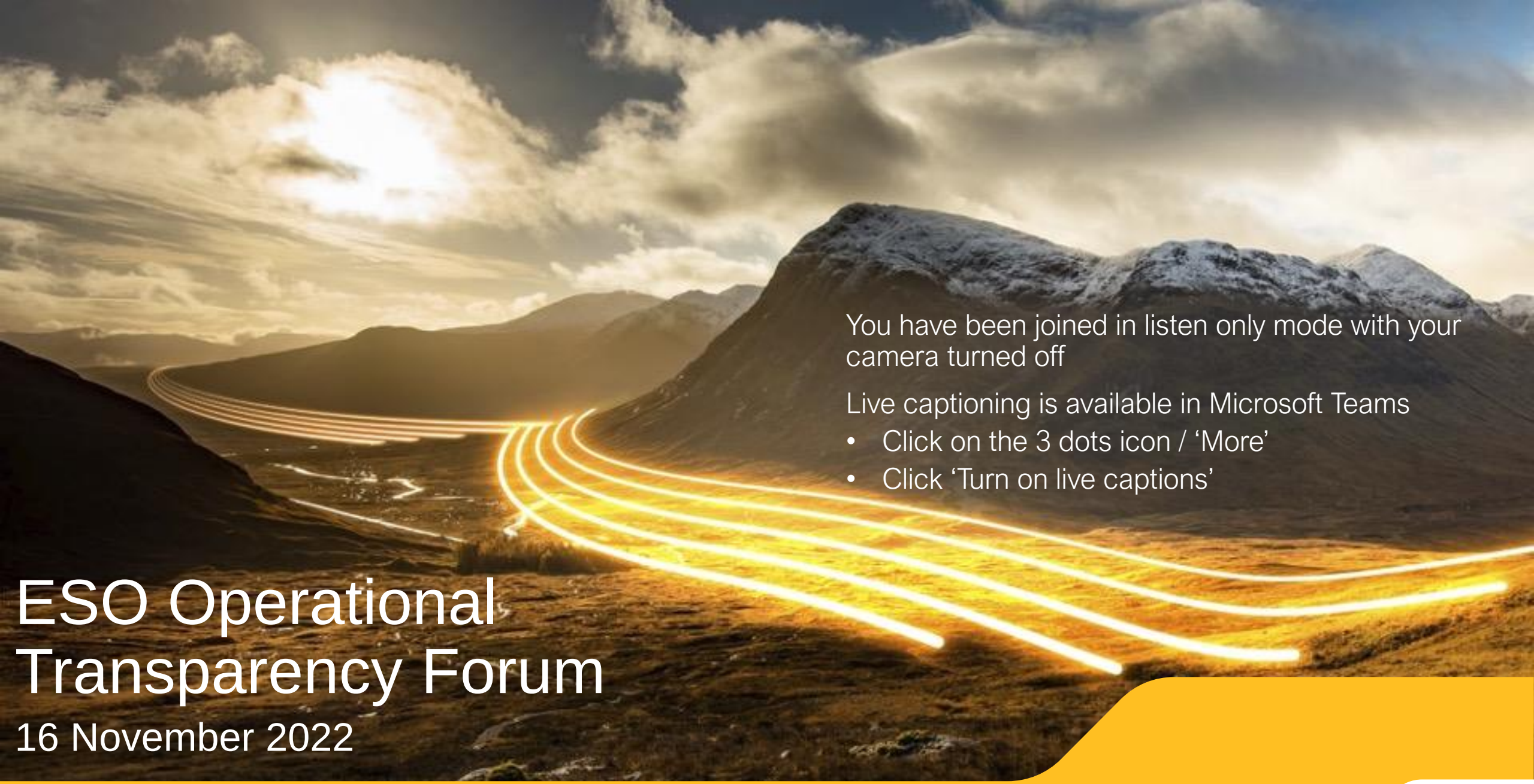


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

16 November 2022

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 email: box.NC.Customer@nationalgrideso.com

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

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

Transparency Forum Changes

From the 2nd of November your current calendar invite will stop working.

If you have downloaded this from the website please delete this and register using the following link

https://subscribers.nationalgrid.co.uk/h/d/2A778732FDAC77ED

After 2nd November, everyone registered on this list will receive a direct calendar invitation allowing us to manage event changes more appropriately and keep you updated on event status. Only those registered will be able to join the event but it will remain open to everybody to register, please use business rather than personal emails for registration.

Please send us questions in advance

We are trialling the use of advance questions: https://forms.office.com/r/k0AEfKnai3

In order to ensure we effectively respond on any topic please submit questions by 12:00 on Monday each week, questions submitted after this time may be captured in the following week's OTF.

We will endeavour to answer all questions submitted before the deadline but may still need to take some responses away.

Sli.do will still continue to be used for live Q&A following the weekly slides being presented

Advance Questions

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

Future deep dive/ response topics

Coming soon:

Response markets deep dive – 30th November

Stability Phase 3 results - date TBC

Crowdflex project: utilising consumer flexibility – date TBC

Items we have taken away and will come back to this forum on in the future

REMIT obligations on ESO - this is being actively discussed within ESO at this point in time.

We anticipate making a further statement on this in 2023.

Feedback welcomed on our proposed deep dive topics

Dispatch Transparency (“Skip Rate”) Event - Monday 5th December

We would like to invite you to Wokingham for a transparent discussion about how we dispatch and "Skip Rates".

The event will take place in person at our Wokingham offices on **Monday 5th December**. Lunch will be provided and a visit to the control room viewing gallery will be organised.

A Skip refers to an event when a BOA is instructed at a higher cost than an alternative option. The ESO strives to have zero skip rates, unless not preventable. We would like to invite you to discuss our dispatching process (including some examples) as well as the dispatch transparency data available on our portal. This event will also be an opportunity to share your questions regarding skip rates.

We very much look forward to seeing you at this event.

Key information

Date: Monday 5th December

Venue: National Grid ESO Wokingham Office

Time: 10:00 – 14:30

Signup link:

https://forms.office.com/r/VrcCkVz2th

Signpost – Balancing Reserve and MW Dispatch

Balancing Reserve (BR) Update

- The Article 18 EBR Consultation for the new Balancing Reserve service went live on 14 November. The documents can be found on our website here.
- The closing date for consultation responses is Wednesday 14 December at 17:00.
- Post-Consultation Launch Webinar **Tuesday 22nd November | 11:00 - 12:30 (GMT).** Link to register for the webinar is here.

MW Dispatch update

- Contract terms for the new MW Dispatch Service also went live on 14 November on our website here for review and feedback.
- The service is due to go live in early 2023, initially for Distributed Energy Resource (DER) located in NGED (South West region).
- Working closely with NGED through the Regional Development Programmes (RDP) we have developed a new tri-party contract structure enabling the deployment of our first, fully coordinated transmission constraint management service MW Dispatch.

System Events

14th November – an issue on the transmission network caused a loss of supply in the Bathgate, Livingston, Broxburn areas in Scotland

Demand Flexibility Service

Following the launch of the Demand Flexibility Service, on Monday we initiated our first DFS Test requirement to registered providers. We requested a volume reduction of 200MW per settlement period. Key details are:

- 4 providers were accepted
- 74MW contracted for delivery 1700-1730
- 77MW contracted for delivery 1730-1800
- all bids were accepted at a price of £3,000/MWh
- 4 bids were rejected (c50 MW) for being above the GAP price
- total volume rejected 54MW

To get in touch with the team email: demandflexibility@nationalgrideso.com

Demand Flexibility Service

ESO Data Portal and BMRS communications

The ESO has created an area on the Data Portal to share updates on the Demand Flexibility Service, this can be accessed via this link.

There are two sections, one for **DFS Tests** and one for DFS **Live Events**.

Certain updates on the Demand Flexibility Service will also be shared via the **BMRS** site, on the System Warnings webpage, which can be accessed via this link. System Warnings are messages published by the System Operator to inform all involved parties of important information concerning operational and commercial issues.

Industry can register to receive updates from these webpages to know when information on the DFS has been published. To register for SMS updates from the Data Portal, this webpage explains how to set this up and subscribe for Data Portal notifications.

For the Demand Flexibility Service, three BMRS System Warnings will be issued:

- **10.00** – An Anticipated Service Requirement may be scheduled the following day (Test or Real event)
- **14.30** - A requirement has been initiated for the following day, detailing the time period and volume requested
- **16.30** – Confirmed maximum volume reduction for the time period

To get in touch with the team email: demandflexibility@nationalgrideso.com

Winter Contingency Service (coal) – Proving Runs

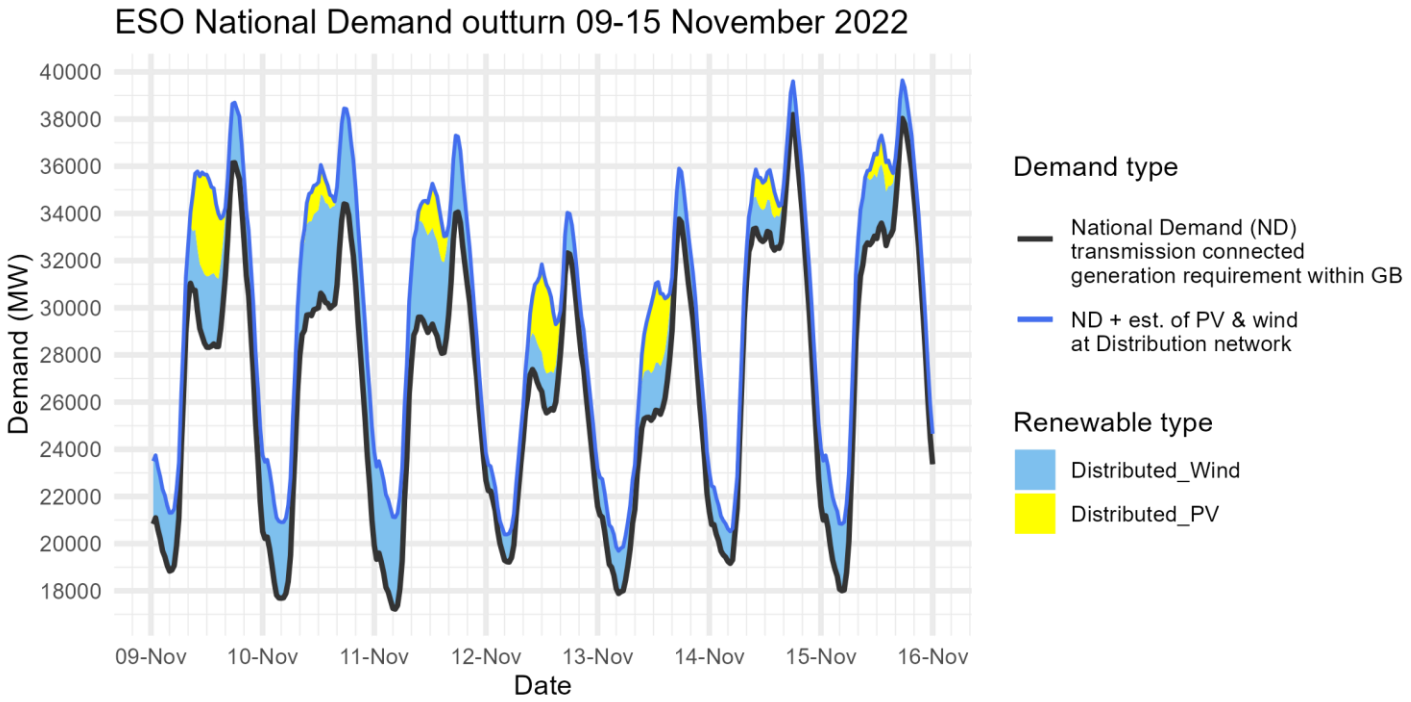
No further proving runs are planned at present

For the avoidance of doubt, where NGESO instructs any contracted unit, either for initial proving runs or service instructions, across all three contracted sites (EDF, Drax and Uniper) NGESO will inform the market via the BMRS.

