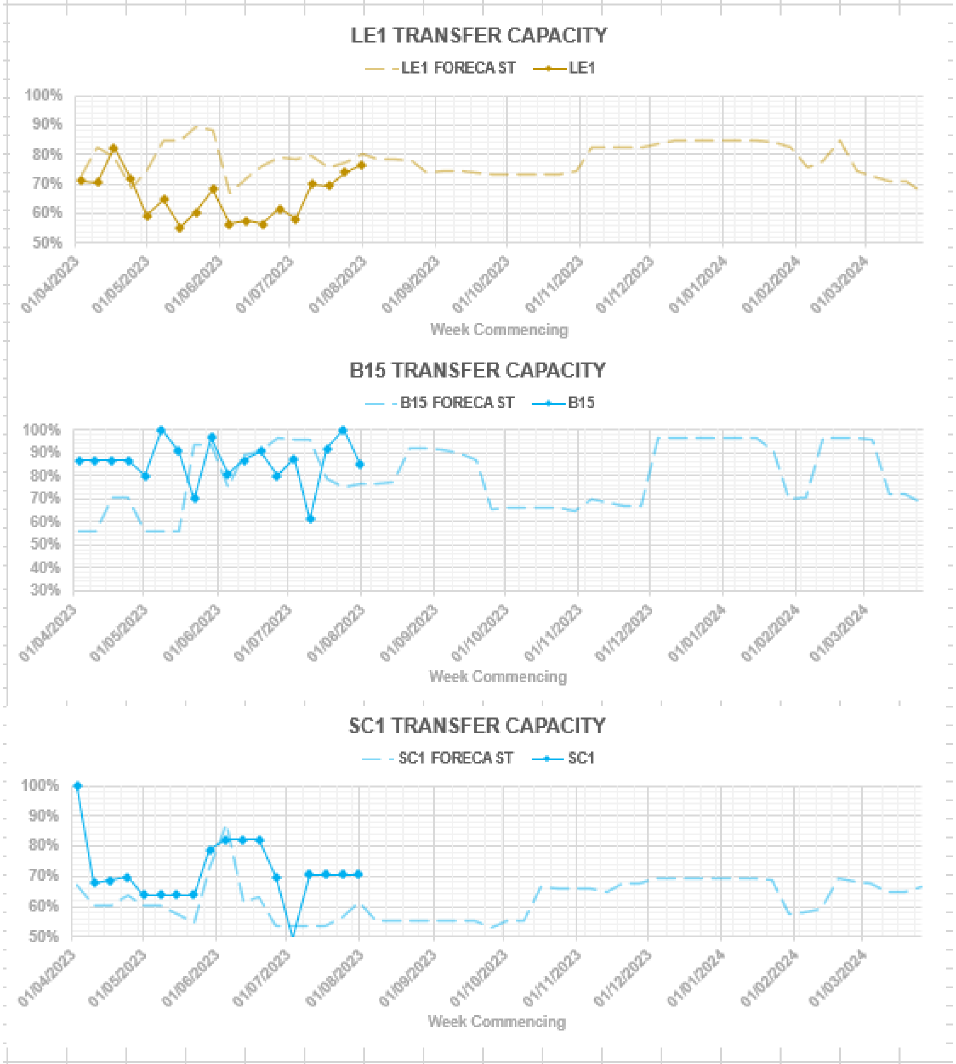

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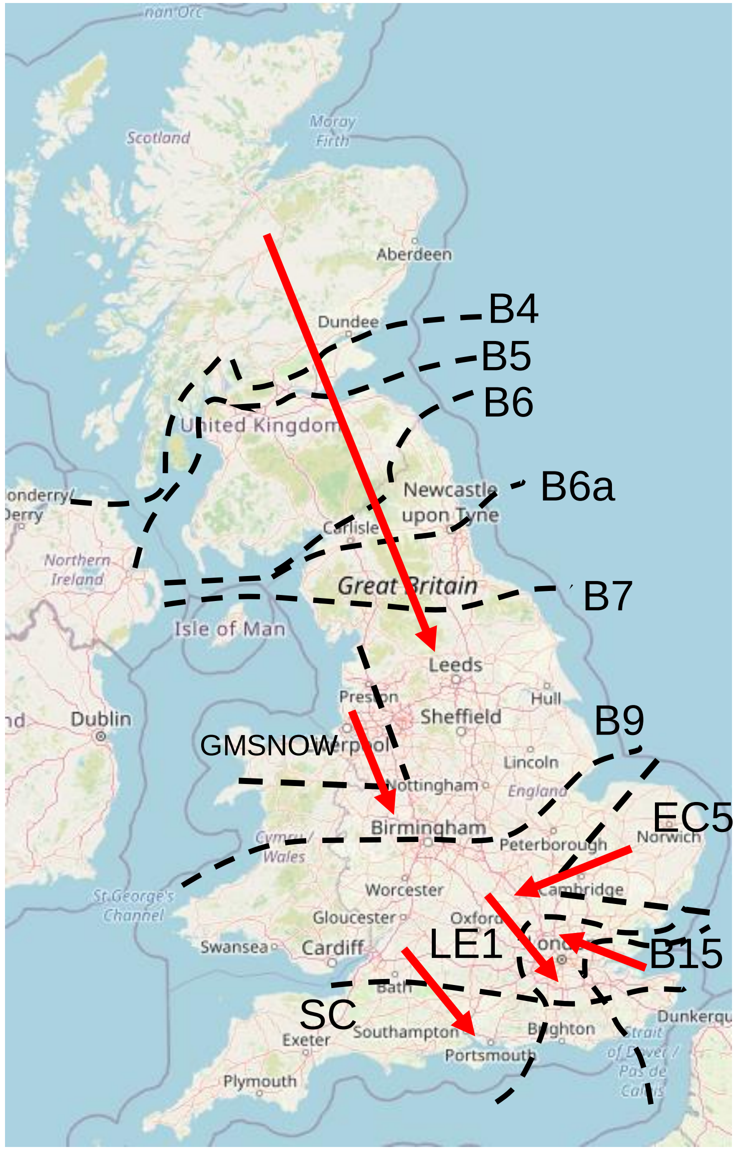

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Outstanding Questions

Q: Is it possible to publish the sites which have the Power Available installed? Alternatively, could the ESO provide an update on Power Available as the last one I can find is from March 2021 (https://www.nationalgrideso.com/news/power-available-phase-2-further-unlocks-potential-variable-generation-provide-balancing), e.g. what is the current state of PA? how many sites have it? has the signal for solar sites commenced?

A: We are in the process of gathering data that will be published on the Data Portal regarding Power Available. We are working closely with industry through the Wind Advisory Group to determine how best we can supply this information.

Q: The transfer across the B6 boundary is reaching ~80% during the summer. Is this based on the 6.8GW maximum capacity of the B6 boundary?

A: Thank you for your question. Yes, the percentage is relative to the maximum capacity of the boundary. In this case the maximum capacity of the boundary is 6.8GW, so the limit of ≈ 80% will be ≈ 5.4GW.

Outstanding Questions

Q: When there is a significant variation in forecast of wind, with ~3 GW of BESS installed and most contracted for D_suite, how much of this capacity would be needed to assist with issues? Surely BESS would be cheaper to deploy than CCGT?

A: In strategy timescales we plan a “wind reserve” requirement to make sure that we can correct energy imbalances caused by wind forecast errors. This requirement is fulfilled by headroom and footroom held on flexible BM units – sometimes we send repositioning bids and offers to secure this headroom/footroom and sometimes it is delivered to us by the market for no additional cost. We are technology neutral about which BM units can fulfil this reserve requirement as long as they are able to be flexibly dispatched and ramp sufficiently quickly to correct imbalances.

We are able to use Dx suite committed assets that are BM participating within the BM as per our guidance note on Stacking BOAs with Dx services. In practice, the Dx services are essential for us to manage the system and we ask providers to protect their capability to deliver on their contracts through submission of bid/offer prices and other data parameters. This supports control room engineers in making the right decisions for real time dispatch to operate a safe and secure power system.

BESS = Battery Energy Storage System, CCGT = Combined Cycle Gas Turbine

D_suite or Dx suite = this refers to ESO’s suite of new dynamic response services DC/DM/DR

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slido

Audience Q&A Session

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

Feedback

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