



ESO Operational Transparency Forum

7 June 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 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

Today - Managing low demand and high renewable days (overview of Sunday 21st May)

14 June – Winter 22/23 Markets Review

21 June - Key messages from the Winter 22/23 Review and Early View of Winter 23/24 reports (publication date 15 June)

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

Business Plan 1 (BP1) end of scheme event

Join us and learn about our highlights and challenges over the BP1 period (Apr-21 to Mar-23).

Monday 12 June
(9.30am – 12pm)

This interactive virtual session will be your chance to ask us questions about our delivery and performance over BP1.

[Link to the End of Scheme Report](#)



[Link for the BP1 End of Scheme event](#)

Dispatch Transparency Event

We hosted an online event about Dispatch Transparency on Friday 2nd June.

The slides and webinar recording can be found on the [OTF website](#) and the Q&A document (including questions that we didn't have time to answer live) will be uploaded by the end of the week.

Please note for questions which go beyond the immediate scope of the event we have referred participants to the appropriate team or expert within the ESO.

We would appreciate your input to help us understand how the event worked for you; to inform future events; and the ESO approach to Dispatch Transparency.

The post-event survey is available [here](#).

From the in-event poll, we noticed some people felt we assumed too much knowledge. Please use the post-event survey to tell us what type of information you felt was missing and how we could support you and others in a future event.



Deep dive – Managing low demand / high renewable generation days

Q: Why was so much inertia purchased on the Sunday 21st when there was also lots of Voltage purchased? Sounds like an interesting low demand/ high solar day for a deep dive?

- Maintaining downward margin - the theory
- Scenario 1 – Sunday 21 May
- Scenario 2 – Monday 28 May (bank holiday)
- Future developments - what the ESO and other stakeholders are doing / can do

Maintaining downward margin - Theory

Need to manage low demand periods

Often troughs are as challenging operationally as high demand low margin peaks

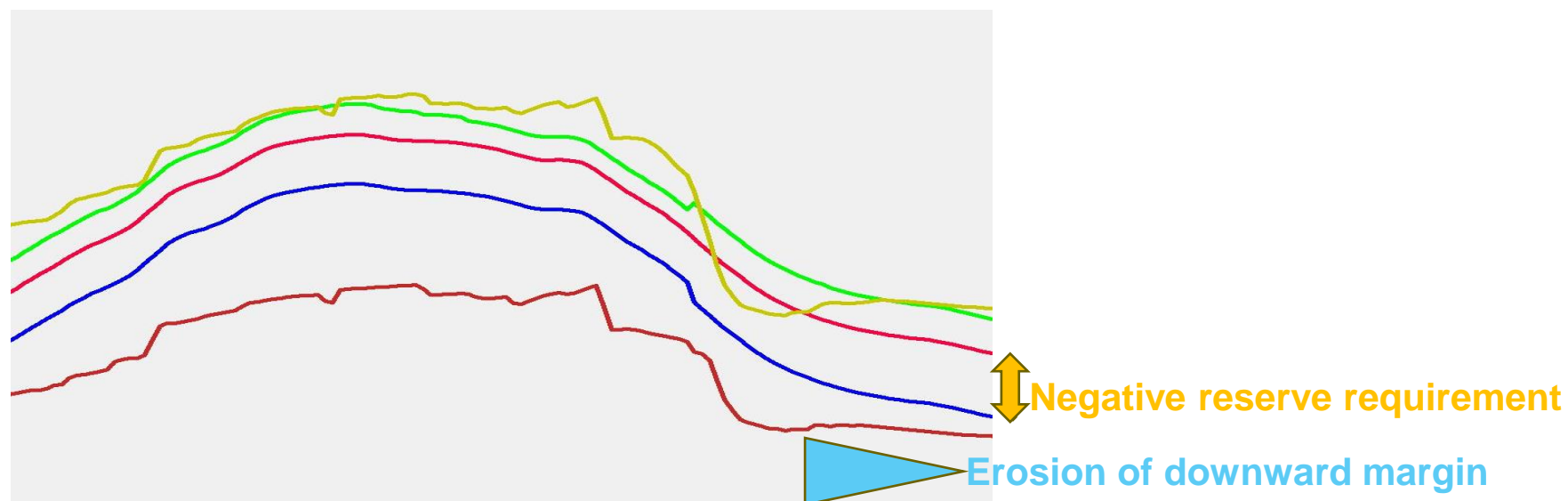
Strategy set up the System Operation Plan (SOP) for the real time energy balancing team to execute

Need to ensure minimum generation < (minimum demand – negative reserve requirement)

Actions available:

Two shift machines, SUPERSEL contracts, Increase wind adjustments, trade with I/C

If margin decreases to unacceptable levels, we'd consider a NRAPM system warning (to date never used)