Example BMRS notification below

	2022-10-26 05:15	From : Power System Manager - National Grid Electricity Control Centre NATIONAL GRID NOTIFICATION Nature of Notification COAL CONTRACT TEST RUN ACTIVE Unit: WBUPS-2 Estimated Capacity: Max 400MW / 12 Hours Earliest Sync time / date: 07:00 27/10/22 System Flag Notification Issued at 06:15 hrs on 26/10/2022 Issued by Angela Wilks National Grid Electricity Control Centre.

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.

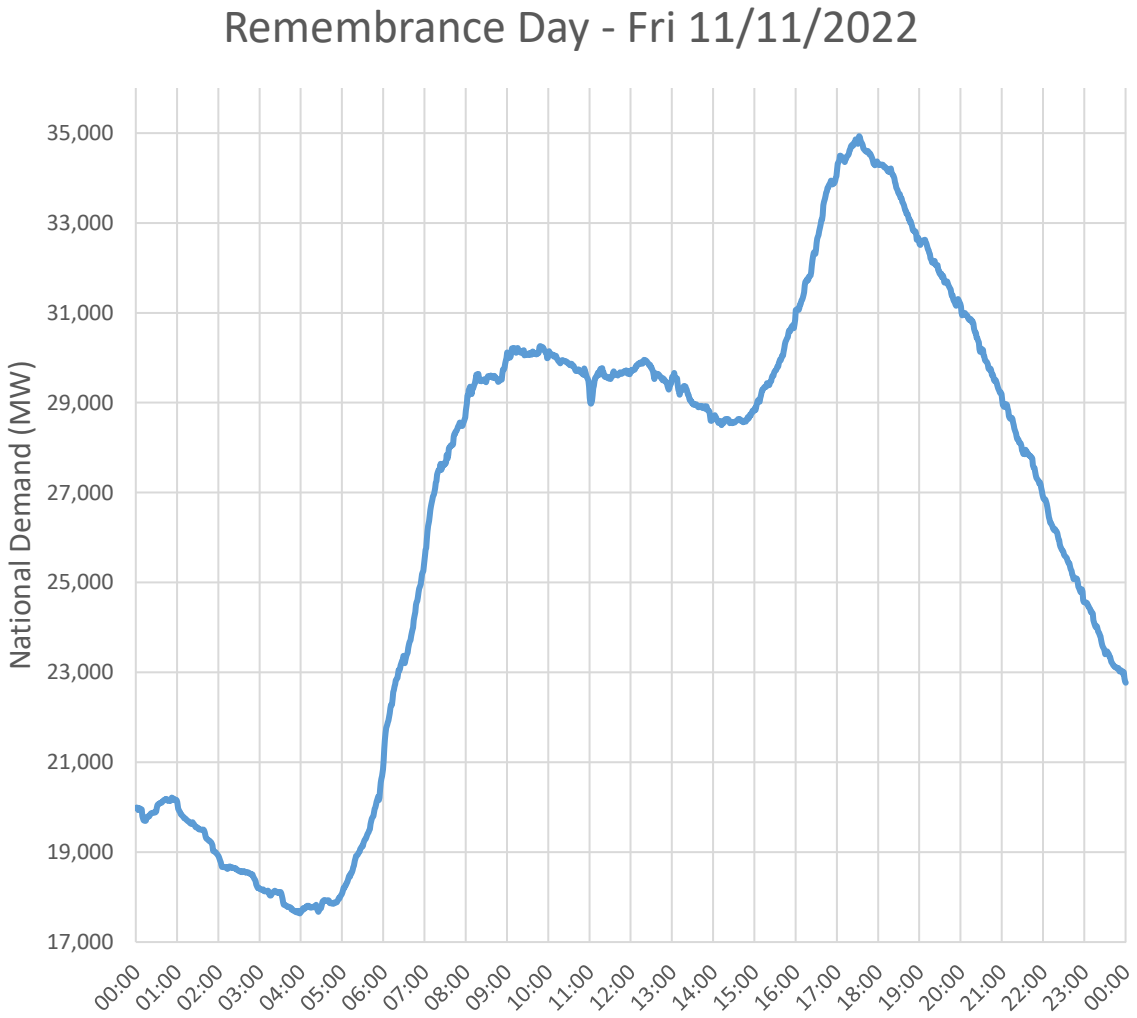
ND values **do not include** export on interconnectors or pumping or station load

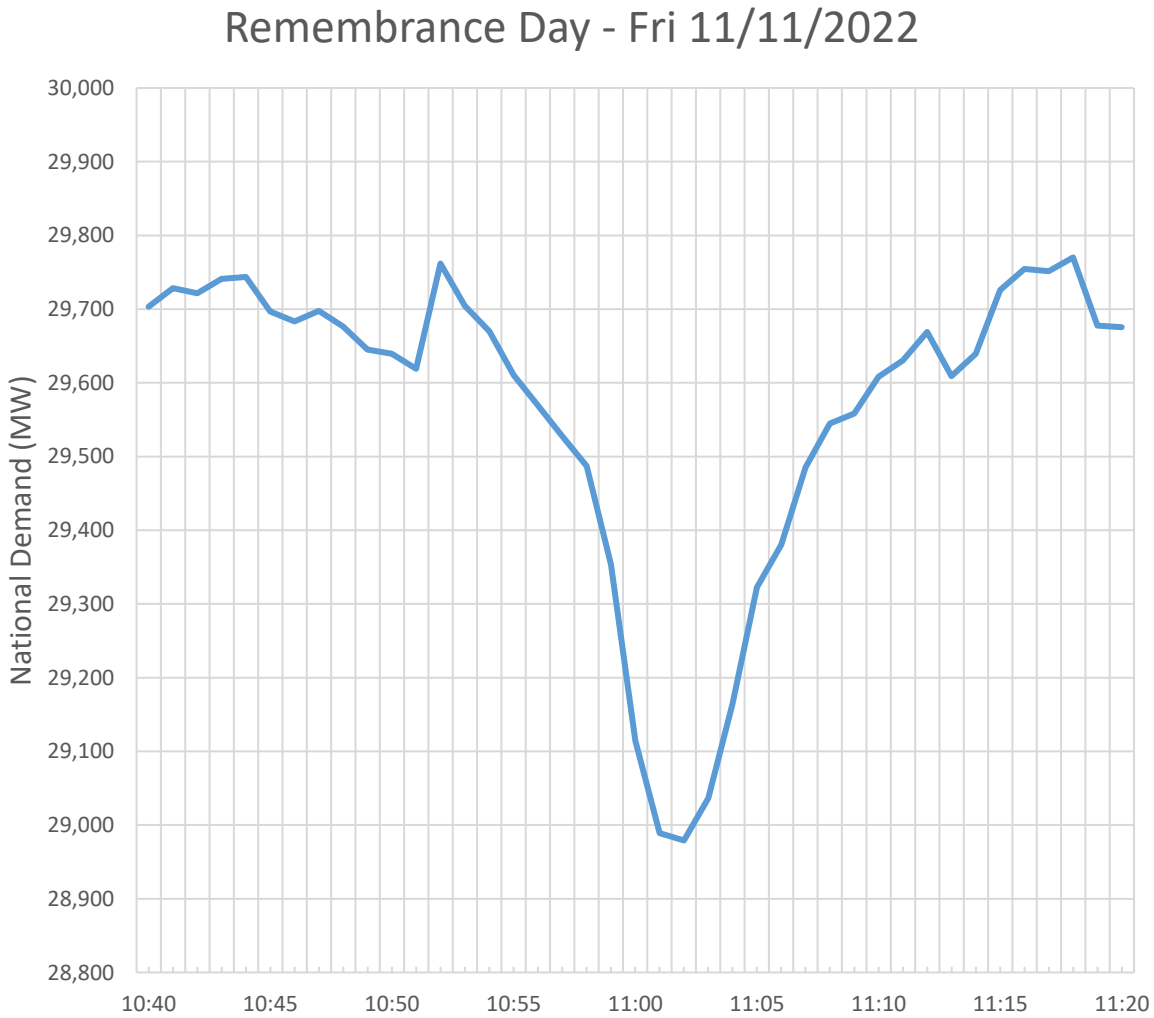
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it does not include demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

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

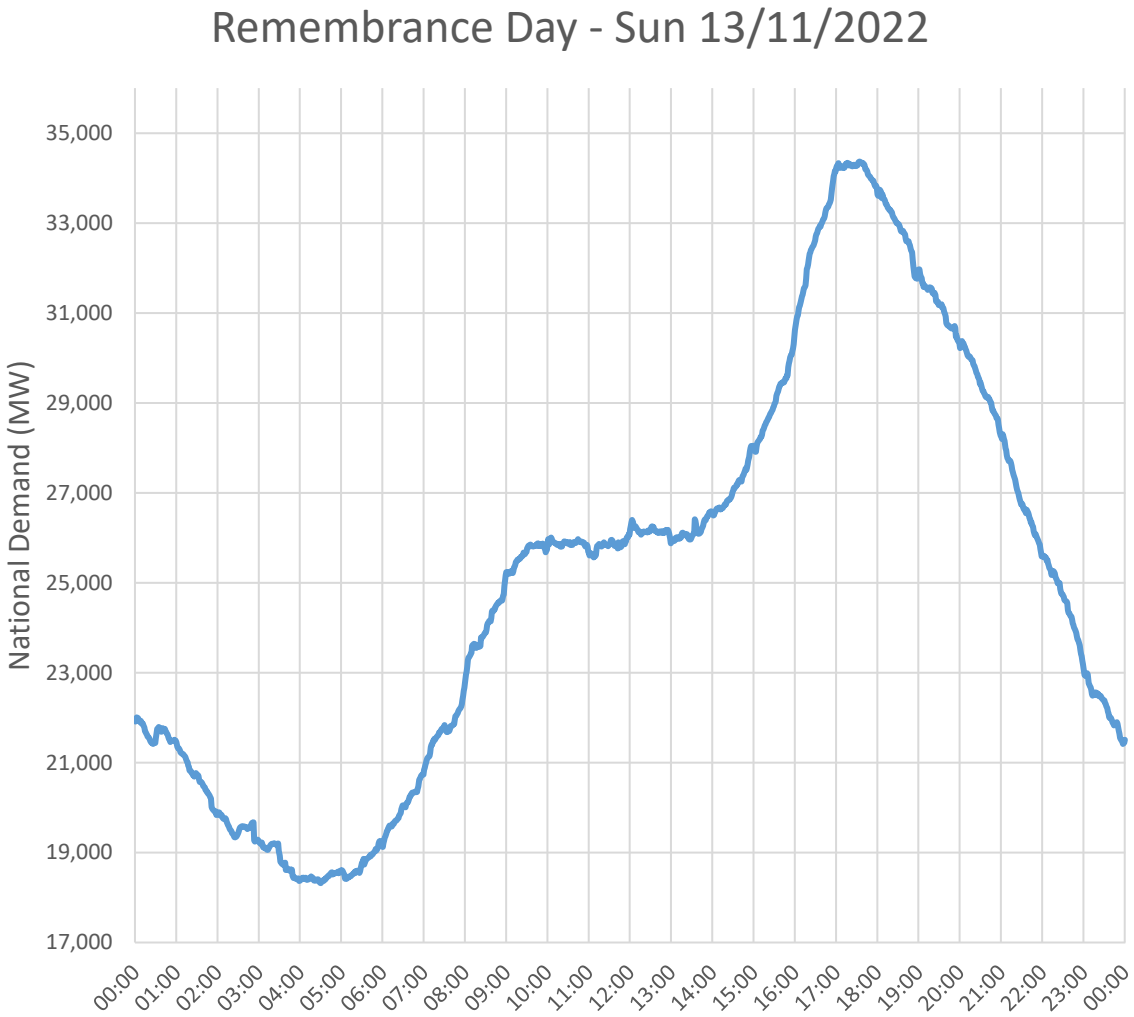
		FORECAST (Wed 09 Nov)		OUTTURN			
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Triad Avoidance est. (GW)	N. Demand adjusted for TA (GW)	Dist. wind (GW)
09 Nov	Evening Peak	36.6	2.6	36.1	0.0	36.1	2.6
10 Nov	Overnight Min	17.8	3.2	17.7	n/a	n/a	3.2
10 Nov	Evening Peak	34.3	3.9	34.4	0.0	34.4	4.0
11 Nov	Overnight Min	17.0	3.3	17.2	n/a	n/a	3.9
11 Nov	Evening Peak	33.5	3.0	34.1	0.0	34.1	3.2
12 Nov	Overnight Min	18.1	1.5	19.2	n/a	n/a	1.2
12 Nov	Evening Peak	32.1	1.5	32.3	0.0	32.3	1.7
13 Nov	Overnight Min	17.7	1.6	17.9	n/a	n/a	1.8
13 Nov	Evening Peak	33.3	1.9	33.8	0.0	33.8	2.1
14 Nov	Overnight Min	18.6	1.7	19.2	n/a	n/a	1.4
14 Nov	Evening Peak	37.5	2.1	38.2	0.0	38.2	1.4
15 Nov	Overnight Min	19.2	2.4	18.0	n/a	n/a	2.8
15 Nov	Evening Peak	37.4	2.5	38.0	0.0	38.0	1.6

