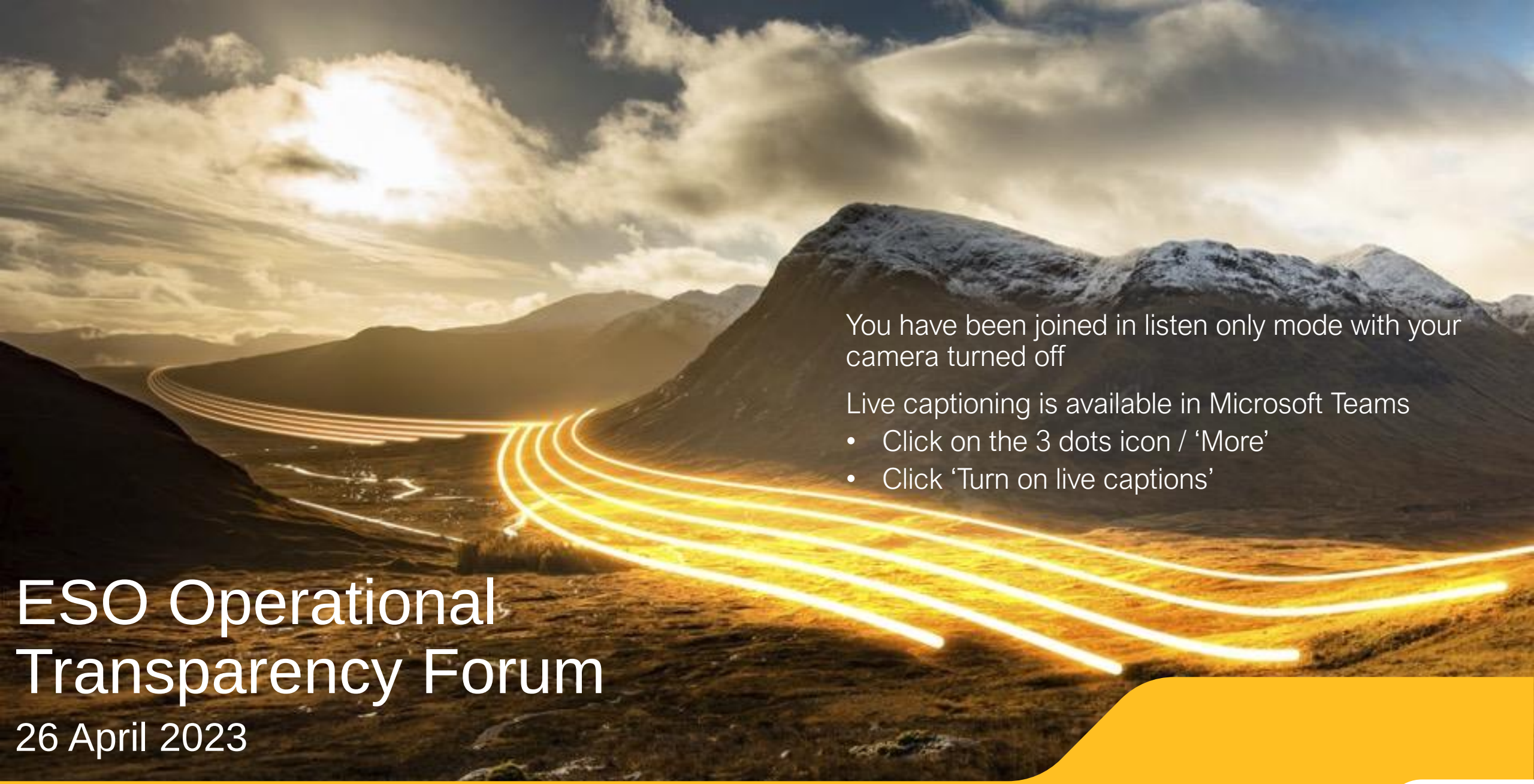


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

26 April 2023

ESO

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. 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

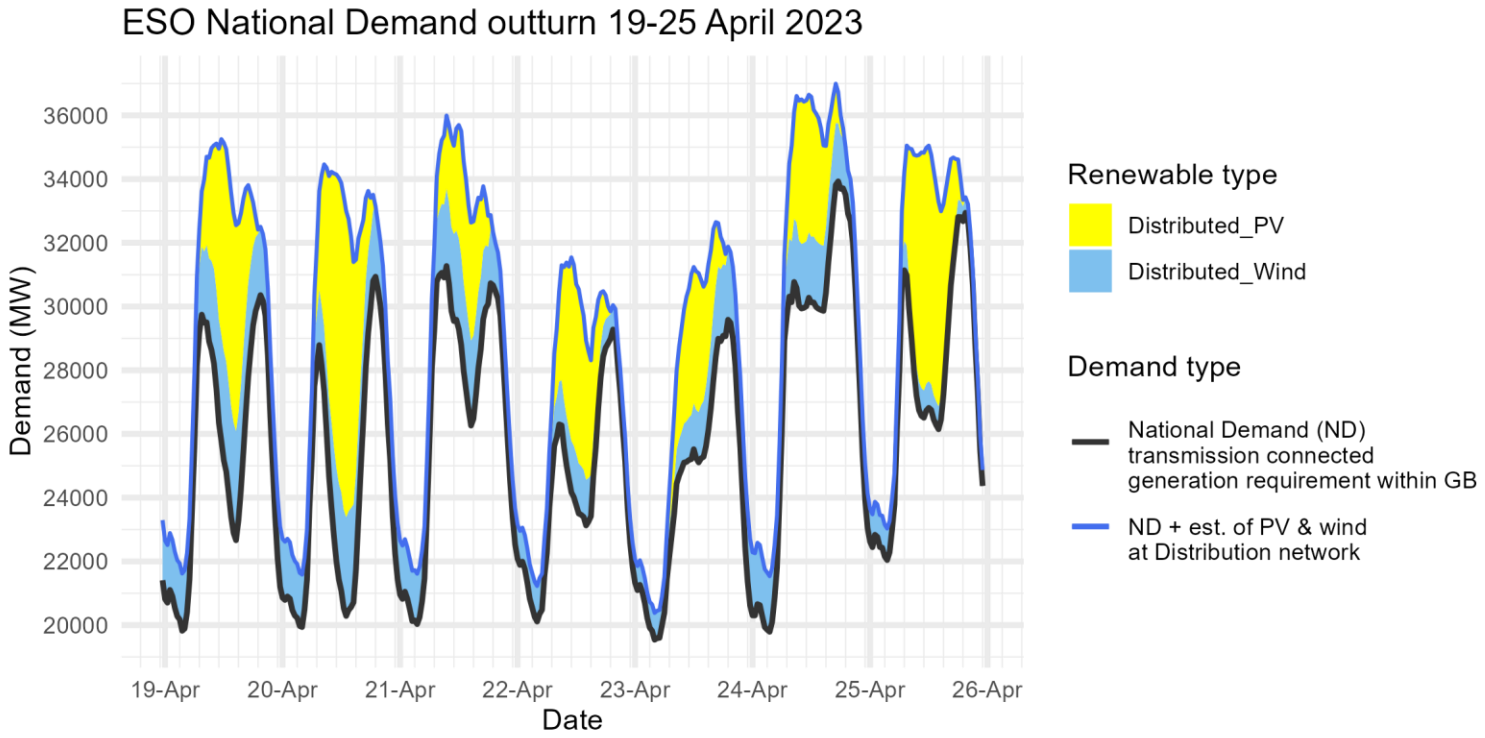
Future

Response markets introduction – 3rd May

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 and we will consider including them in a future forum