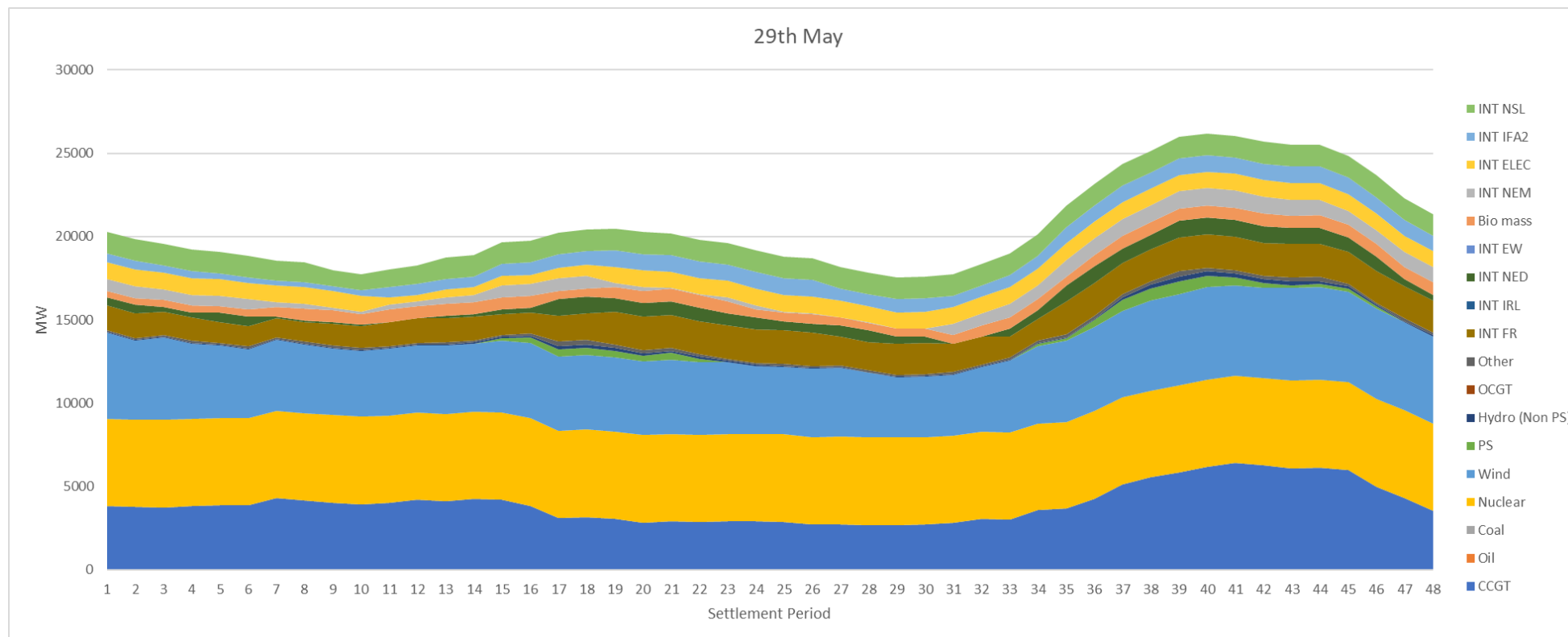


Sunday 21 May operations - our actions

- SUPERSEL contracts initiated during the day in anticipation of overnight downward issues.
- Highly constrained system due to number of outages.
- High wind generation, leads to less voltage and inertia plant scheduled on.
- Additional machines despatched for overnight voltage management (system tagged).
- Additional machines despatched for minimum inertia requirements (system tagged).
- Wind over-generating compared to forecast.
- First trades carried out on interconnectors due to low downward regulation margin.
- SUPERSEL contracts not achieved – over generation.
- Second trade carried out to the continent.
- BMU's dynamic data indicated 500MW of downward capacity which was unachievable.
- Third trade carried out to the continent.
- All three trades achieved positive prices i.e. the continent paid us to receive power (relative to original position).

Monday 29 May operations

- Operational challenges very similar
- France bank holiday also
- All useable wind bids were exhausted where available
- We rejected a requested transmission outage on the B6 boundary which would have made the situation worse
- The figure of < -£500/ MWh bid was for 200MW over the hour 12:00 – 13:00 hrs (BST)
- **We have a responsibility both for security of supply and despatching in an economic and efficient manner**



ESO offer
Pathfinders
Increase participation

What is
ESO
doing?

What can
stakeholders
do to help?

Review every SOP not just post-event

Minimum inertia 120GVA.s

Offer 2 shift options

Offer SUPERSEL

Improved systems

Greater European liaison with SOs

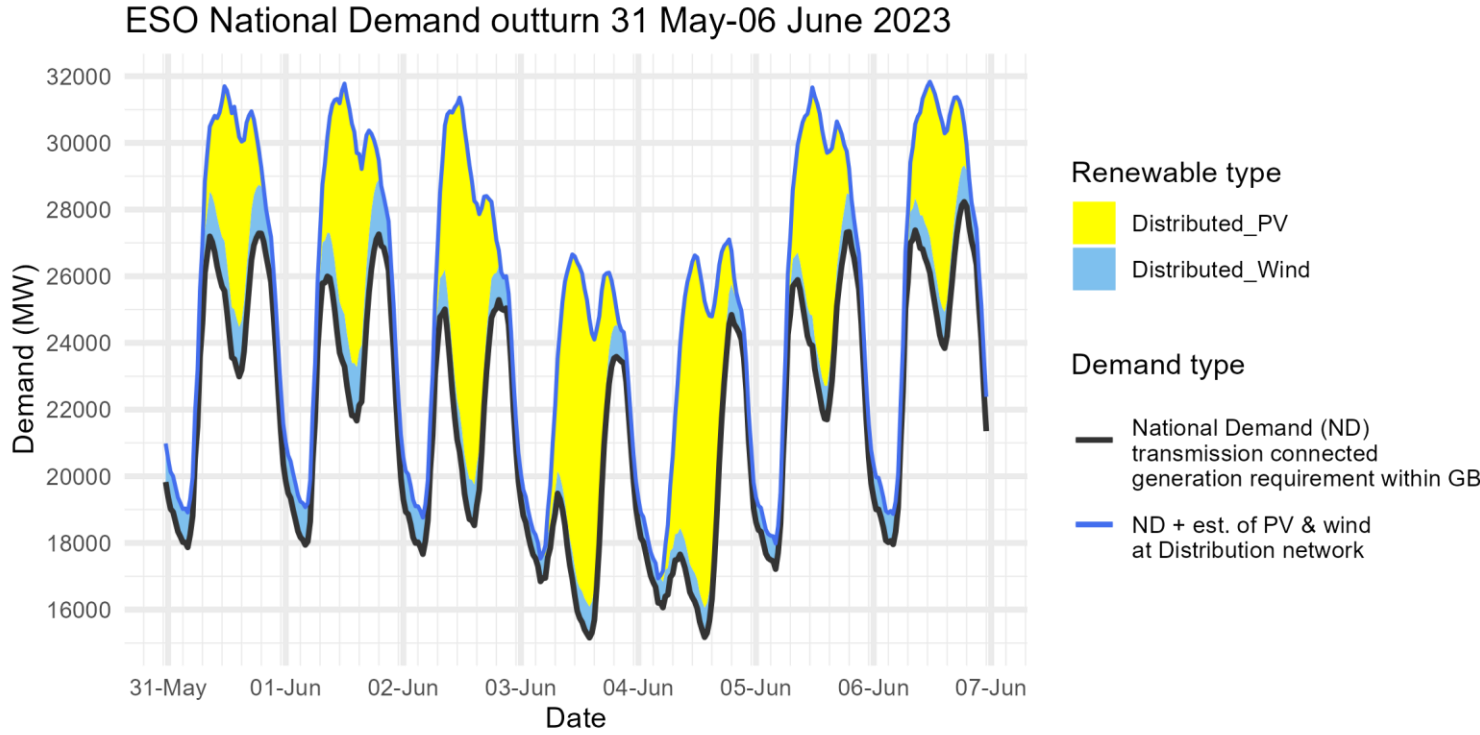
Balancing Program

Update dynamic data

Manage Voltage Compensation Equipment

Offer CCGT flexibility

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

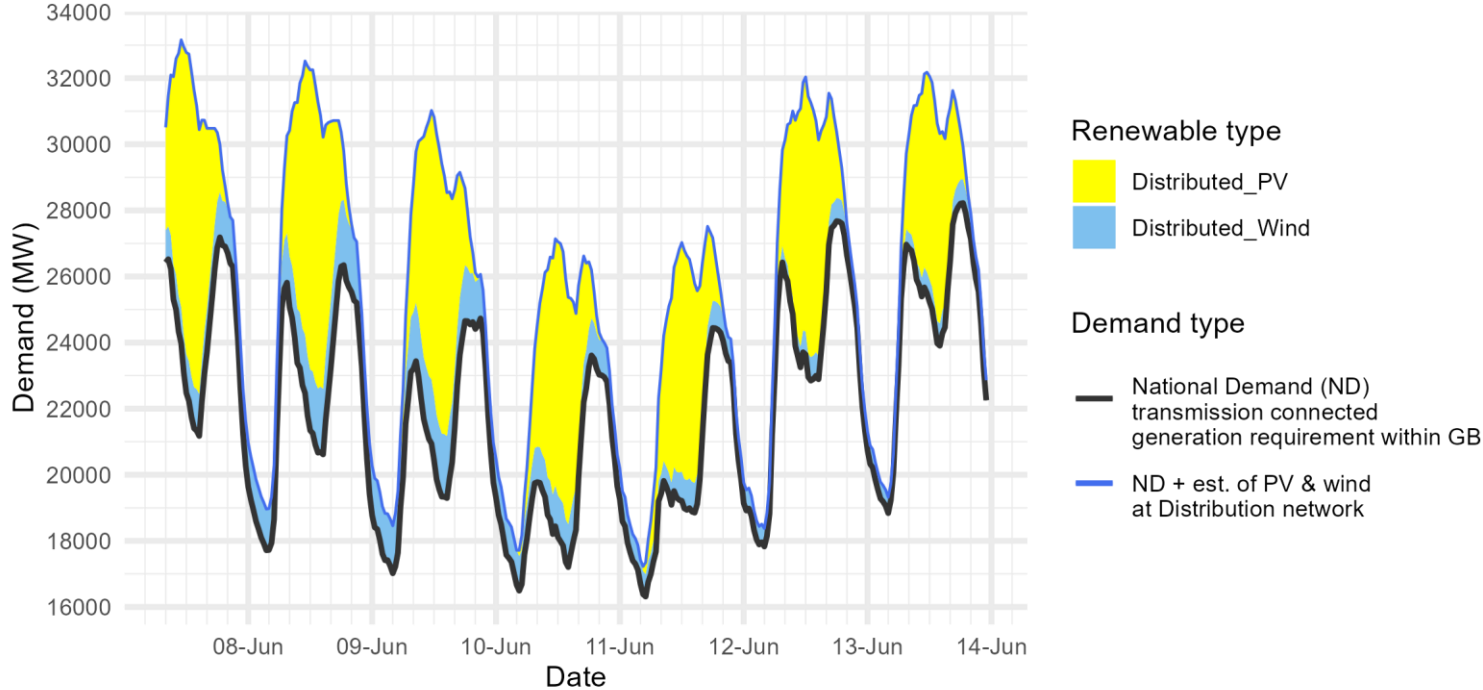
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it **does not include** demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