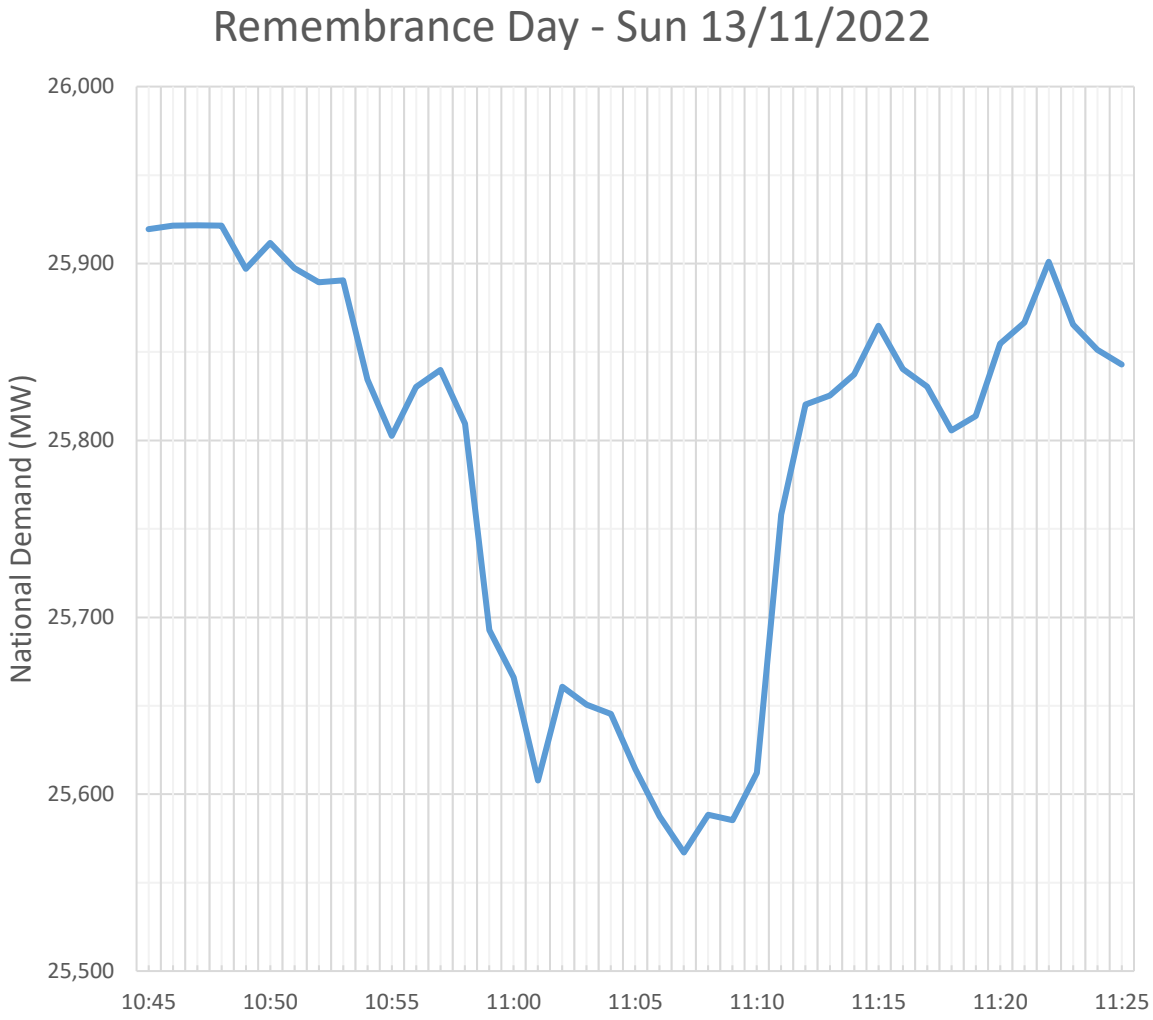
Demand | Remembrance Day Effect



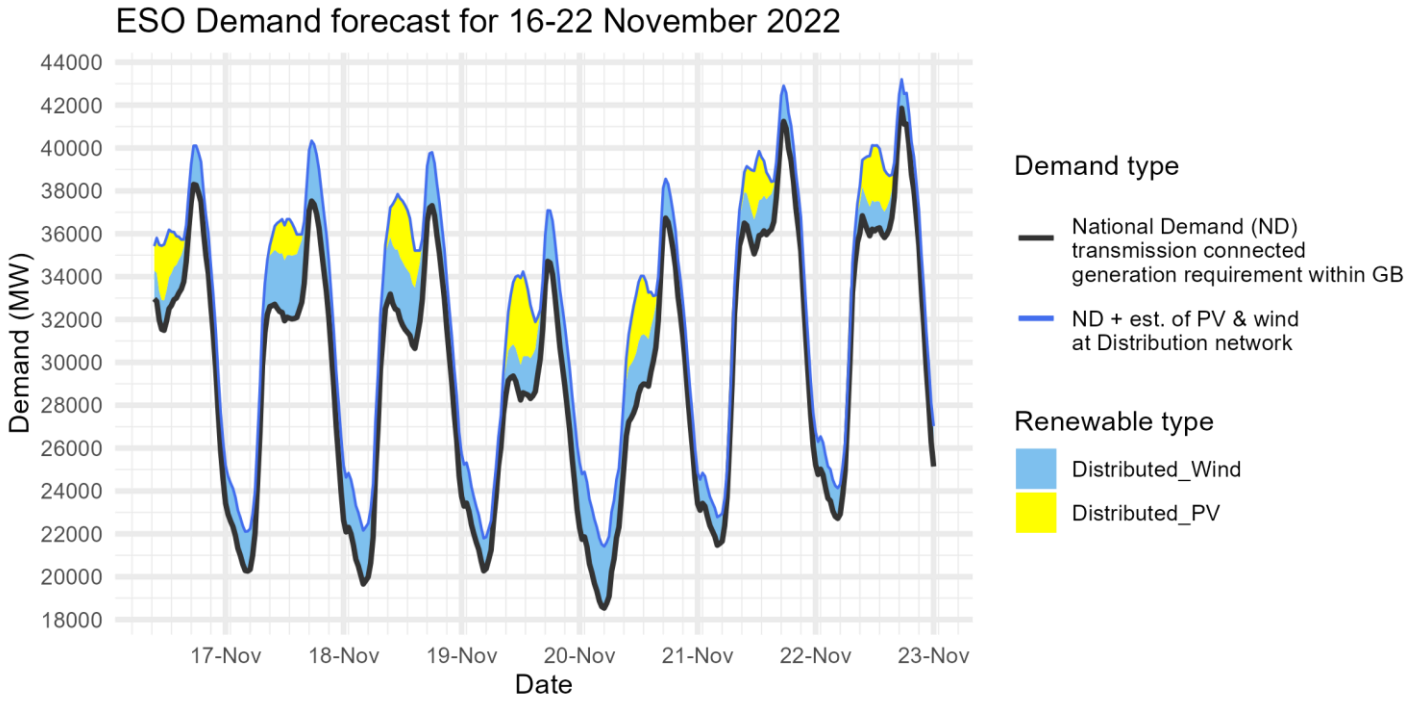


Demand | Remembrance Sunday Effect





Demand | Week Ahead



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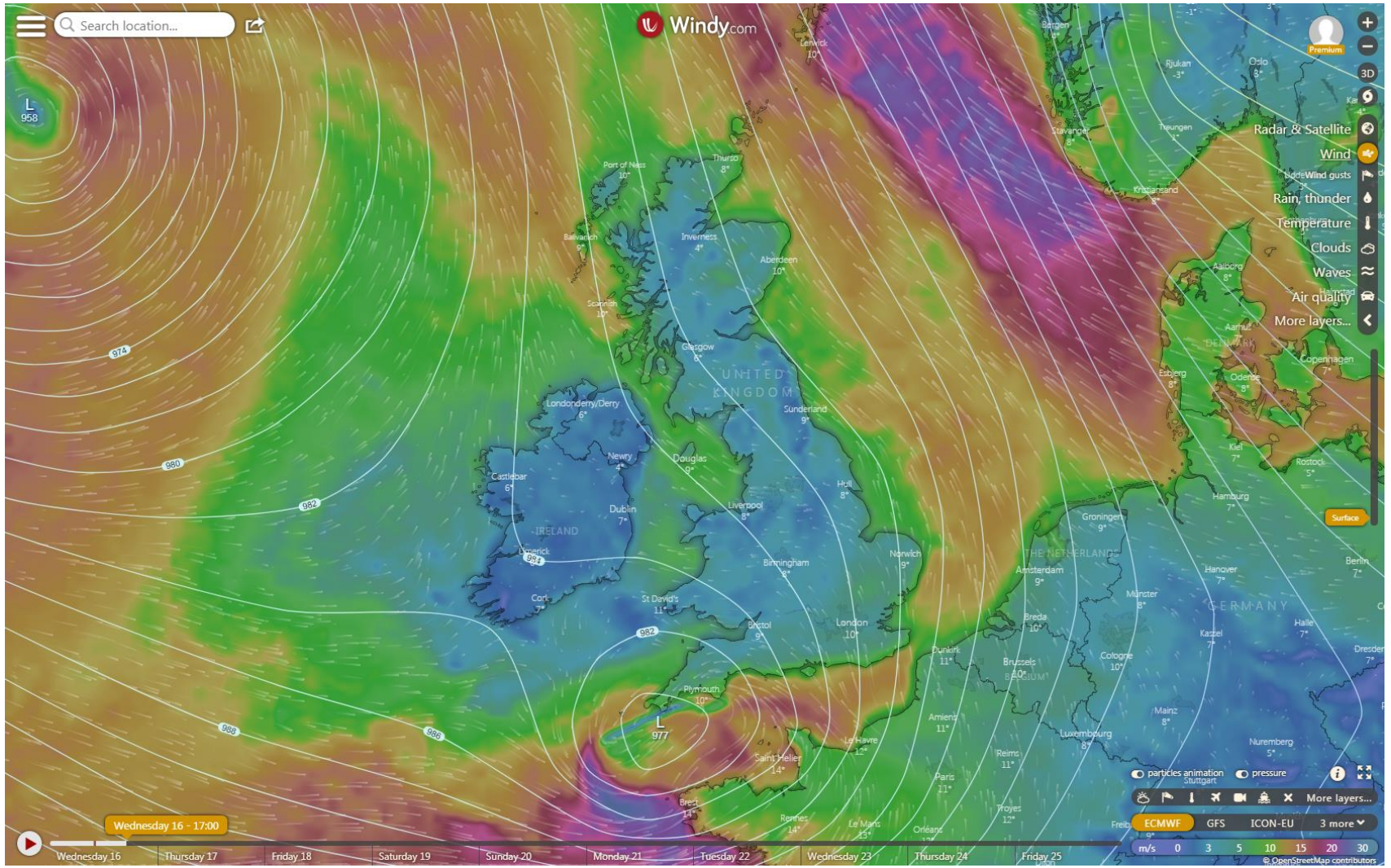
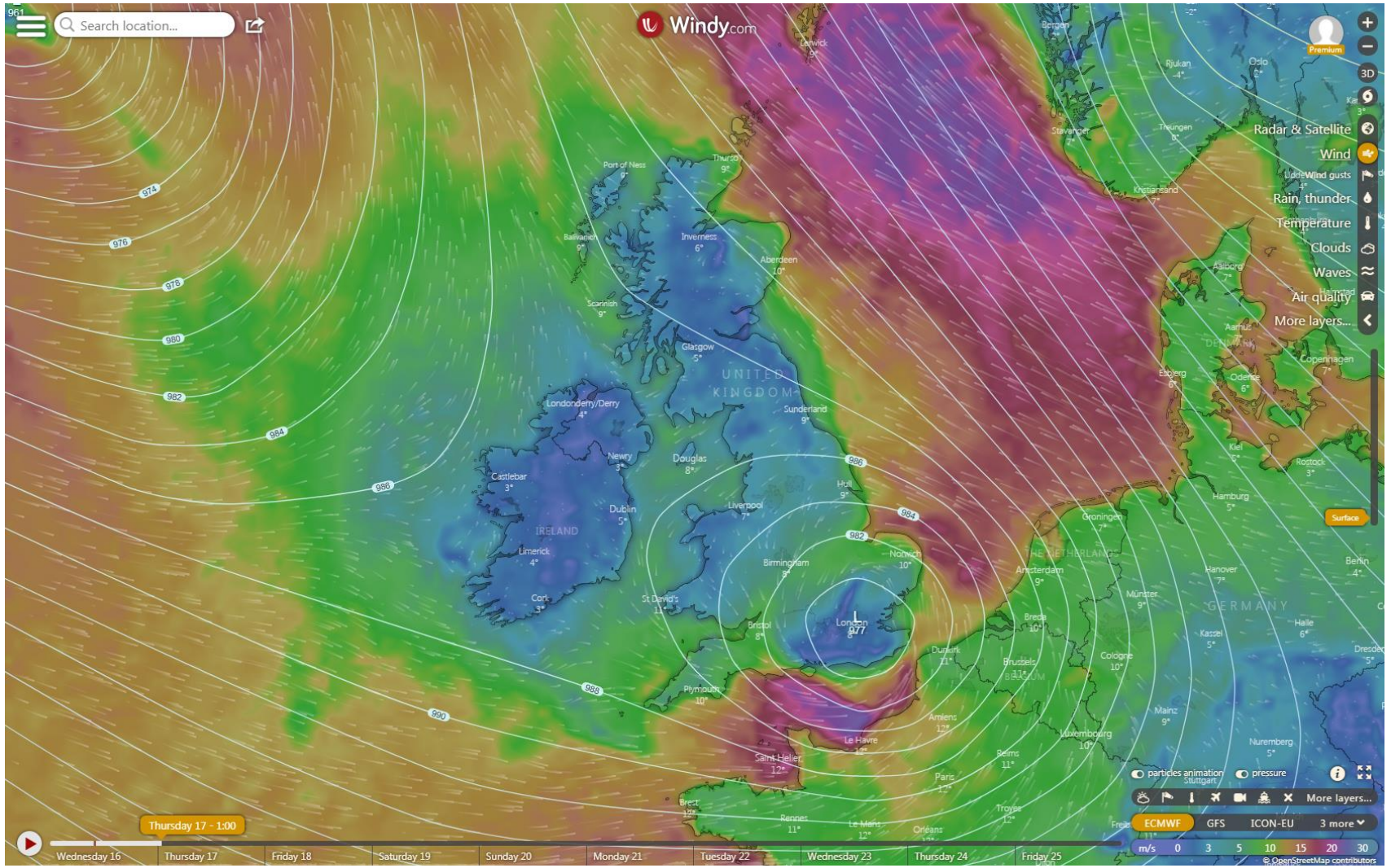
Historic out-turn data can be found on the ESO Data Portal in the following data sets: Historic Demand Data & Demand Data Update

		FORECAST (Wed 16 Nov)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
16 Nov 2022	Evening Peak	38.3	1.8
17 Nov 2022	Overnight Min	20.3	1.9
17 Nov 2022	Evening Peak	37.5	2.8
18 Nov 2022	Overnight Min	19.7	2.5
18 Nov 2022	Evening Peak	37.3	2.5
19 Nov 2022	Overnight Min	20.3	1.5