Demand | Last week demand out-turn



Date	Forecasting Point	FORECAST (Wed 19 Apr) National Demand (GW)	FORECAST (Wed 19 Apr) Dist. wind (GW)	FORECAST (Wed 19 Apr) Dist. PV (GW)	OUTTURN National Demand (GW)	OUTTURN Dist. wind (GW)	OUTTURN Dist. PV (GW)
19 Apr	Afternoon Min	23.5	3.4	5.9	22.7	3.4	6.5
20 Apr	Overnight Min	20.0	1.7	0.0	19.9	1.6	0.0
20 Apr	Afternoon Min	22.7	3.2	7.9	20.3	3.1	9.6
21 Apr	Overnight Min	20.1	1.8	0.0	20.0	1.6	0.0
21 Apr	Afternoon Min	25.5	2.6	3.7	26.3	2.7	3.7
22 Apr	Overnight Min	20.0	1.1	0.0	20.1	1.1	0.0
22 Apr	Afternoon Min	22.4	1.3	4.1	23.1	1.4	4.4
23 Apr	Overnight Min	18.2	1.7	0.0	19.5	0.8	0.0
23 Apr	Afternoon Min	21.6	2.4	4.7	25.1	1.6	4.4
24 Apr	Overnight Min	19.1	1.7	0.0	19.8	1.7	0.0
24 Apr	Afternoon Min	28.2	1.6	3.6	29.9	2.1	3.1
25 Apr	Overnight Min	21.1	0.9	0.0	22.0	1.0	0.0
25 Apr	Afternoon Min	27.3	1.0	5.5	26.1	0.7	6.4

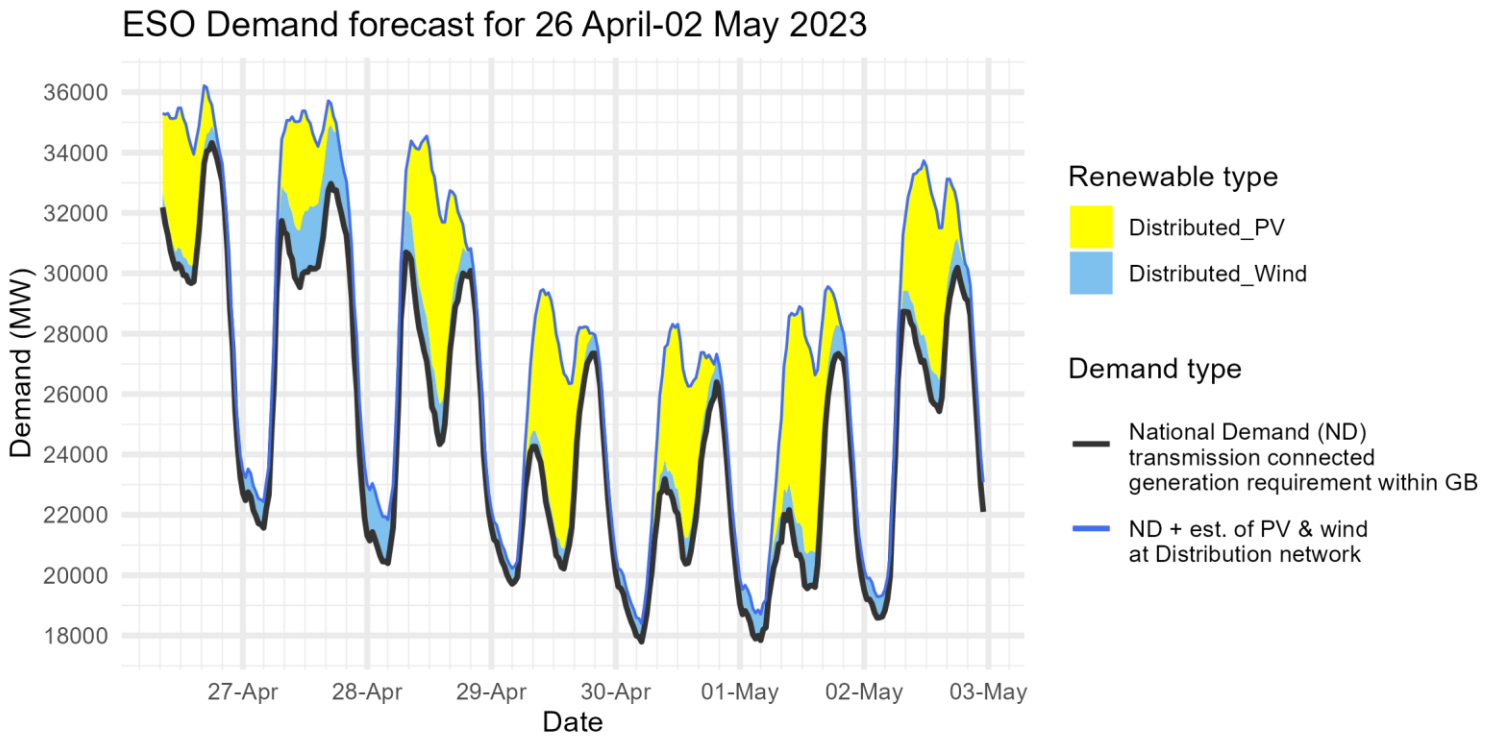
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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