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 31 May)			OUTTURN		
		National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
31 May	Afternoon Min	21.0	1.5	7.4	23.0	1.5	5.7
01 Jun	Overnight Min	17.5	1.0	0.0	17.9	1.1	0.0
01 Jun	Afternoon Min	20.7	1.3	7.9	21.7	1.6	6.4
02 Jun	Overnight Min	17.7	0.9	0.0	17.7	1.1	0.0
02 Jun	Afternoon Min	19.6	0.9	9.3	18.5	1.2	8.5
03 Jun	Overnight Min	16.8	0.6	0.2	16.8	0.7	0.0
03 Jun	Afternoon Min	15.8	0.9	8.7	15.2	0.9	8.6
04 Jun	Overnight Min	15.7	0.7	0.4	16.1	0.8	0.3
04 Jun	Afternoon Min	16.8	0.9	8.0	15.2	0.9	9.2
05 Jun	Overnight Min	17.0	0.7	0.0	17.2	0.8	0.0
05 Jun	Afternoon Min	21.1	0.9	8.2	21.7	1.0	7.0
06 Jun	Overnight Min	17.7	0.8	0.0	18.0	0.9	0.0
06 Jun	Afternoon Min	23.2	1.0	5.7	23.8	1.1	5.4

Demand | Week Ahead

ESO Demand forecast for 07-13 June 2023



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

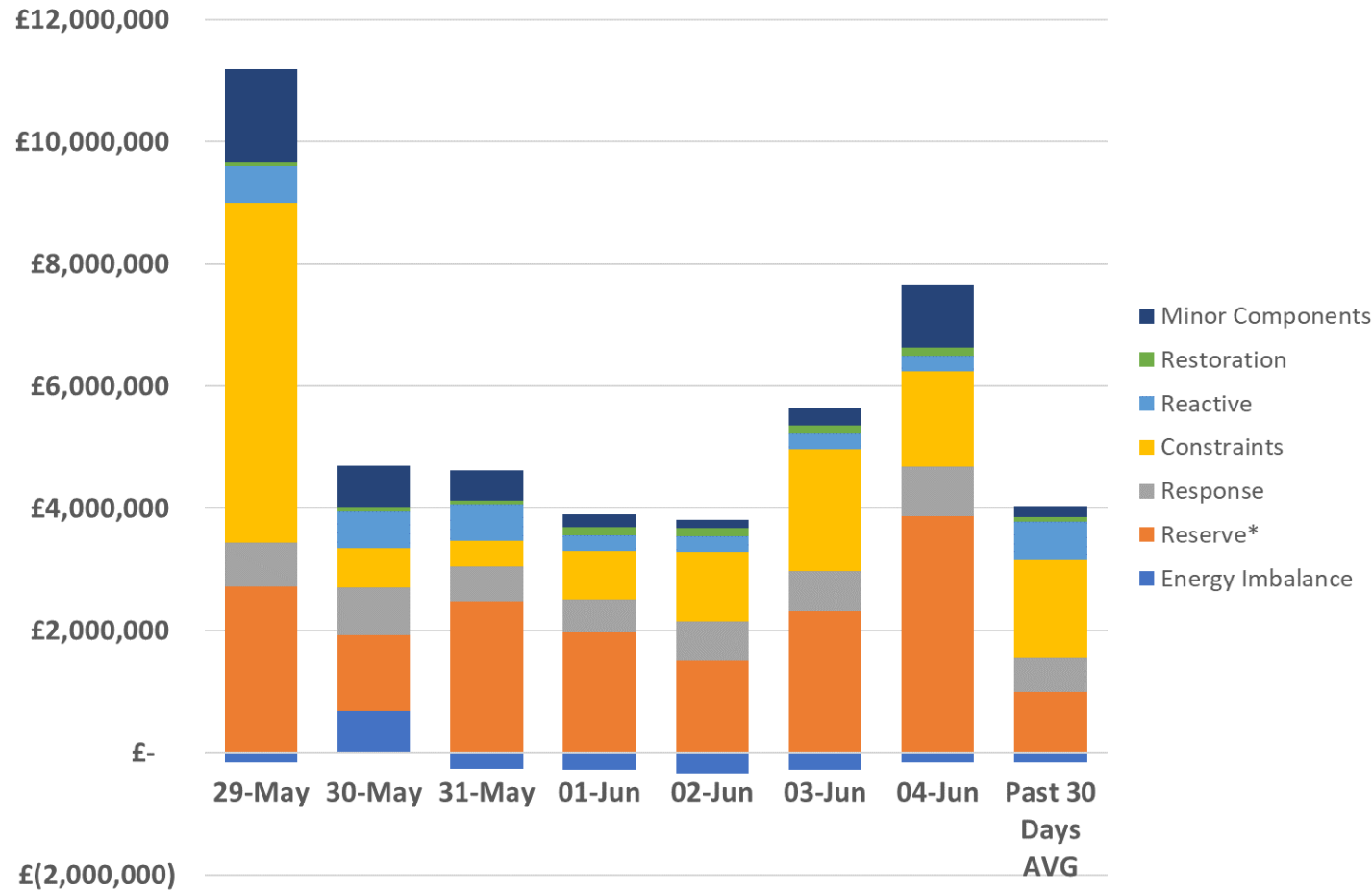
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Date	Forecasting Point	FORECAST (Wed 07 Jun)		
		National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
07 Jun 2023	Afternoon Min	21.2	1.3	8.0
08 Jun 2023	Overnight Min	17.7	1.2	0.0
08 Jun 2023	Afternoon Min	20.6	2.0	7.6
09 Jun 2023	Overnight Min	17.0	1.4	0.0
09 Jun 2023	Afternoon Min	19.3	1.9	7.4
10 Jun 2023	Overnight Min	16.5	1.0	0.2
10 Jun 2023	Afternoon Min	17.2	1.3	6.9
11 Jun 2023	Overnight Min	16.3	0.7	0.4
11 Jun 2023	Afternoon Min	18.9	0.9	6.0
12 Jun 2023	Overnight Min	17.8	0.5	0.0
12 Jun 2023	Afternoon Min	22.8	0.7	7.7
13 Jun 2023	Overnight Min	18.8	0.5	0.0
13 Jun 2023	Afternoon Min	23.9	0.7	5.7