19 Nov 2022	Evening Peak	34.7	2.4
20 Nov 2022	Overnight Min	18.5	2.9
20 Nov 2022	Evening Peak	36.7	1.8
21 Nov 2022	Overnight Min	21.5	1.3
21 Nov 2022	Evening Peak	41.2	1.7
22 Nov 2022	Overnight Min	22.7	1.4
22 Nov 2022	Evening Peak	41.9	1.4

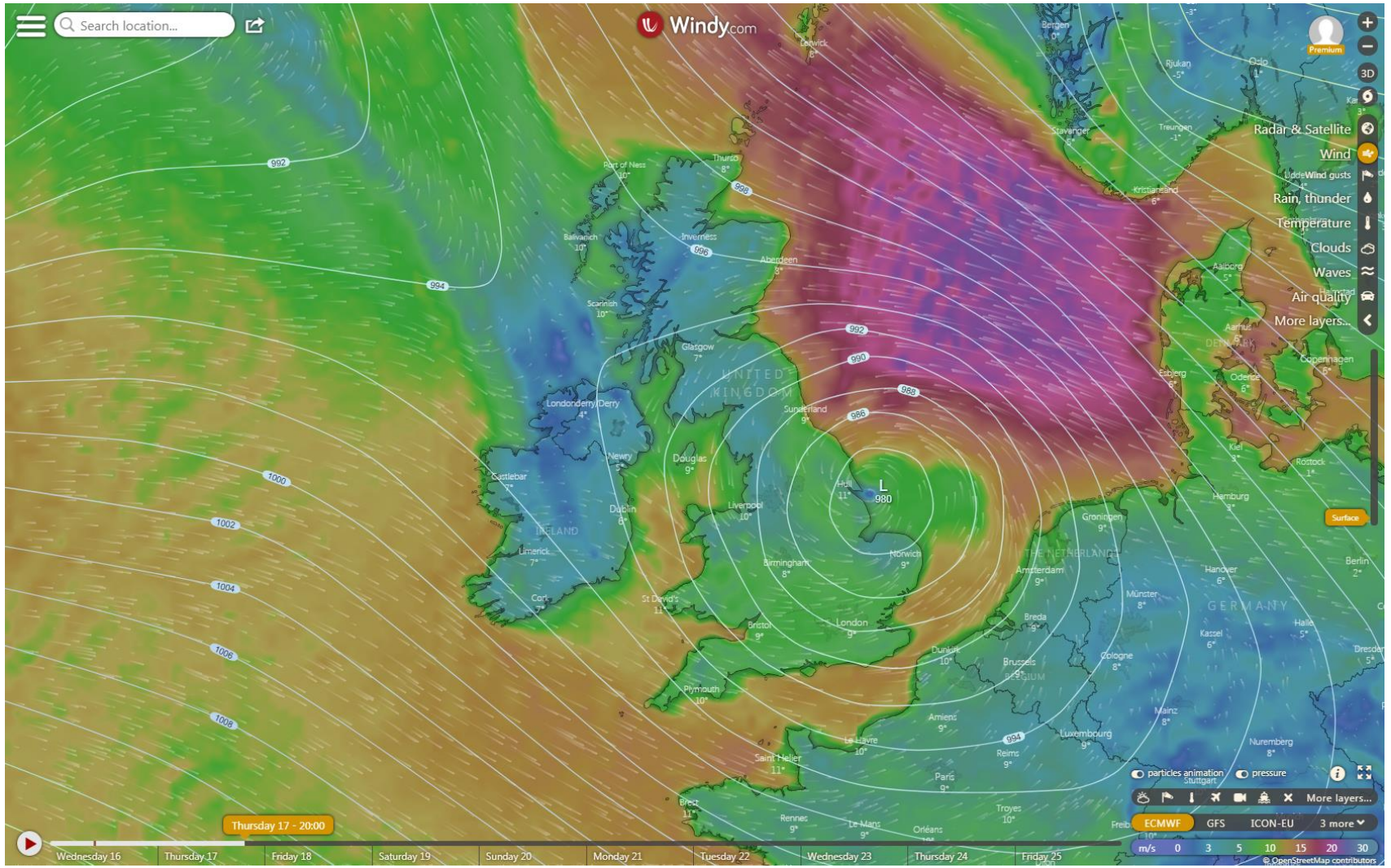
Demand | Week Ahead



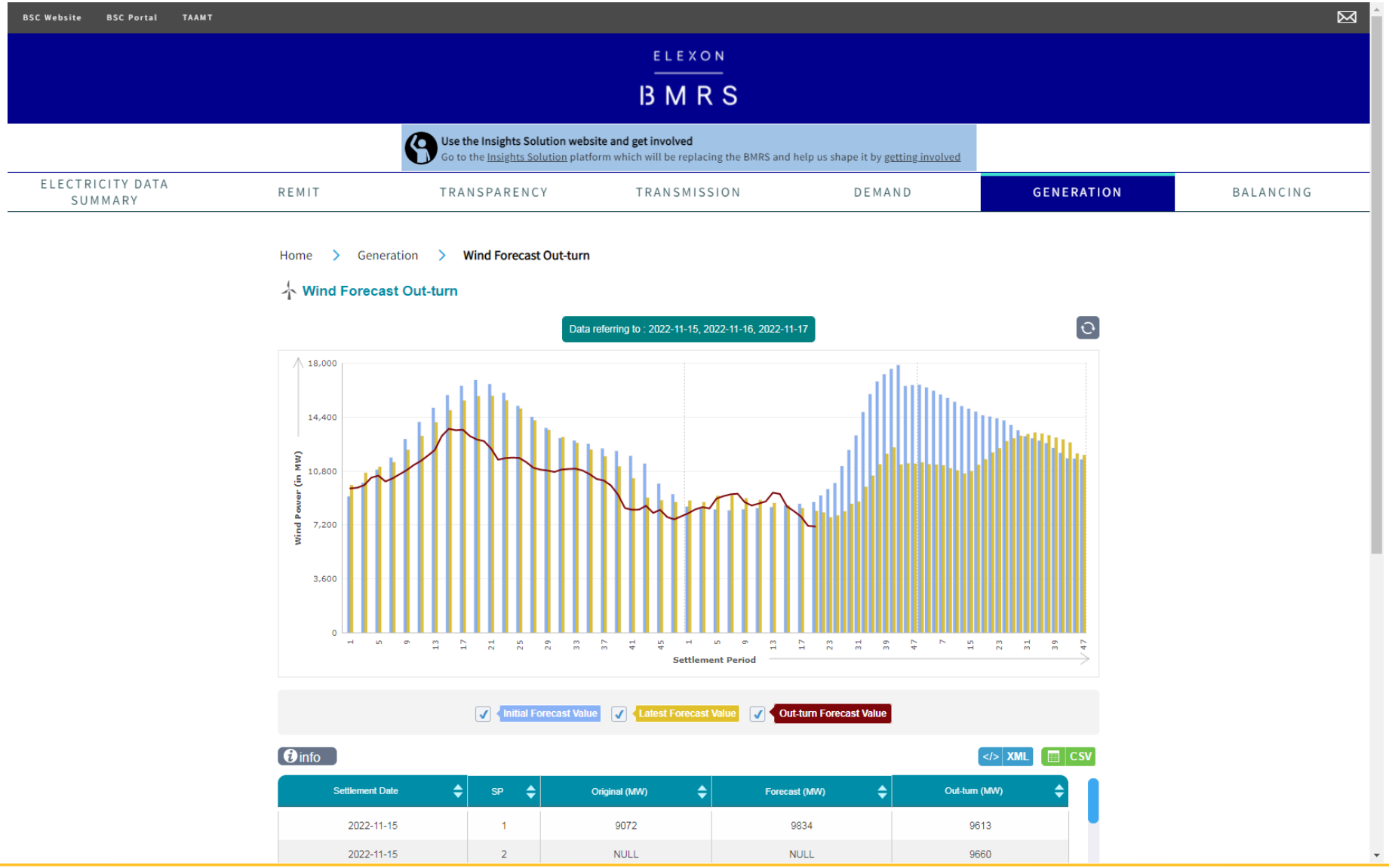
Demand | Week Ahead



Demand | Week Ahead



Demand | Week Ahead



Operational margins: week ahead

How to interpret this information

This slide sets out our view of operational margins for the next week. We are providing this information to help market participants identify when tighter periods are more likely to occur such that they can plan to respond accordingly.