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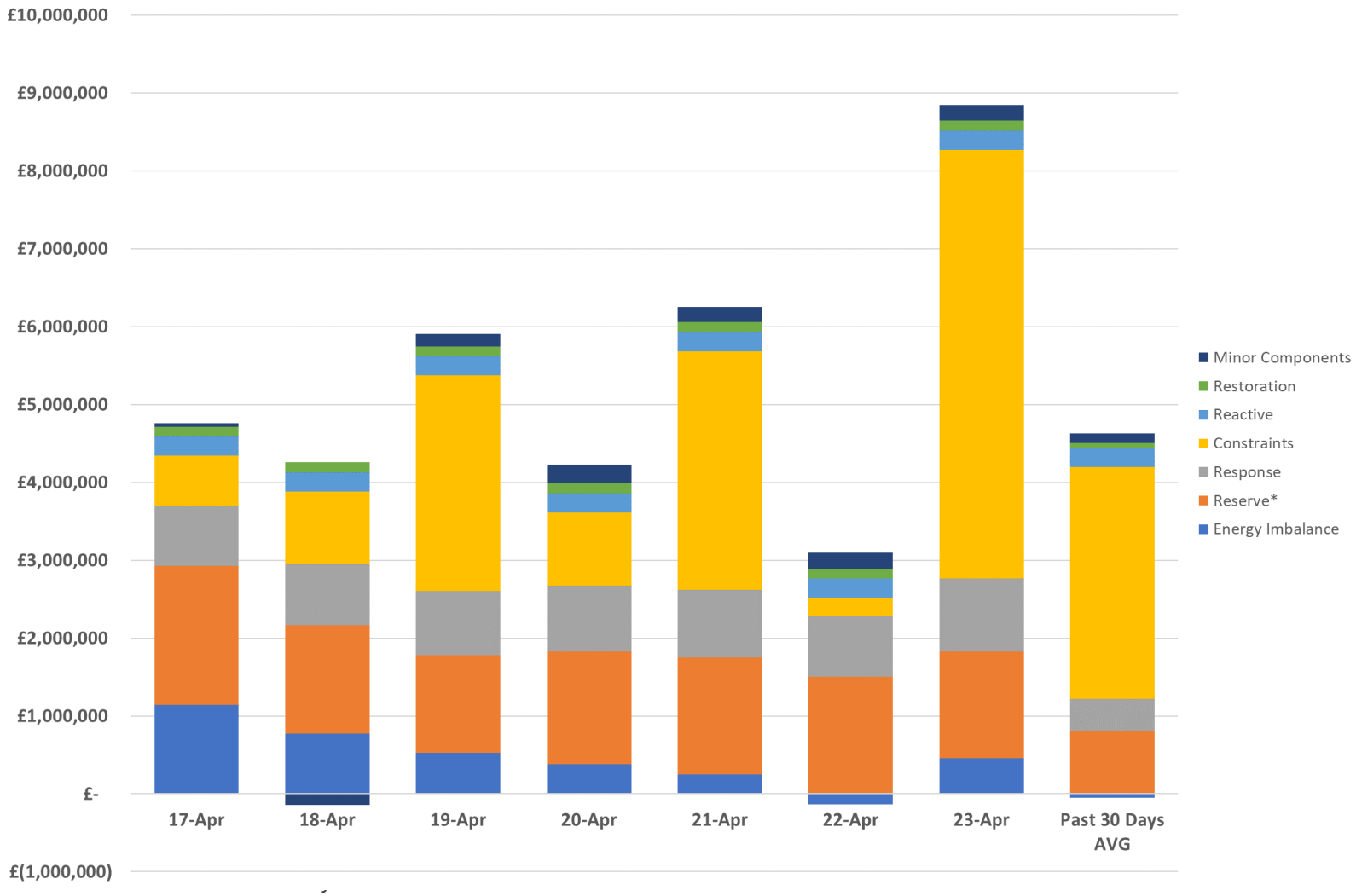
Historic out-turn data can be found on the ESO Data Portal in the following data sets: Historic Demand Data & Demand Data Update

		FORECAST (Wed 26 Apr)		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
26 Apr 2023	Afternoon Min	29.7	0.6	4.0
27 Apr 2023	Overnight Min	21.6	0.9	0.0
27 Apr 2023	Afternoon Min	30.0	2.0	3.0
28 Apr 2023	Overnight Min	20.4	1.4	0.0
28 Apr 2023	Afternoon Min	24.3	1.3	6.3
29 Apr 2023	Overnight Min	19.7	0.5	0.0
29 Apr 2023	Afternoon Min	20.2	0.7	5.8
30 Apr 2023	Overnight Min	17.8	0.6	0.0
30 Apr 2023	Afternoon Min	20.4	0.8	5.3
01 May 2023	Overnight Min	17.8	0.9	0.0
01 May 2023	Afternoon Min	19.6	1.1	7.0
02 May 2023	Overnight Min	18.6	0.7	0.0
02 May 2023	Afternoon Min	25.4	1.0	5.0

ESO Actions | Category costs breakdown for the last week

Date	Total (£m)
17/04/2023	4.8
18/04/2023	4.1
19/04/2023	5.9
20/04/2023	4.2
21/04/2023	6.2
22/04/2023	3.0
23/04/2023	8.8
Weekly Total	37.1
Previous Week	73.5