ESO Actions | Category costs breakdown for the last week



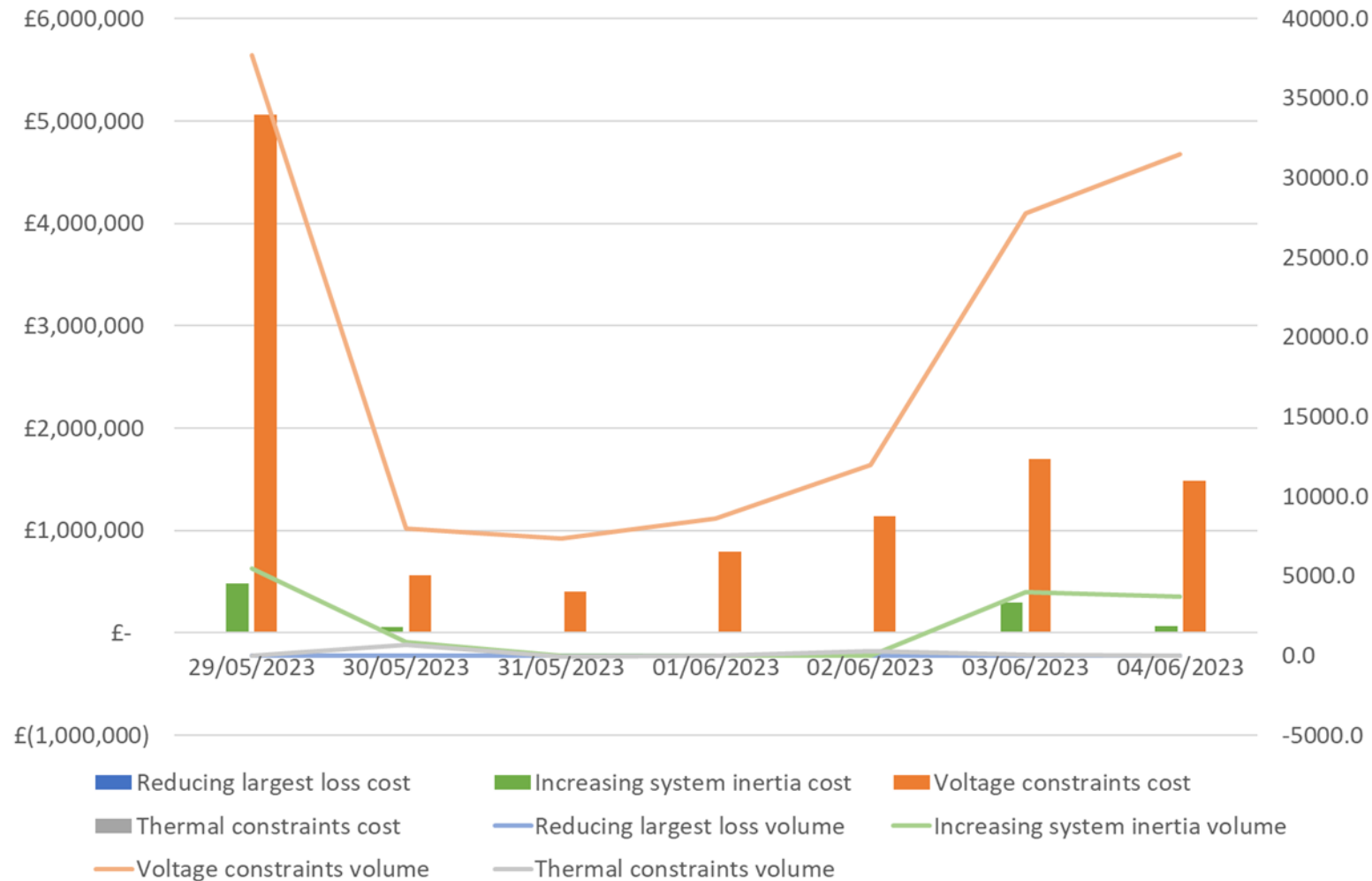
Date	Total (£m)
29/05/2023	11.0
30/05/2023	4.7
31/05/2023	4.3
01/06/2023	3.6
02/06/2023	3.5
03/06/2023	5.4
04/06/2023	7.5
Weekly Total	40.0
Previous Week	30.8

Constraints costs were the key cost component on Monday, with Reserve for the rest of 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



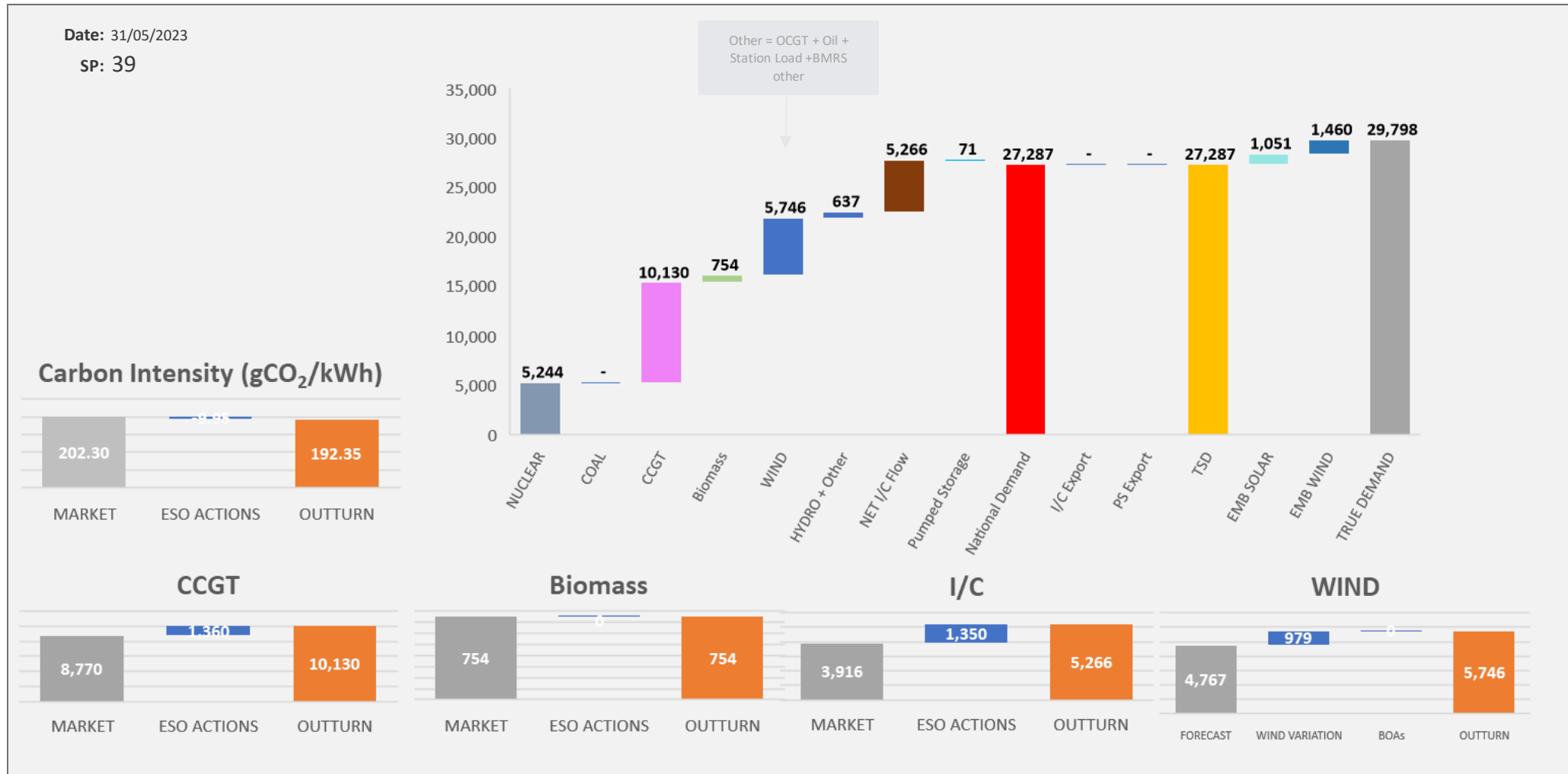
Thermal – network congestion
No actions were required to manage thermal constraints.