The table provides our current view on the operational surplus based on expected levels of generation, wind and peak demand. This is based on information available to National Grid ESO as of 16 November and is subject to change. It represents a view of what the market is currently intending to provide before we take any actions. The interconnector flows are equal to those in the Base case presented in the Winter Outlook.

The indicative surplus is a measure of how tight we expect margins to be and the likelihood of the ESO needing to use its operational tools.

For higher surplus values, margins are expected to be adequate and there is a low likelihood of the ESO needing to use its tools. In such cases, we may even experience exports to Europe on the interconnectors over the peak depending on market prices.

For lower (and potentially negative) surplus values, then this indicates operational margins could be tight and that there is a higher likelihood of the ESO needing to use its tools, such as issuing margins notices. We expect there to be sufficient supply available to respond to these signals to meet demand.

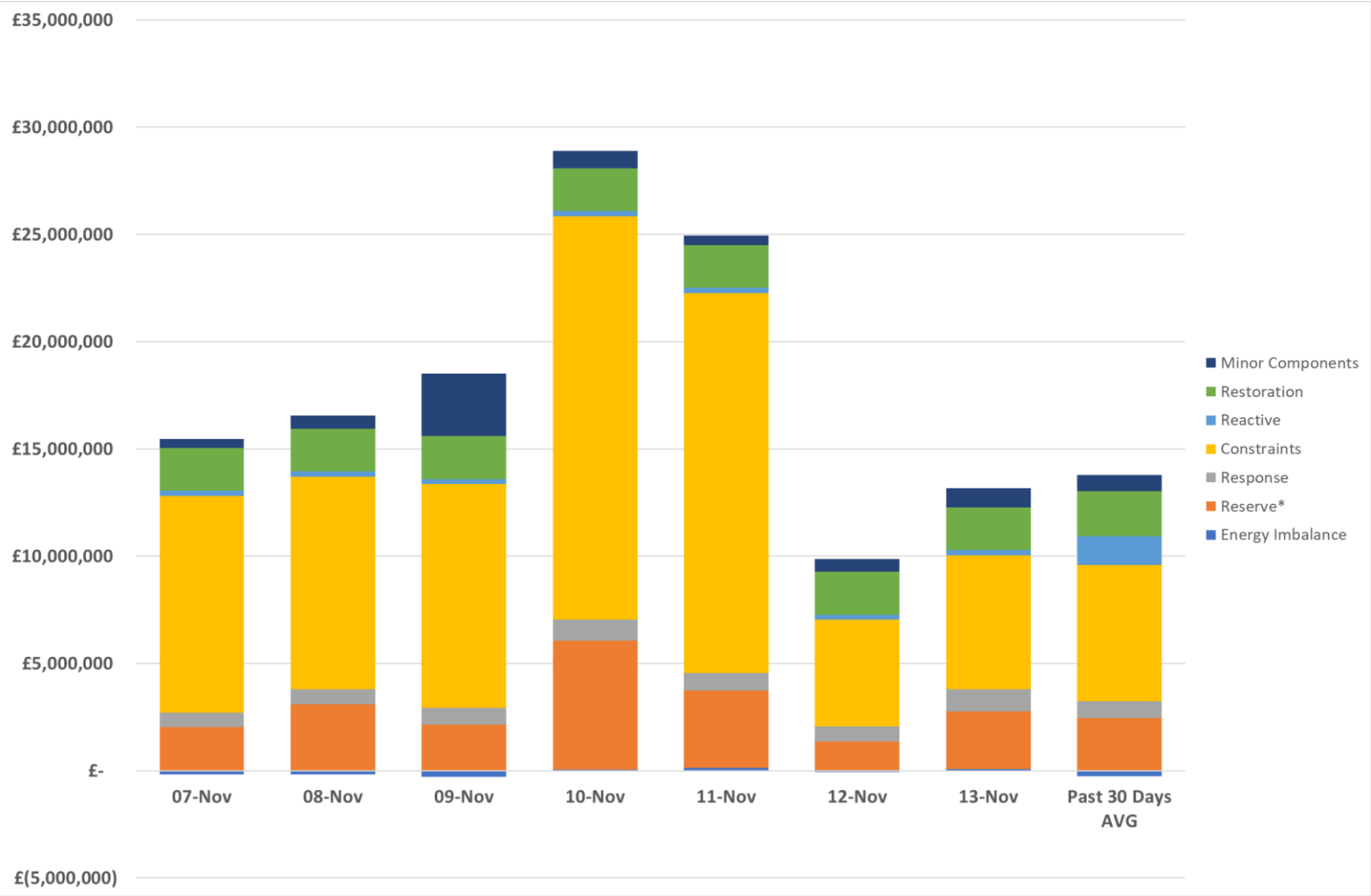
Margins are **adequate** for the next week.

Day	Date	Notified Generation (MW)	Wind (MW)	IC Flows* (MW)	Peak demand (MW)	Indicative surplus (MW)
Thu	17/11/2022	40404	13210	4020	38970	13640
Fri	18/11/2022	40082	12580	4020	38650	13030
Sat	19/11/2022	39485	10350	4020	35230	12490
Sun	20/11/2022	40151	8780	4020	37040	11190
Mon	21/11/2022	41054	7410	4020	40790	6990
Tue	22/11/2022	41056	5360	4020	41530	4240
Wed	23/11/2022	40875	11880	4020	41140	10750

*Interconnector flow in line with the Winter Outlook Report Base Case but will ultimately flow to market price

Margins do not include NGESO enhanced or emergency actions (Outlined here: download (nationalgrideso.com))

ESO Actions | Category costs breakdown for the last week

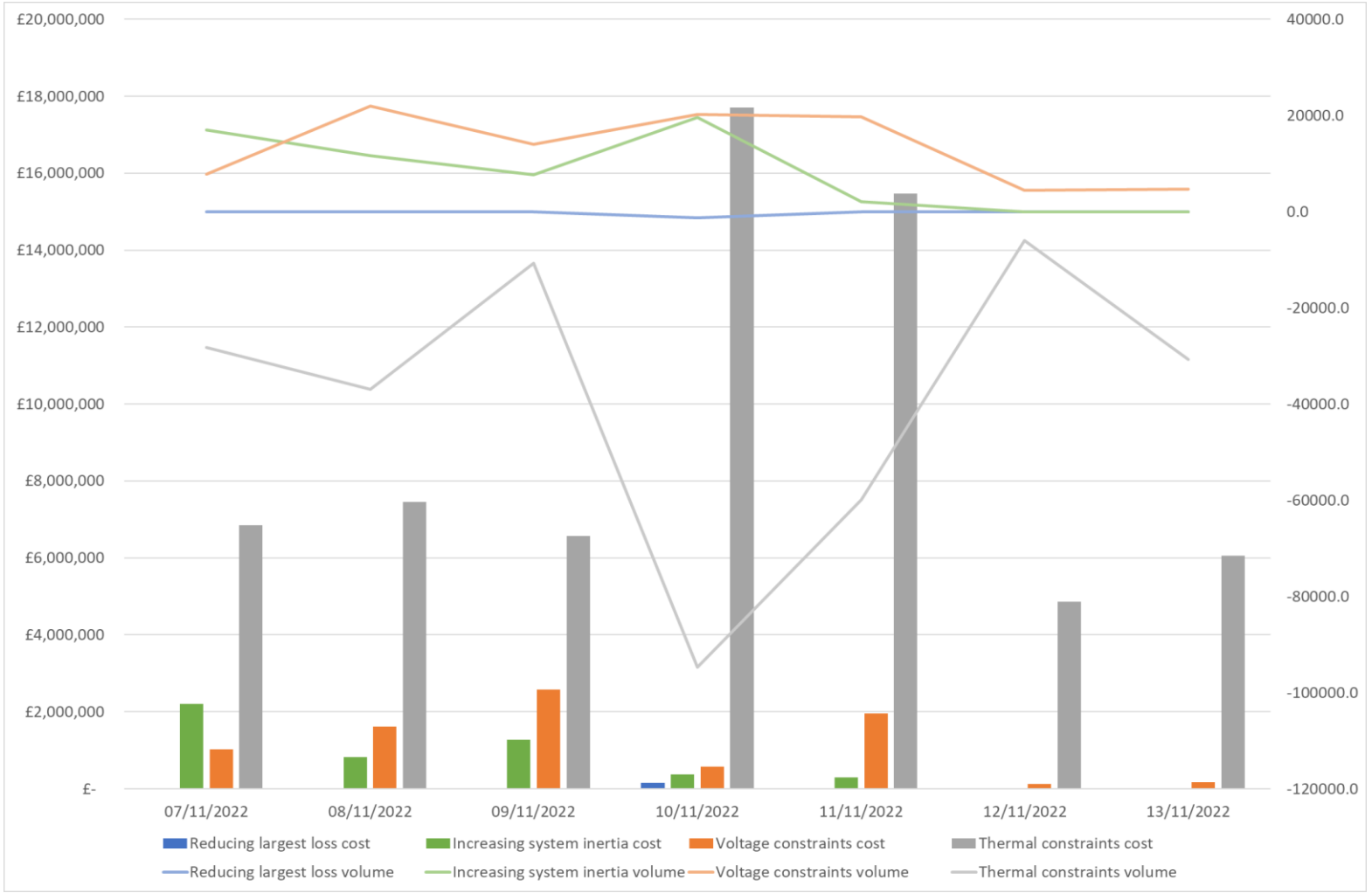


Date	Total (£m)
07/11/2022	15.3
08/11/2022	16.4
09/11/2022	18.2
10/11/2022	28.9
11/11/2022	25.0
12/11/2022	9.8
13/11/2022	13.2
Weekly Total	126.8

Constraints costs (mostly thermal) were the key cost component throughout the week