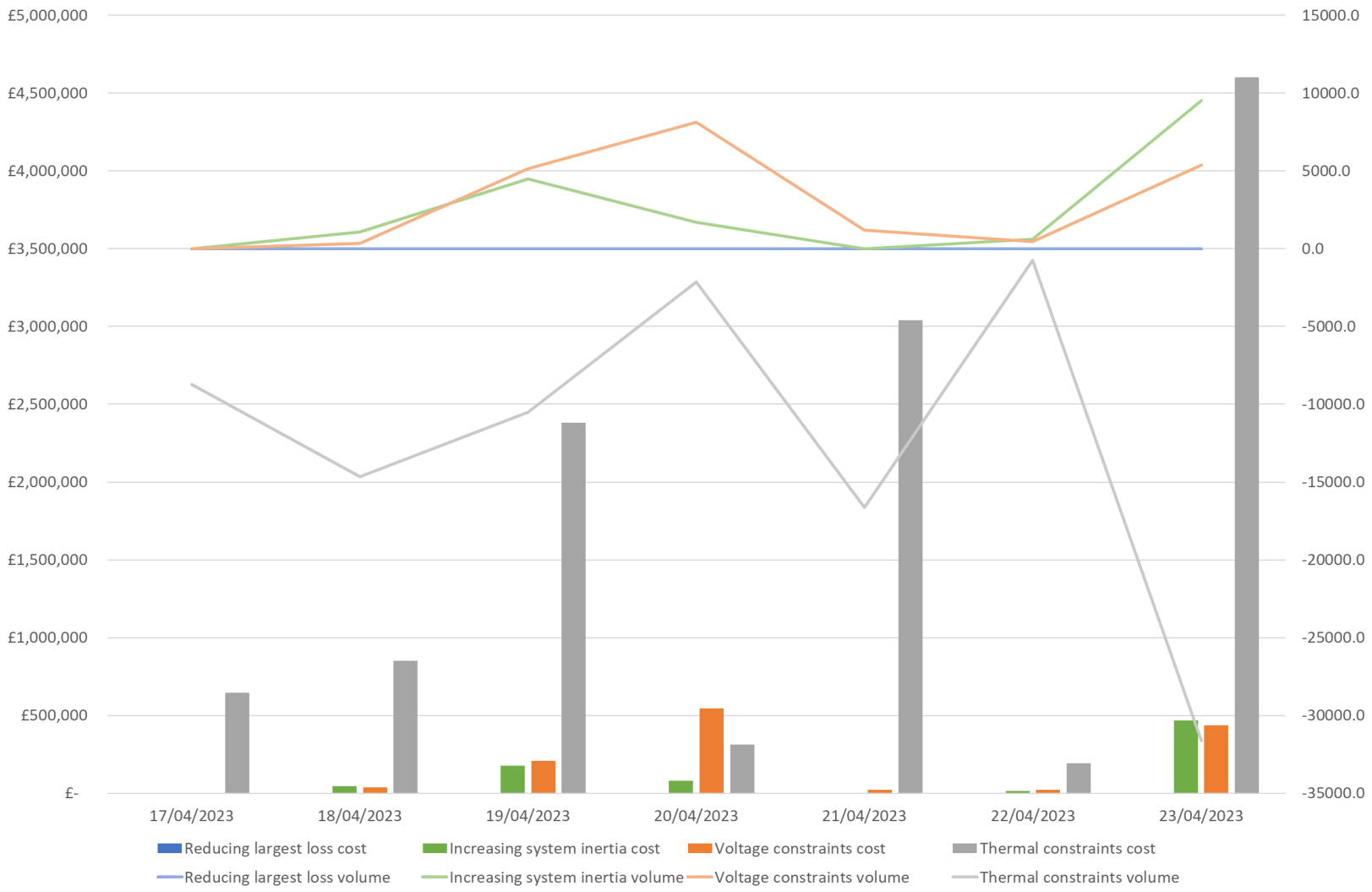


Constraints costs were the key cost component throughout the week.

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



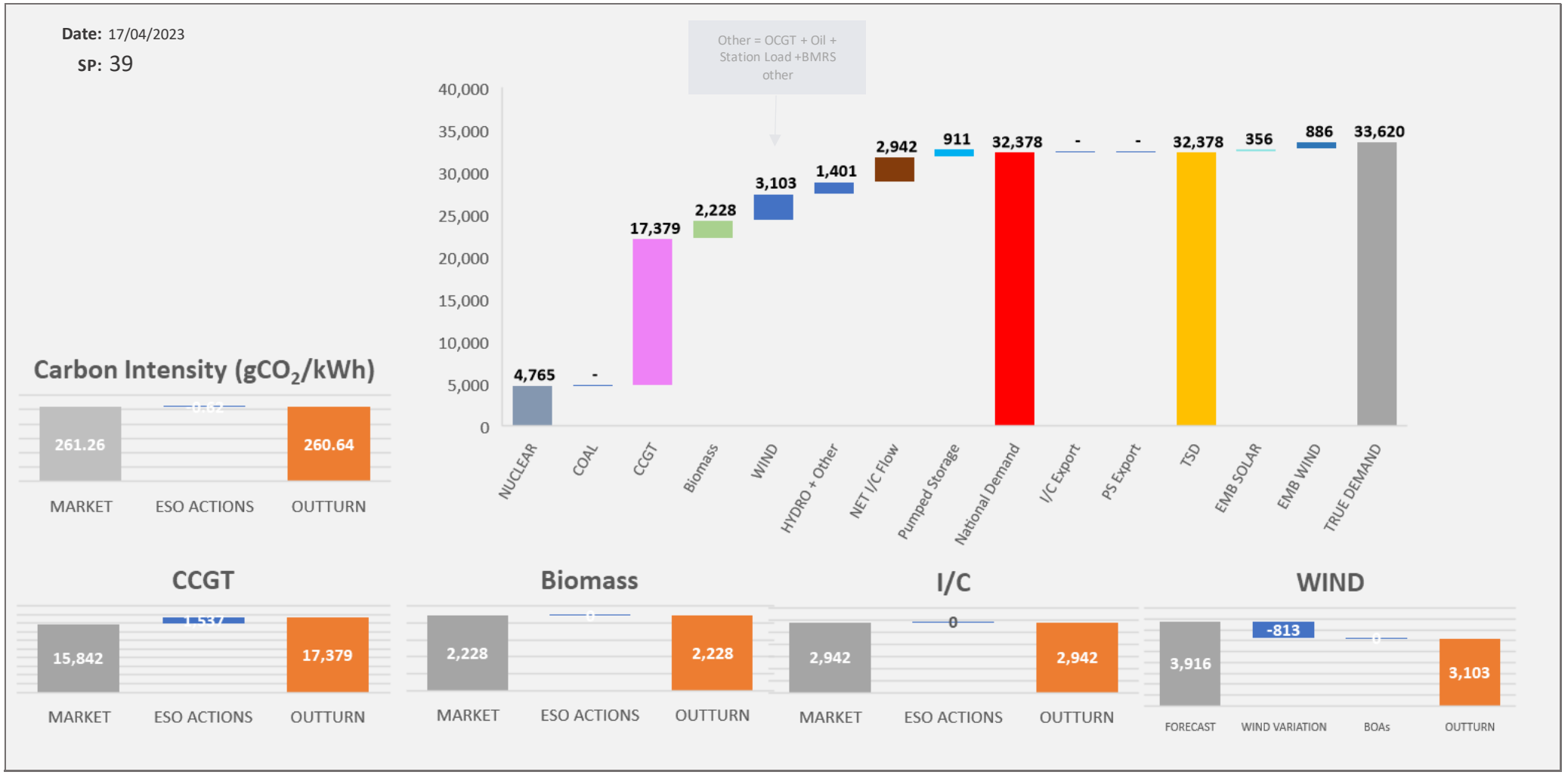
Thermal – network congestion
Actions required to manage Thermal Constraints throughout the week with the highest costs on Wed, Fri & Sun.

Voltage
Intervention was required to manage voltage levels from Tues onwards.