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

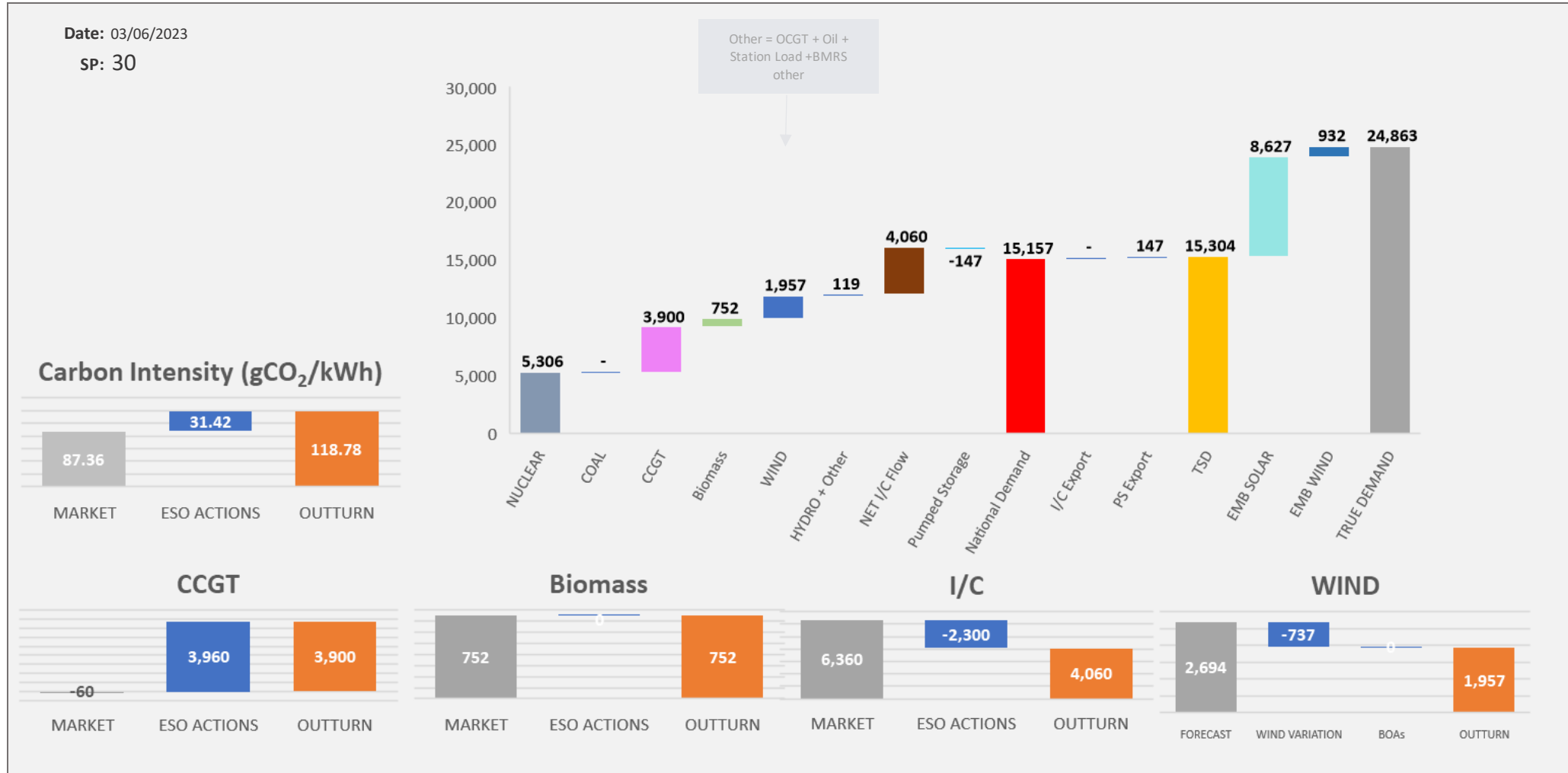
Managing largest loss for RoCoF
No intervention was required to manage largest loss.

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

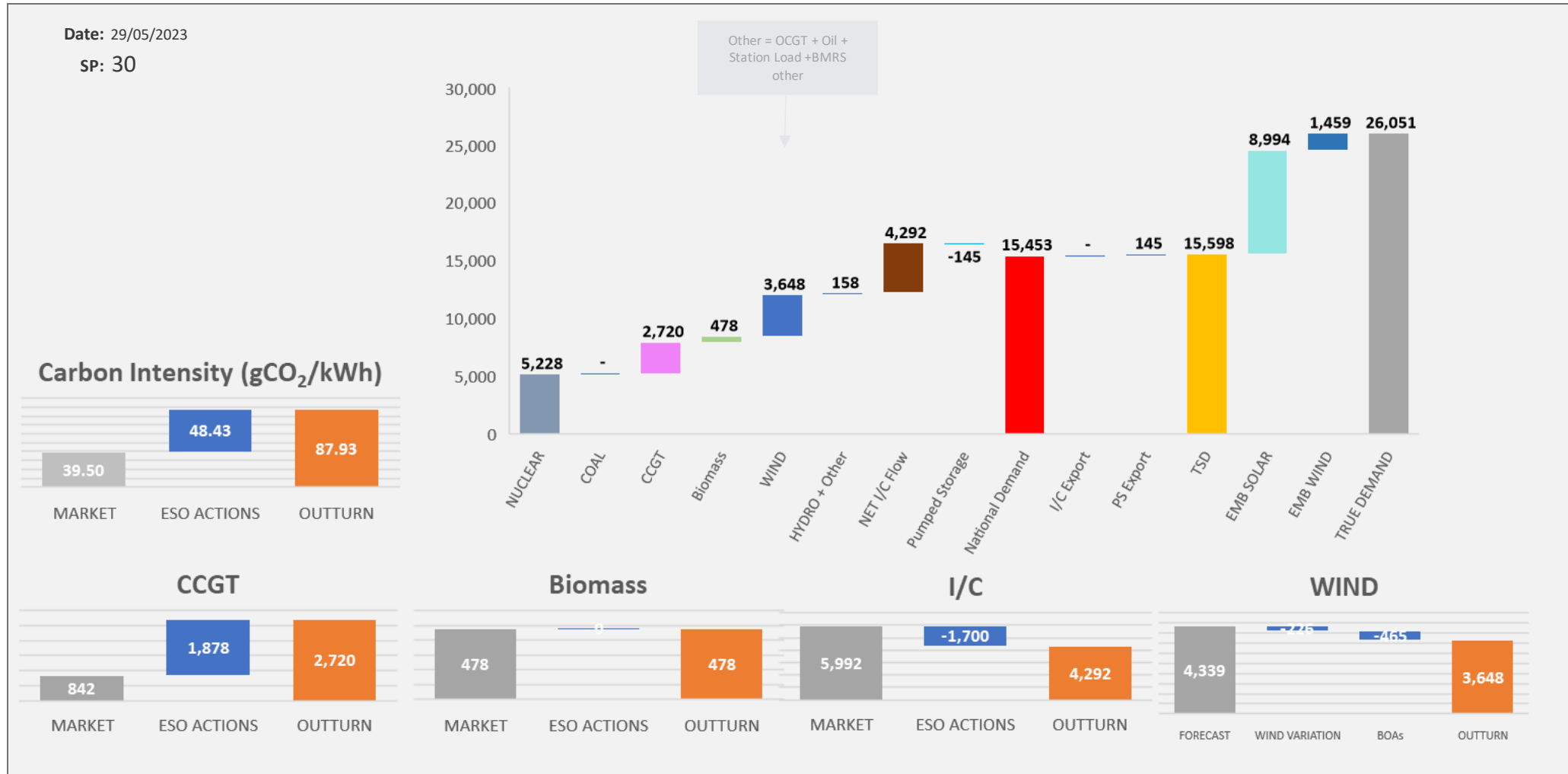
ESO Actions | Wednesday 31 May – Peak Demand – SP spend ~£89k