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

ESO Actions | Constraint Cost Breakdown



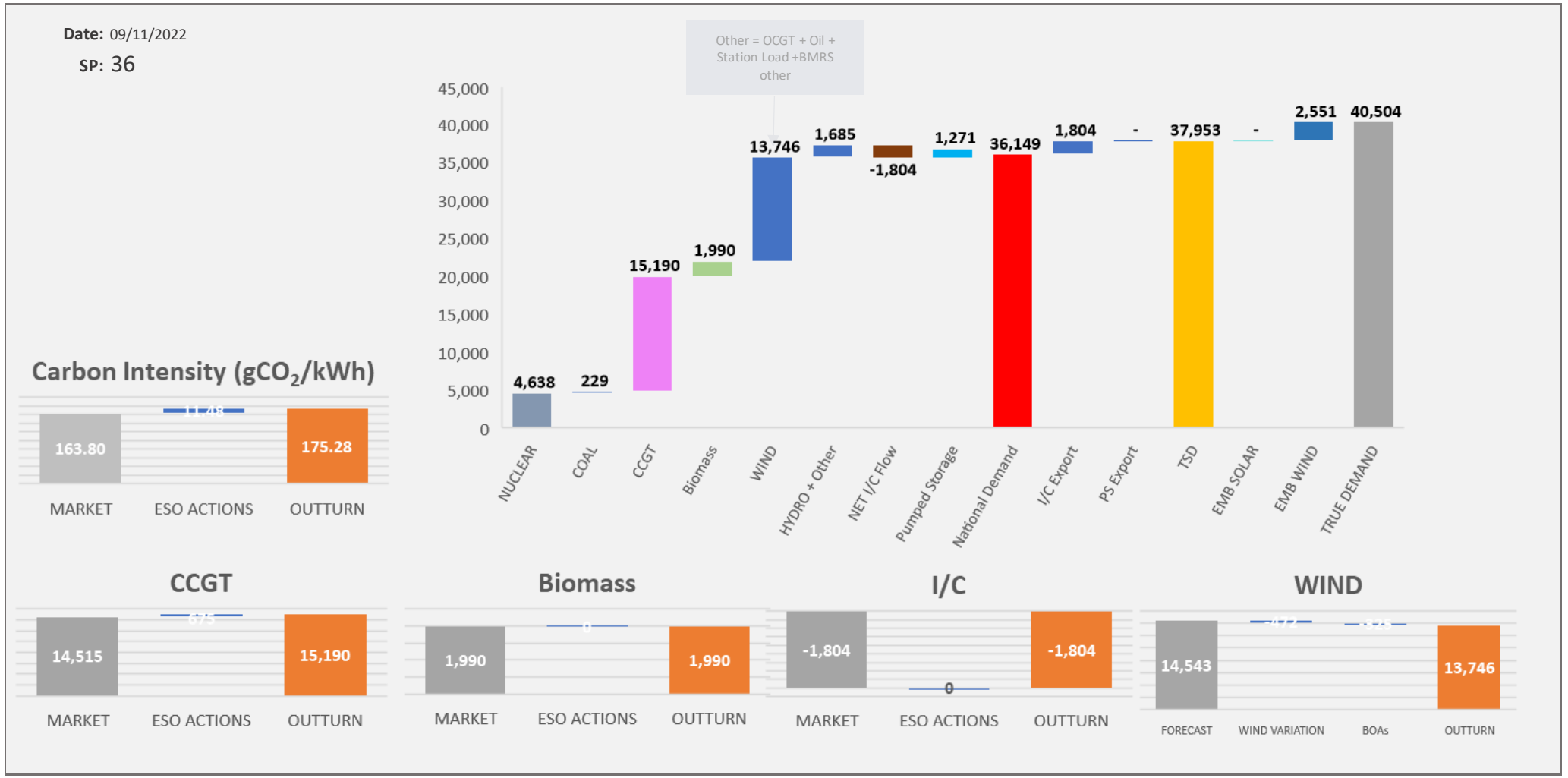
Thermal – network congestion
Actions required to manage Thermal Constraints throughout the week.

Voltage
Intervention to manage the voltage levels throughout the week.

Managing largest loss for RoCoF
Intervention was required to manage largest loss on Thursday.

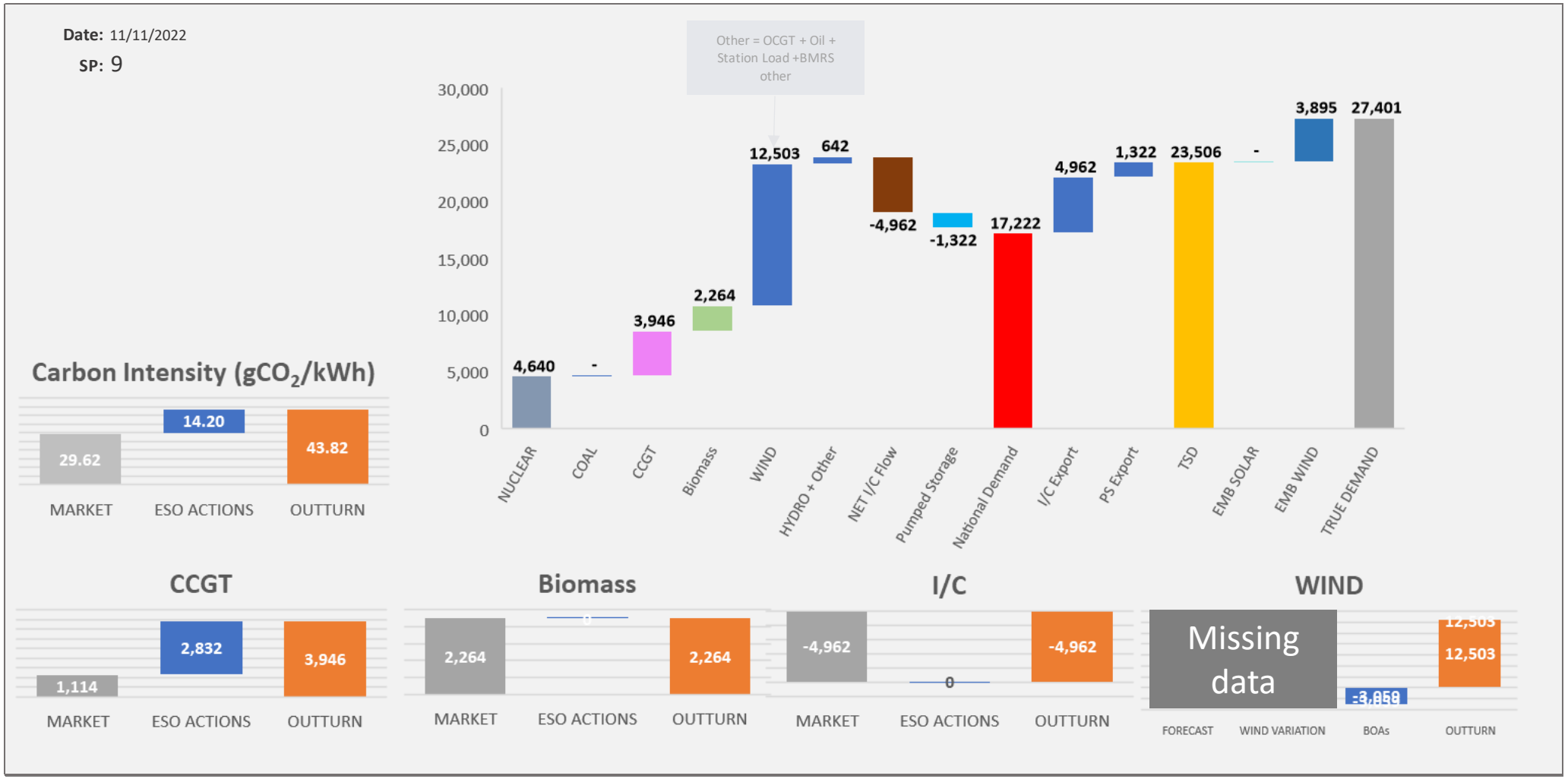
Increasing inertia
Intervention required to manage system inertia from Monday to Friday.

ESO Actions | Wednesday 09 November – Peak Demand – SP spend ~£395k



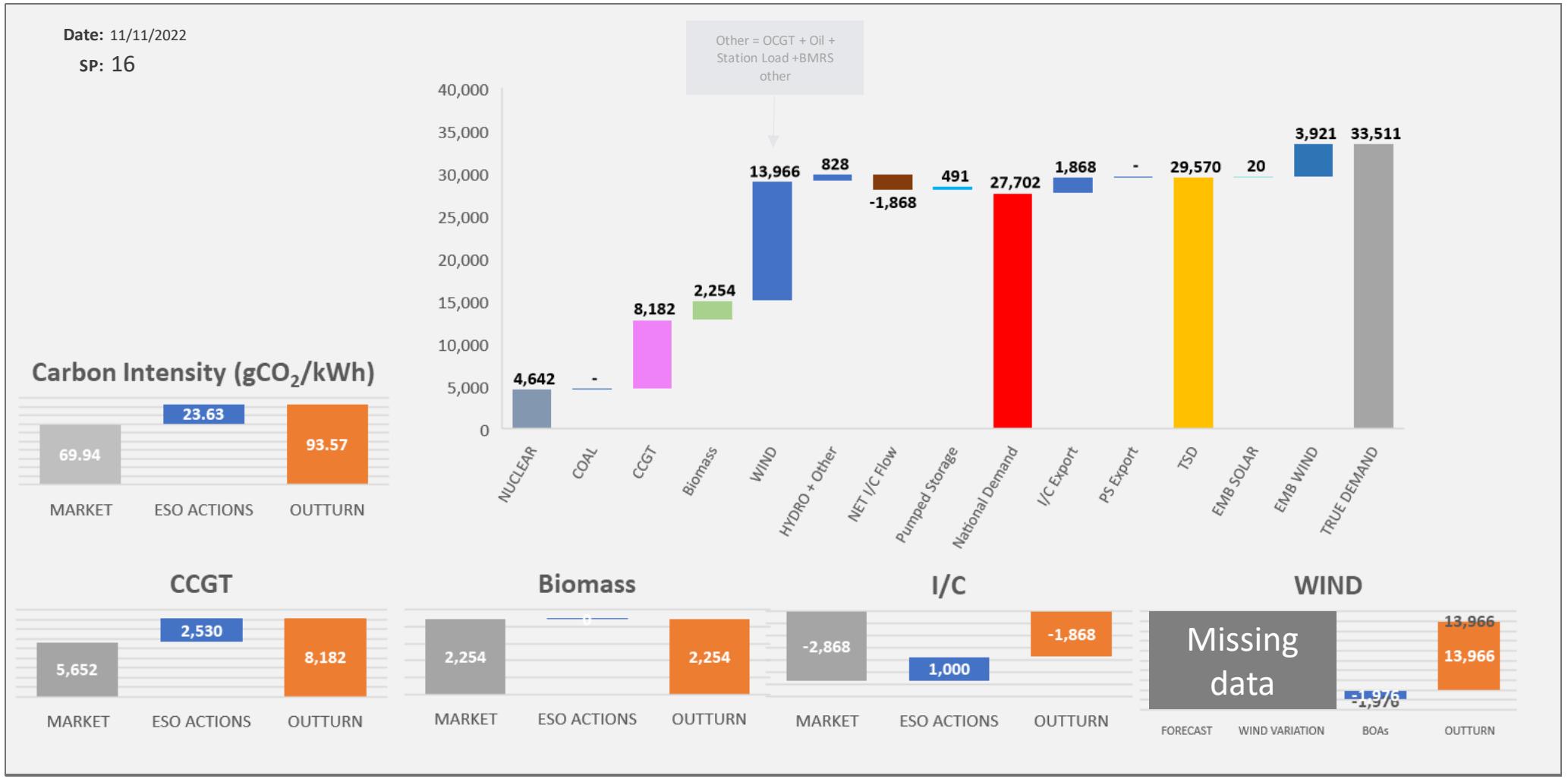
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Friday 11 November – Minimum Demand – SP Spend ~£474k



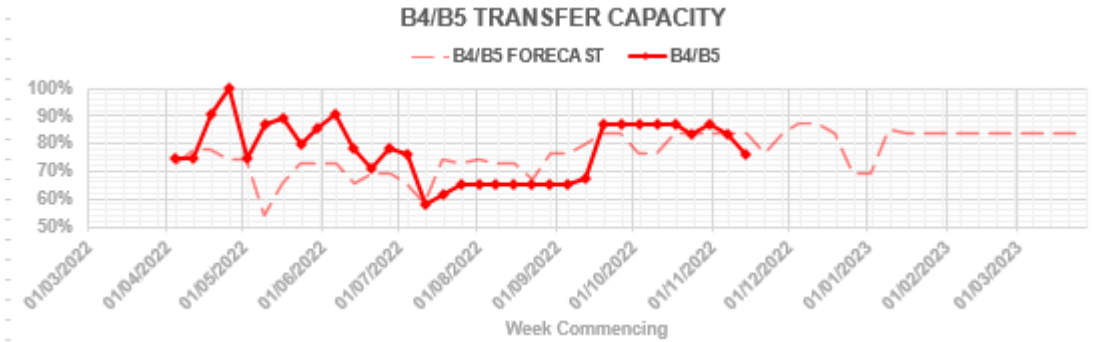
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