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

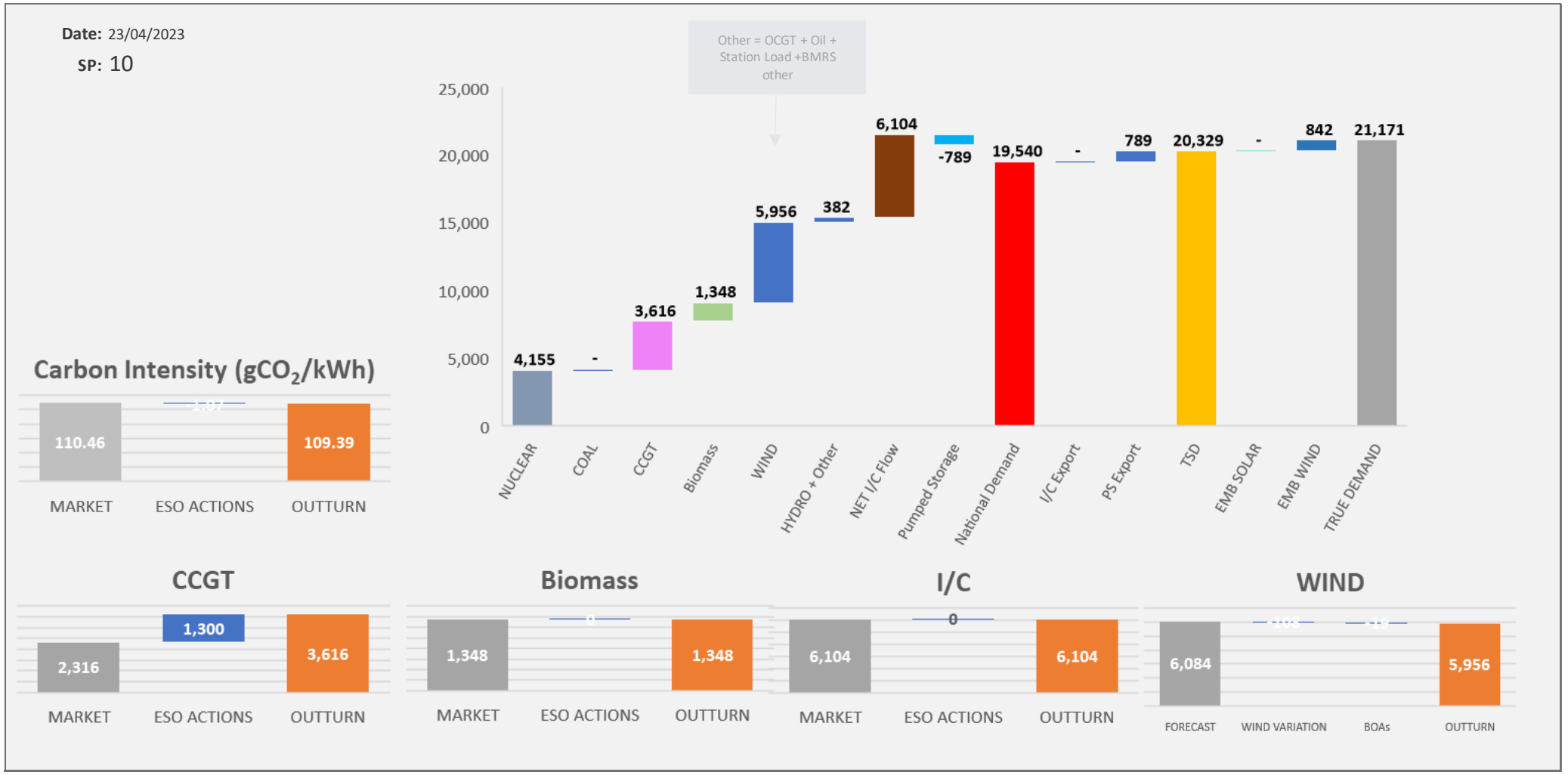
Increasing inertia
Intervention was required to manage system inertia on Tue, Wed, Thu, Sat Sun.

ESO Actions | Monday 17 April – Peak Demand – SP spend ~£71k



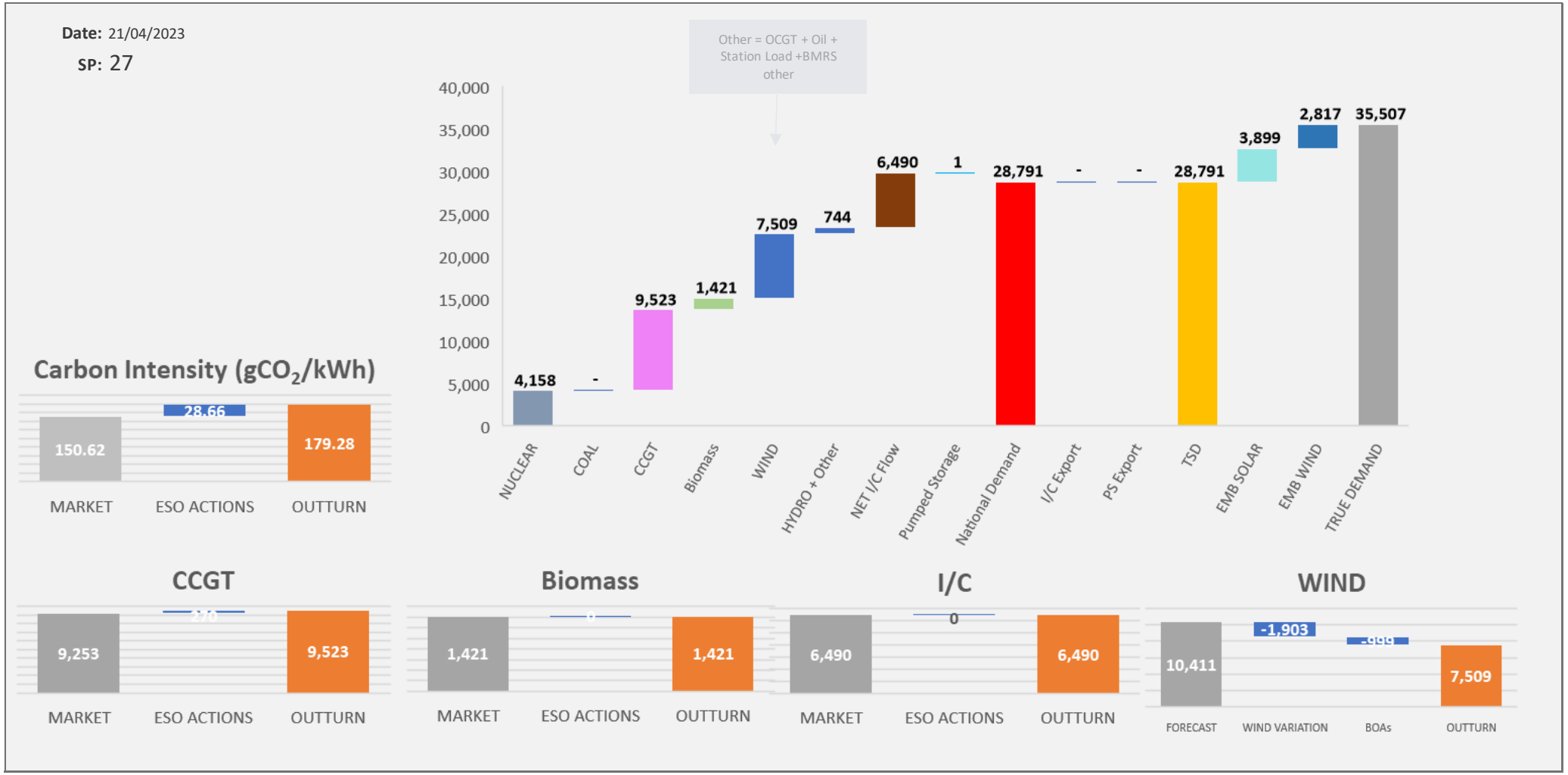
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Sunday 23 April – Minimum Demand – SP Spend ~£108k