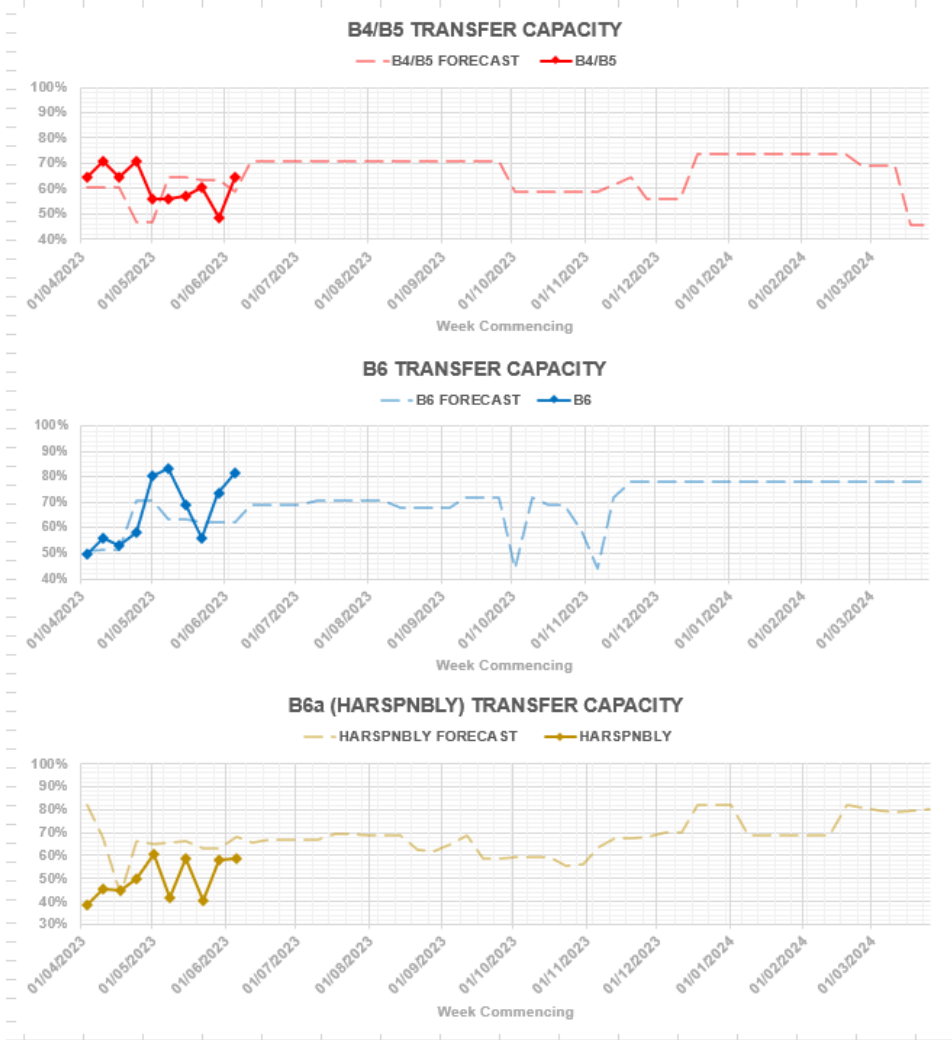
ESO Actions | Saturday 03 June – Minimum Demand – SP Spend ~£185k



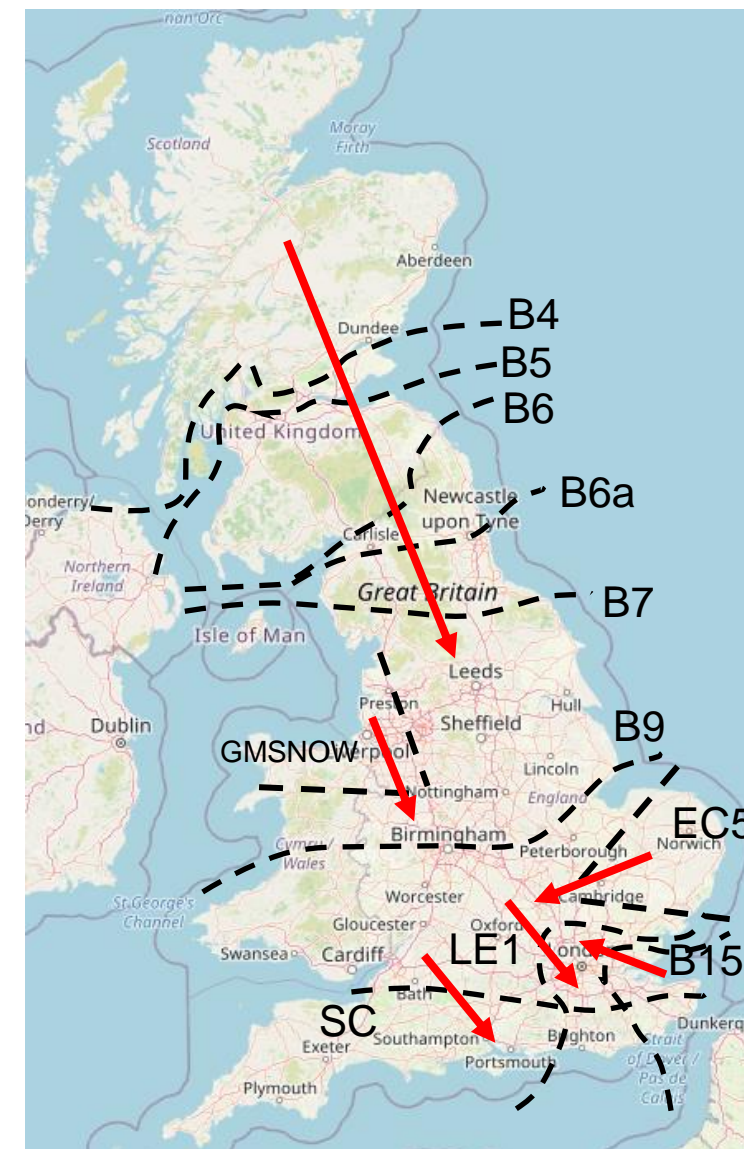
ESO Actions | Monday 29 May – Highest SP Spend ~£470k