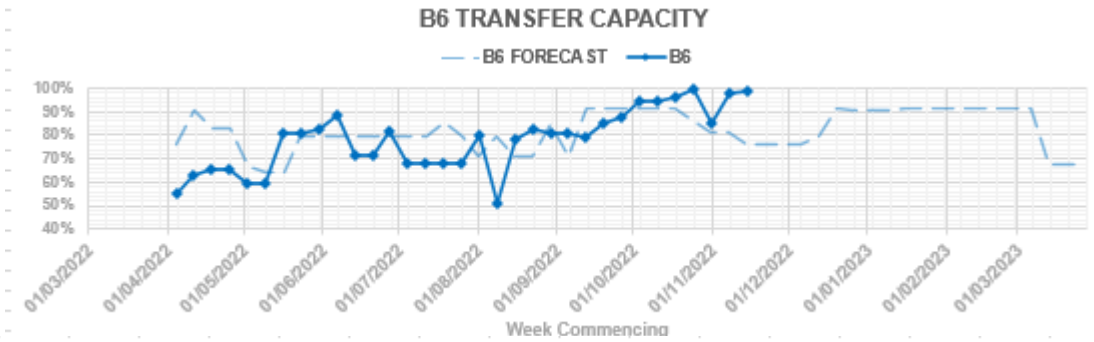
ESO Actions | Friday 11 November – Highest SP Spend ~£711k

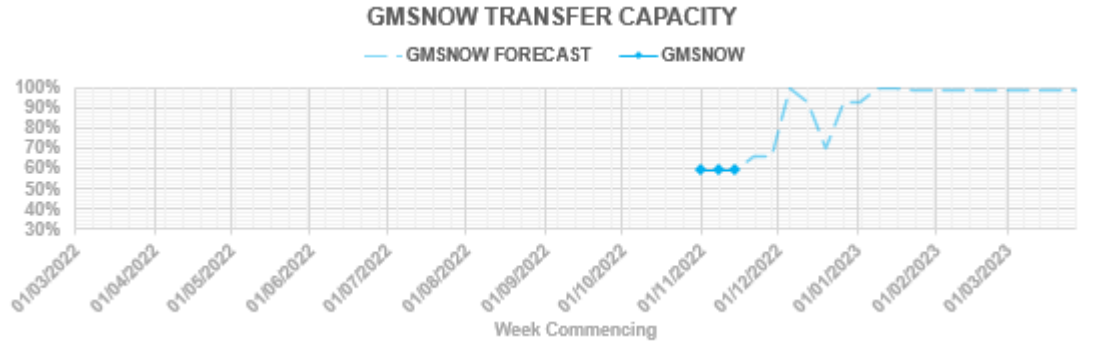


Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

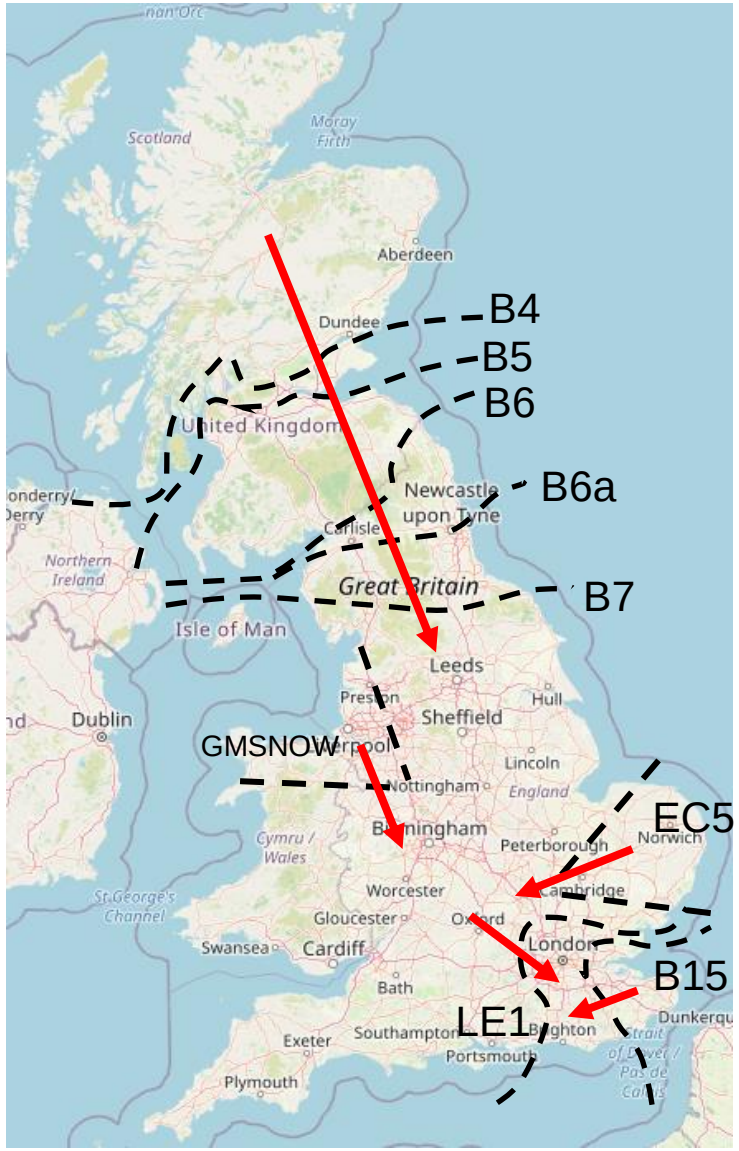
Transparency | Network Congestion





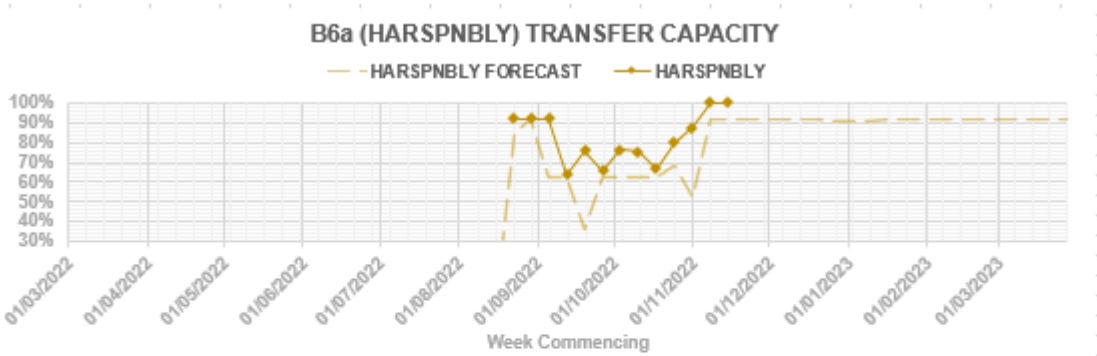


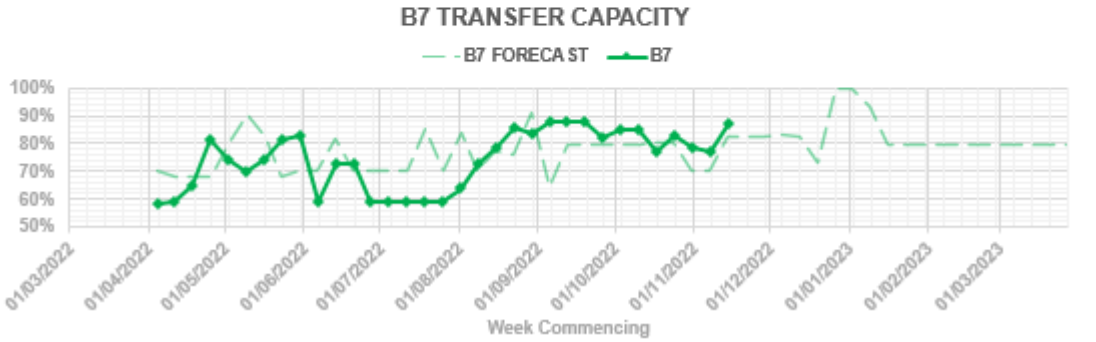
Boundary	Max. Capacity (MW)
B4/B5	2750
B6	5600
B6a	6300
B7	8500
GMSNOW	4550
EC5	5000
LE1	8250
B15	7500



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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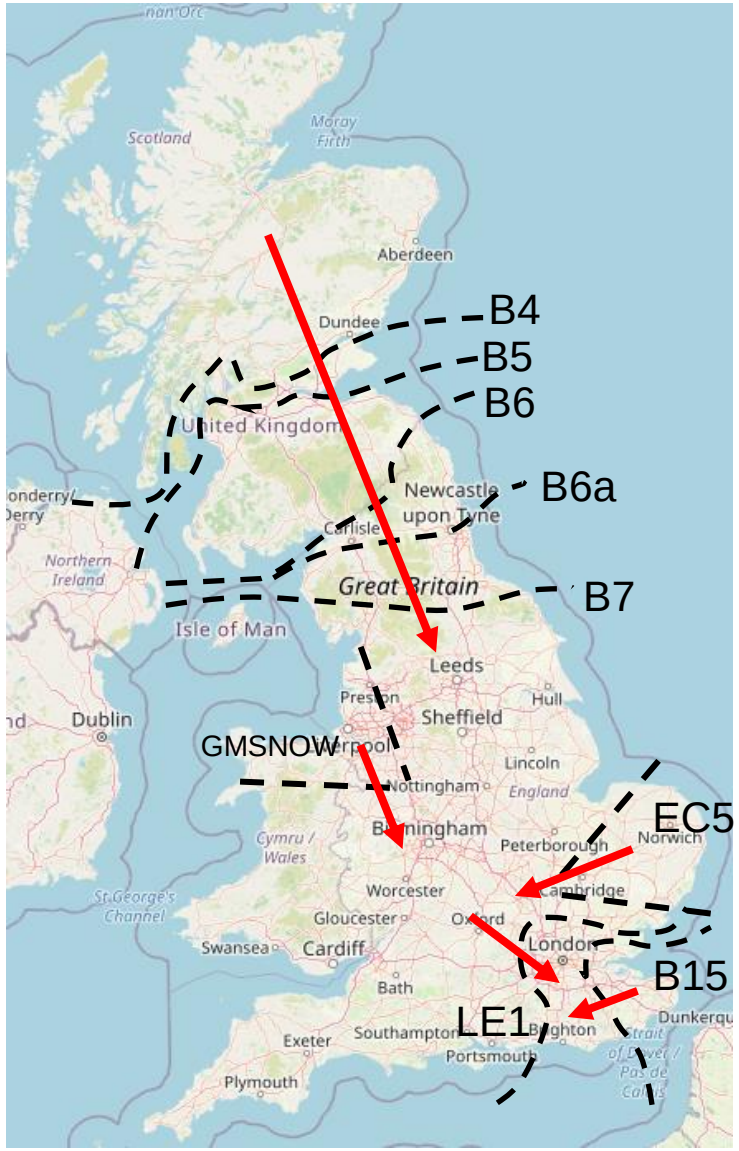