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

ESO Actions | Friday 21 April – Highest SP Spend ~£260k



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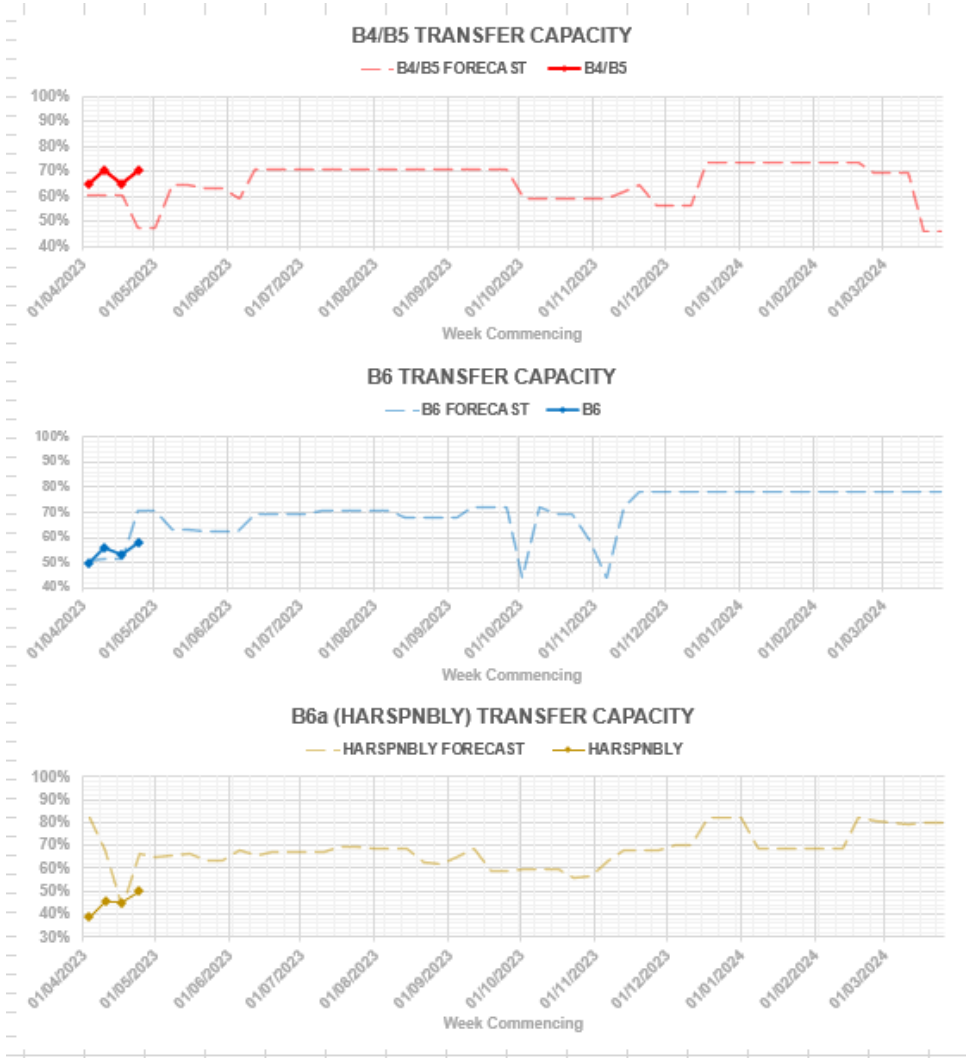
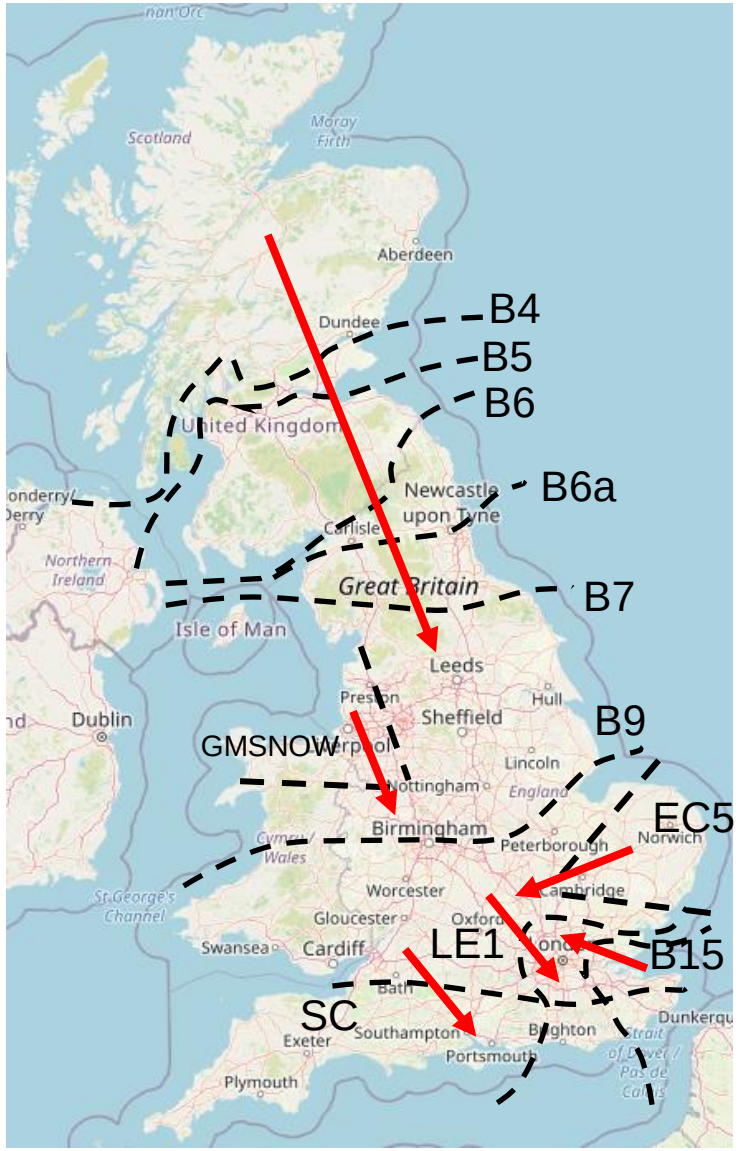
Transparency | Network Congestion