Transparency | Network Congestion



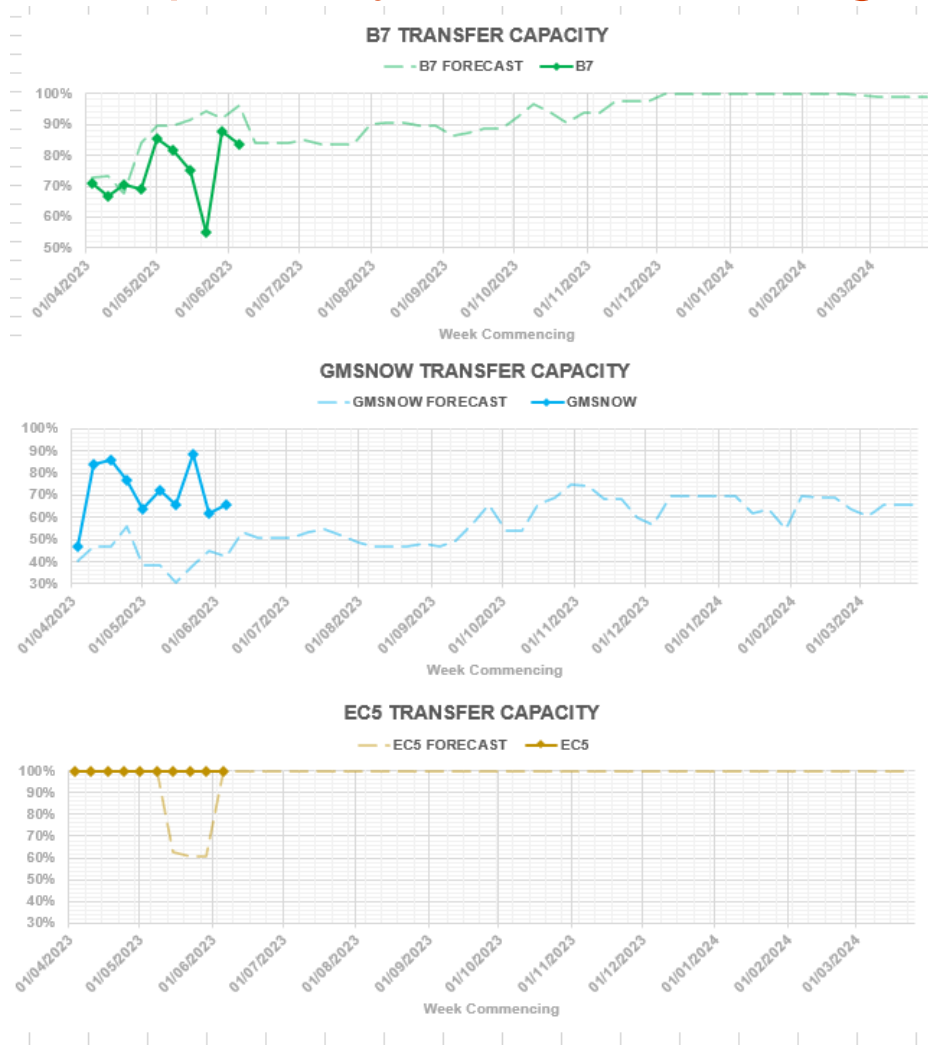
Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300



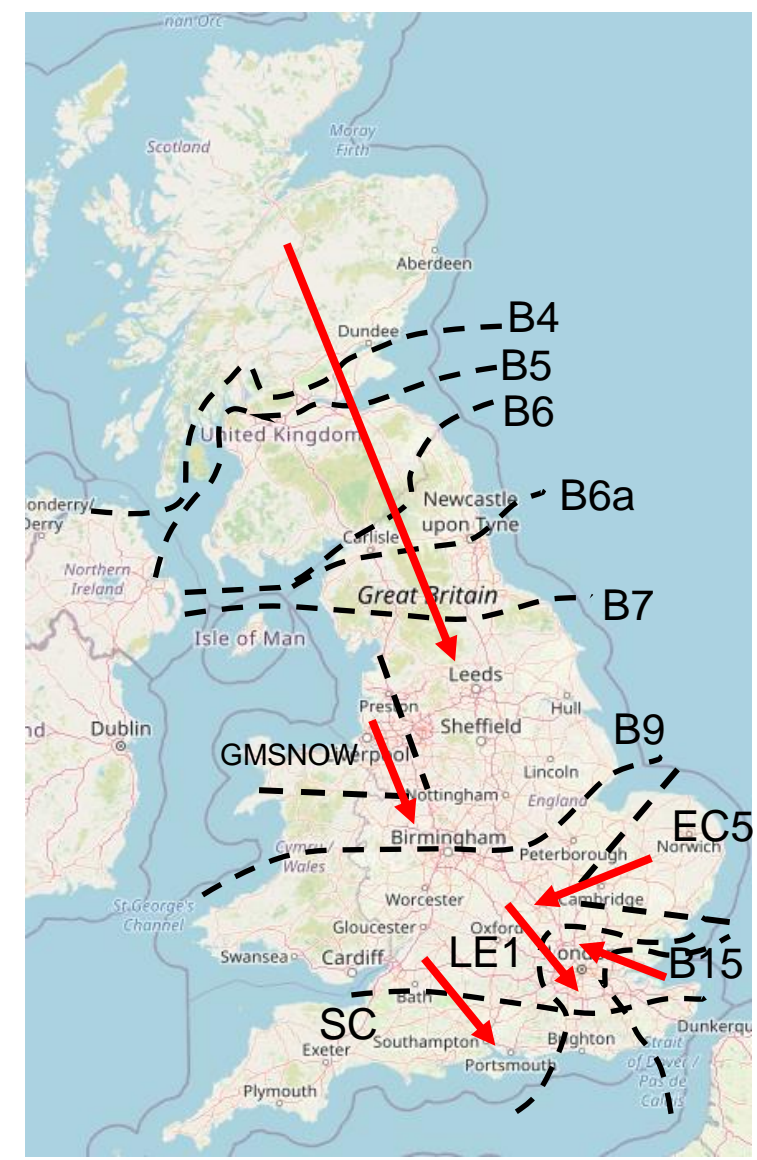
Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:

<https://data.nationalgrideso.com/data-groups/constraint-management>

Transparency | Network Congestion

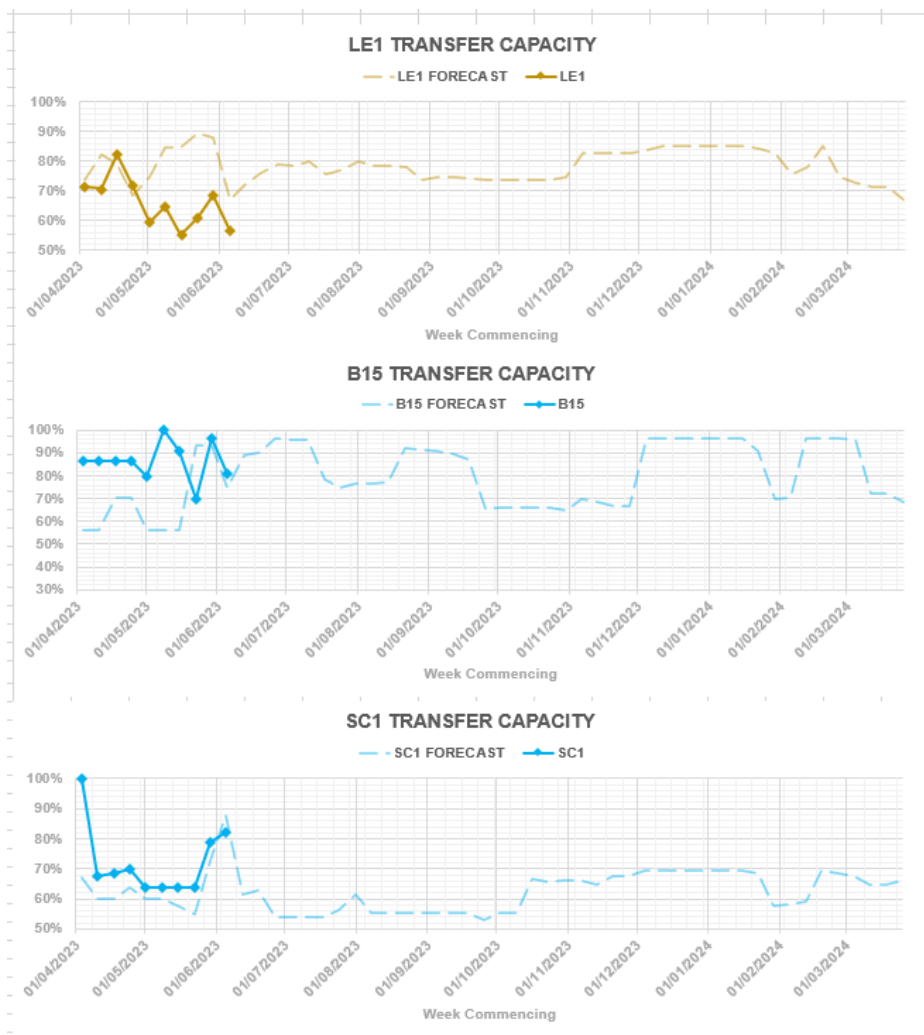


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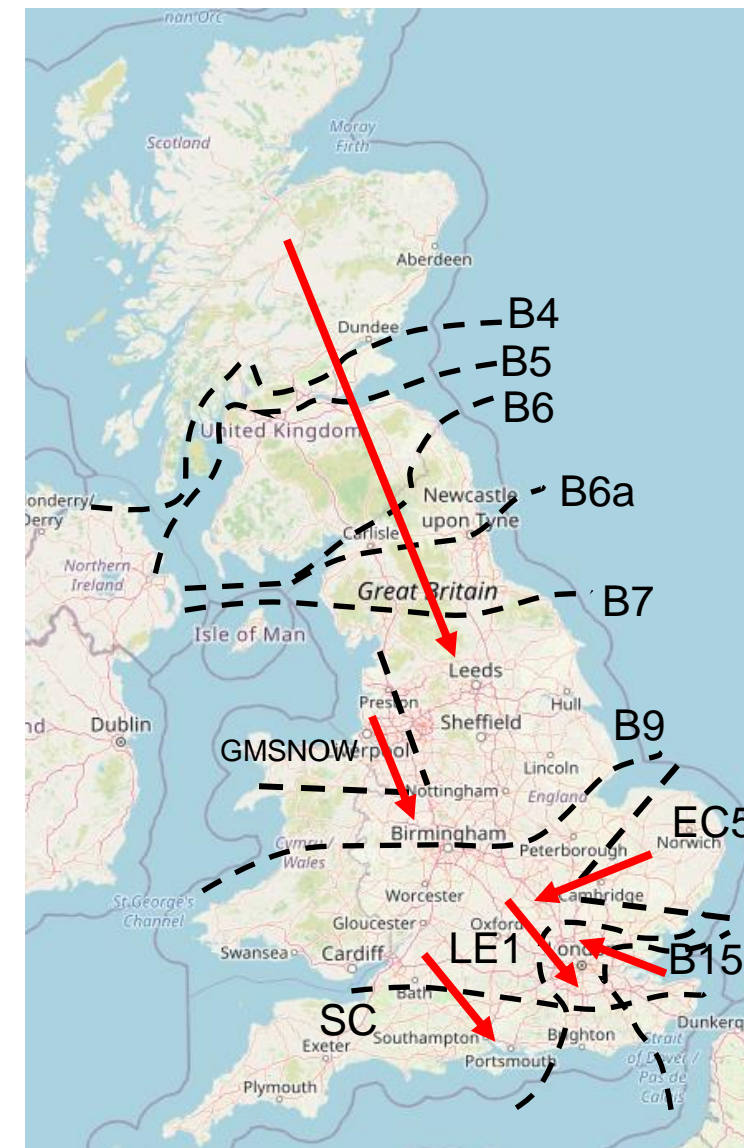


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Transparency | Network Congestion



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Questions from last week

Q: thank u for clarifying the "national demand" but Transmission D, which you focus on, no longer represents National D...& hasn't for 15yrs now as you said due to increase in emb. gen. This creates confusion; eg U said national D is still high in the afternoon when Tx D is lowest. Worth sorting out?

A: We appreciate these terms can be confusing. "Transmission System Demand" or TSD is a separate defined term meaning something different (National Demand plus interconnector exports, station load and pump storage).

TSD along with "National Demand" are industry terms, rather than our own definitions, so not something that we can change independently.

We would be wary of naming anything 'total consumer demand' as we do not have visibility of all embedded generation, particularly non-*PV and wind, so this label wouldn't be true.

We report National Demand – the transmission connected generation requirement - as this is what the market and control room see and manage in the BM.

*PV = Photo Voltaic = Solar

Questions from last week

Q: re. more detail around breaking down balancing constraint costs can you attribute the volts and inertia constraint costs to the cost of switching wind and solar off to make room for Volts/ inertia etc. At the moment you just publish cost of procuring volts/ inertia but there's extra costs involved.

A: The currently reported costs for voltage and inertia include an estimate for the cost of the displaced energy which is priced at the expected cost of imbalance to reflect this energy displacement (and may be considered positive or negative).

Direct transaction costs are not currently reported separately but can be calculated through the volume and price data shared on BMRS. Please note that the replacement actions themselves are tagged as general energy and are not re-priced against the out-turn value of imbalance. The reason for this methodology is to demonstrate the true costs of system actions taken to the end consumer as compared with just the direct transaction cost itself.

However, energy actions will only be taken to the point of resolving any residual imbalance position or sterilised margin position from reduction/increase actions and the market NIV (Net Imbalance Volume). They are not directly tagged against the constraint that drove all or part of the requirement for this energy action.

E.g. A system tagged voltage requirement might offset a system tagged export constraint requirement leaving no residual imbalance position to manage from the system tagged transactions.

For voltage and inertia actions as these are increases in energy, it typically results in a lower reported cost than the cost of the transaction as the energy displaced is normally resolved through bids at positive prices. However, should imbalance price be forecast to become negative then this would add to the direct transaction cost instead.

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