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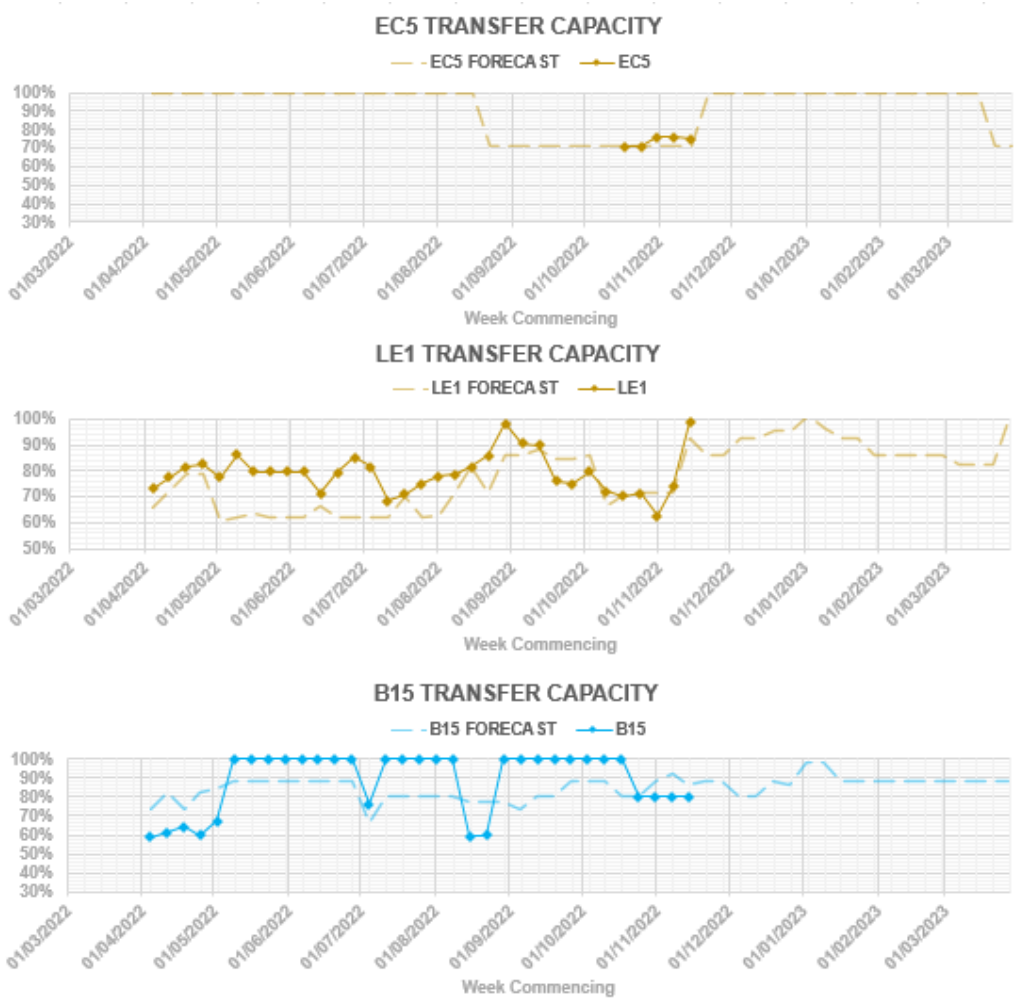

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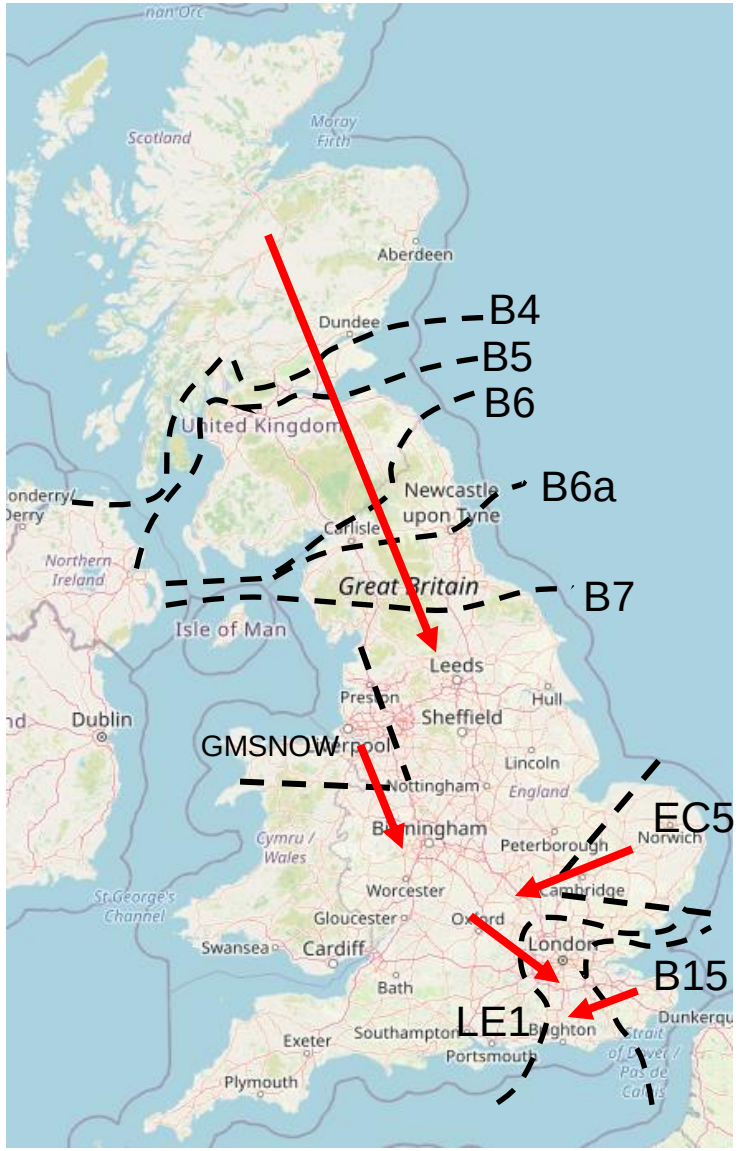

Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Previous weeks questions

Q: Would OC6 voltage reduction always be used ahead of demand control to cover the first 5% of any shortfall or does it depend on circumstances?

A: Depends on circumstances. The demand reduction we expect is 1.5% per voltage stage of reduction up to a maximum of 3%.

Q: Another thought, under black start-wider voltage and frequency ranges of regulation are permitted & anticipated. would this provide (in emergency conditions only) extra latitude ahead of demand disconnection? could this be agreed? not sure its clearly permitted now?

A: Thanks for the thought -we'll pass onto the restoration team to think about.

Q: Can you please cancel the old invites so we can delete the correct invites out of our diaries?

A: Unfortunately, we are unable to delete the old invitations as these were downloaded and/or forwarded to you making it out of our control. This was a key reason for the new format with direct invitations being shared.

Q: For the DFS tests, roughly how long will a typical test be, and roughly how many MWh are envisaged for procurement? Appreciate that this may change and that final figures will be published on the data portal, but hoping to get an order-of-magnitude/ballpark here.

A: Believe this is covered in the DFS docs on the website - see link from slides.

Tests will be one hour in duration. The volumes expected in tests will change as and when providers onboard new customers. Details relating to the tests can be found in the Procurement Guidelines:

https://www.nationalgrideso.com/document/268846/download

Previous weeks questions

Q: Do ESO have a view on updating the Reliability Standard? Should it now be considering sustained periods of low-wind output instead of an average day?

A: The Reliability Standard is a matter for Government. It is based on loss of load expectation (LOLE) with a current standard of 3 hours per year. Government has an obligation to review the Capacity Market every five years. The next review is the Ten-Year Review, which is due by 2024.

The ESO make recommendations on how much capacity is needed to meet the Reliability Standard, and our modelling includes assessment of cold winters, periods of low wind, and other stress tests.

Q: Will the retrospective volume update following DFS activation to the NIV calculation also re-calculate the SIP? I assume that the answer is yes but if so, how long will the calculations take to be confirmed?

A: Yes, the updated volume update will flow through to amend any calculations, in terms of timescales we will feed through the data as soon as possible however there is currently uncertainty as what those timescales may be and if the SF run is not achieved it will be one of the later runs. There will be greater clarity once some DFS test runs have been carried out.

Q: I think the answer on OC6 demand control in imbalance prices wasn't correct (unless I've misunderstood it). BSC Modification P305 introduced pricing for demand control in imbalance prices at £6k/VOLL // RE: OC6/ESEC demand control; if there is no associated volume/price then wouldn't issuing demand control potentially change system state (short/long); giving no incentive to take extraordinary measures?

A: We apologise, the original answer was given in error. One of the purposes of BSC P305 was to attach a price and volume to demand control when initiated under Grid Code OC6, so that this action could take its correct place in the “stack” used to set cashout prices. Note that whether an action, including an OC6 demand control action to which P305 has attached a price, will set the energy imbalance cashout price depends on its size and price in relation to all the other actions taken to balance the system. Expensive actions in particular are at risk of exclusion from the volume of actions which set the price, through the effect of NIV tagging.

Previous weeks questions

Q: What price are Emergency Assistance and Emergency Instruction actions?

A: Emergency Assistance prices are dependent upon the arrangements agree with the connected System Operator. Some are a fixed price; others are reflective of any necessary rebalancing actions taken by the Assisting System Operator and others are reflective of the cashout price for the relevant settlement period.

Emergency Instructions are priced at the Imbalance costs to the interconnector owners in both the GB and connected countries markets.

Q: DFS: If a site has minimal load over peaks but has onsite generation, leading to a net export, will DFS payments count the export or cap at zero? Couldn't find in the docs, thanks.

A: Please send this directly to the email address and we can look into this specific question for you.

Q: The date time format for the BSUoS data has changed, is this change going to remain or was it in error?

A: Thanks for the question, I believe this relates to the BSUoS web prices in CSV format that we publish on the data portal. It was highlighted by our data compliance team as part of a regular audit that the date format wasn't to the correct standard. We changed it to be compliant and so it will stay in this format now. Apologies if this change caused you problems.

Q: Is the up to 90% reduction, a 90% reduction in the block taken off, or 18 blocks all of which lose 5%?

A: 90% is based on 18 blocks of 5%

Previous weeks questions

Q: Which ESO actions count as System Stress Event under the Capacity Market? Is it only OC6 demand control or voltage control as well? Are actions under ESEC excluded?

A: System Stress Events are defined as SO Instigated Demand Control as under OC6 of grid code. We are currently reviewing different scenarios and their implications on Capacity Market Obligations in relation to System Stress Events and ESEC. We will relay the outcome of this in the future.

Q: In response to the answer on market suspension: the calculation in section G of the BSC says a market suspension period exists if demand is less than 95% of the baseline demand forecast at day-ahead - does NGESO have any leeway in this?

A: No, the code is clear on the threshold – and to reiterate this for a black start/restoration session.

Q: How would DFS reflect on imbalance pricing?

A: For tests these will be system tagged. For utilisation in earnest these will be energy tagged.

Q: According to the information presented, an EMN will be raised prior to the issuance of a BOA for already warmed Coal units. If run for a neighbouring TSO, will you still issue an EMN?

A: EMNs are issued ahead of real-time whereas BOAs are issued in real-time. Therefore, if an EMN is required, this will be published in advance.

Questions outstanding we are still working on

Q: VOLL diff GB cf EU=back off interconnector flow ahead of market suspension-assumes we are treating interconnector demand equivalent to GB demand. Arranging large block load reductions of interconnectors in this situation limit cost/ avoid demand reduction? Where does this sit in the hierarchy of actions?

Q: In case of coal plants being warmed up, how is the cost going to be included in the balancing mechanism?

Q: Have you looked at the dynamics of market suspension? French and German VOLL calculations will mean backing off of interconnector from external TSO of flow to GB ahead of a GB market suspension. So, there is risk the 6% assumptions of interconnector assumptions for capacity being significantly over estimated for capacity mechanism in practice. And in the opposite direction a sustained period of buying back of interconnector flow ahead of market suspension- assuming we are treating interconnector demand equivalent to GB demand. large block load reductions of interconnectors in this situation could be arranged to offset risks of GB demand reduction? Where does this sit in the hierarchy of actions?

We will reach out to the person who ask this question directly to discuss it and understand the question fully.

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