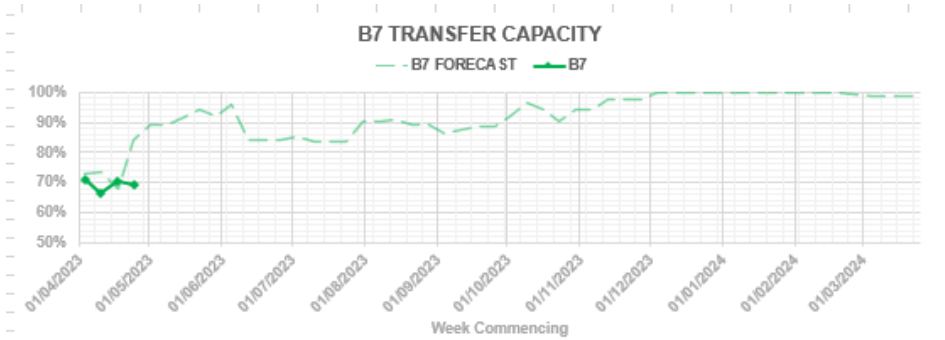


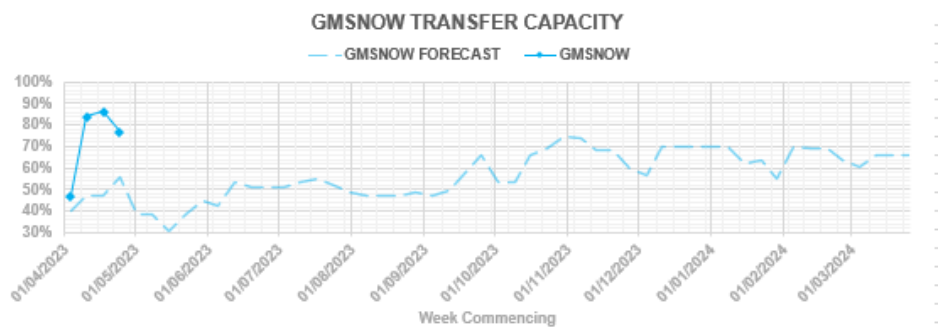
Boundary	Max. Capacity (MW)
B4/B5	2400
B6	3950
B6a	4000
B7	5750
GMSNOW	3600
B9	9800
EC5	5000
LE1	6100
B15	6500
SC	5100

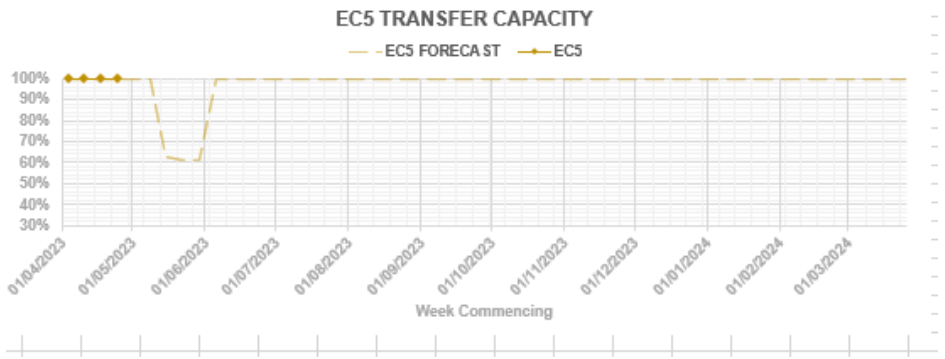


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Transparency | Network Congestion







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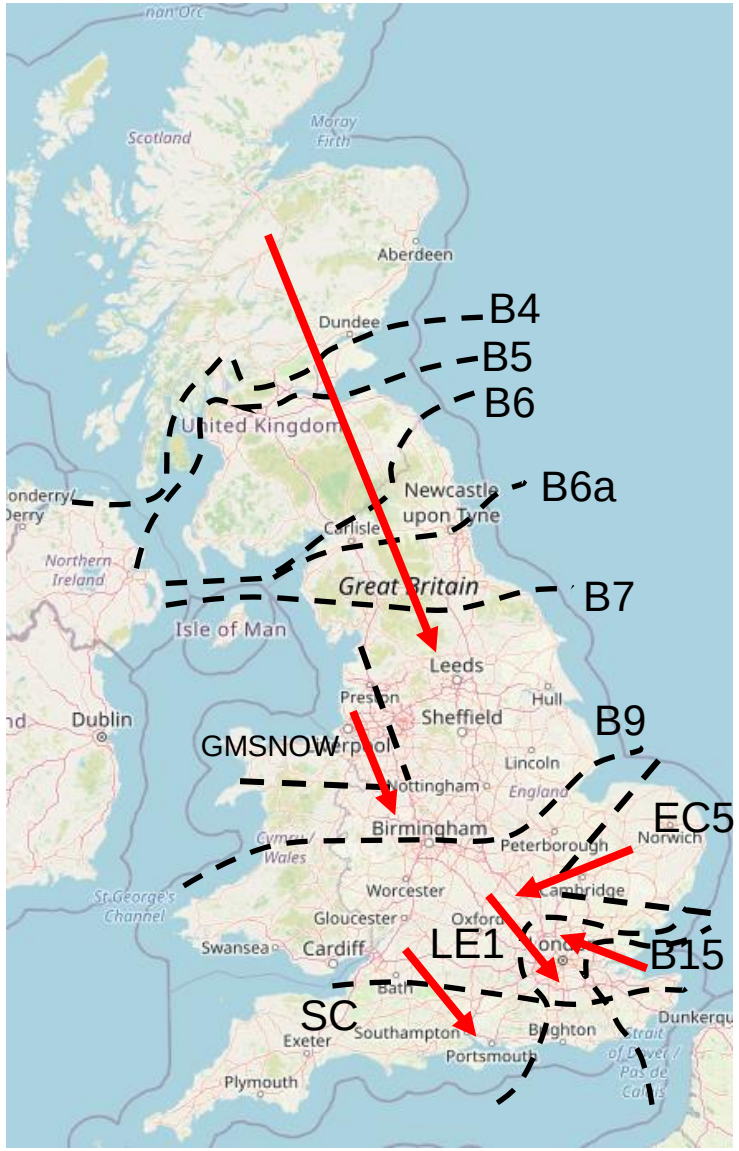

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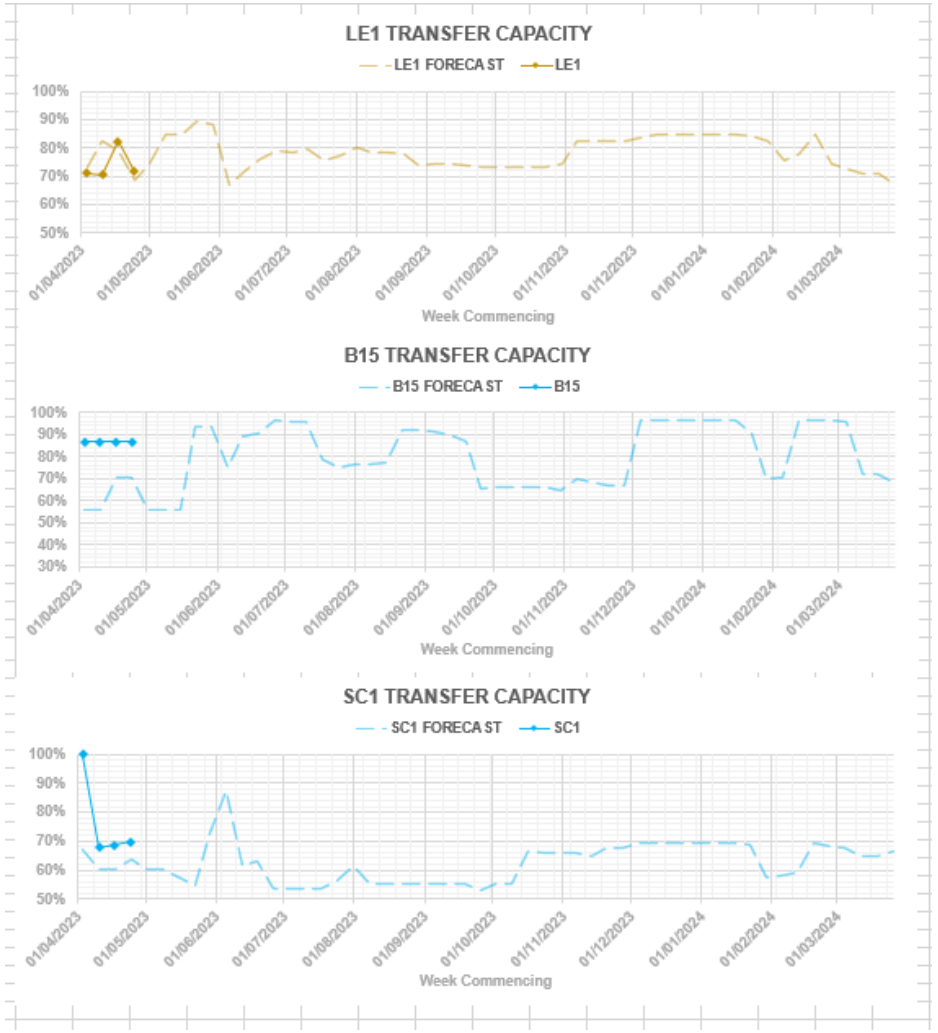
Transparency | Network Congestion



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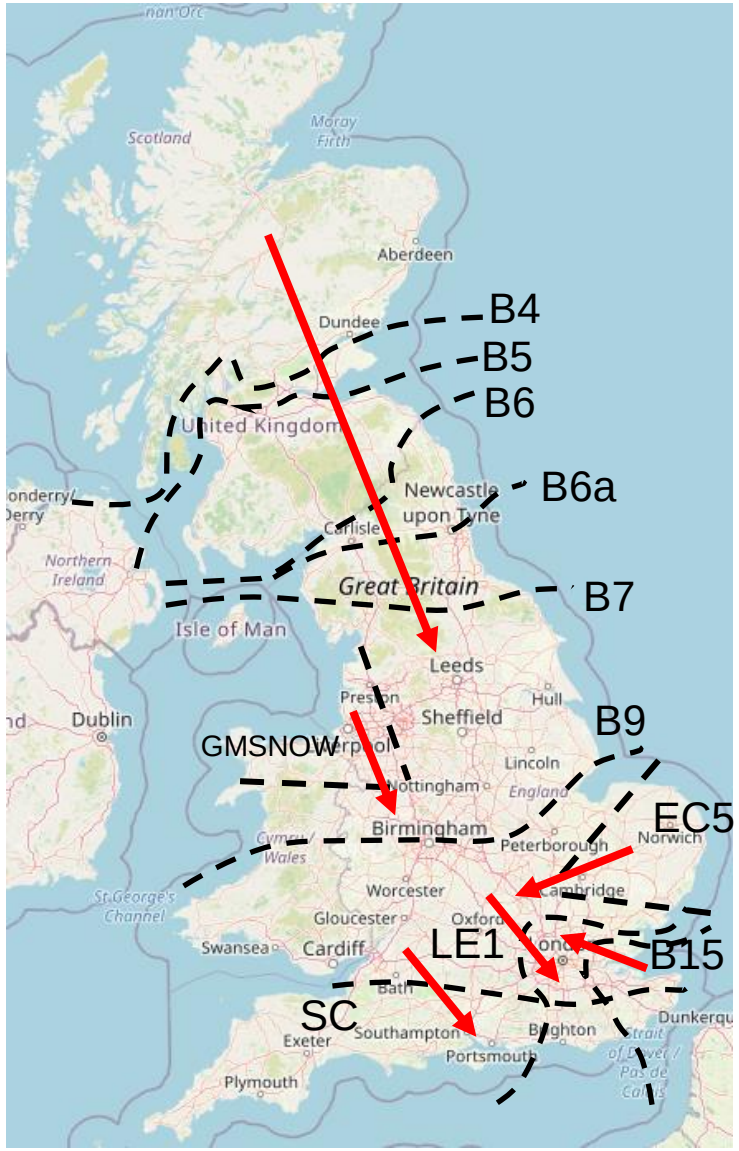

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Questions from last week

Q: The probabilistic wind forecast looks really interesting. Can you say a little more about the models underneath it?

A: We receive probabilistic weather forecasts from our weather data vendor, which include probabilistic wind speeds. These are processed through our algorithms which use BMU level power curves to convert this data into probabilistic power generation forecasts and the graphs seen last week.

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.

Questions from last week

Q: What settlement period did the new low CO2 record of 33gCO2/KWh take place in?

A: It was across three settlement periods: 13:30, 14:00 and 14:30 on 10 April. Full dataset can be found here: https://data.nationalgrideso.com/carbon-intensity1/historic-generation-mix

Q: Re: 'What's status on publishing mandatory frequency response instructions live?', while not my request, but my understanding is that this relates to a long-standing request that the granularity to be split out by period rather than day, and a shorter lag than a month

A: This request is being considered as part of the transparency roadmap but may not be possible due to system limitations.

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