



ESO Operational Transparency Forum

7 December 2022

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. 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:

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/ response topics

Today:

Dispatch Transparency Event update

Coming soon:

Reserve Reform update – 14th December

Demand Flexibility Service: Results from the first tests – 14th December

Local Constraint Markets update – 21st December

Response markets deep dive – to be rescheduled due to winter workloads in the team

Feedback welcomed on our proposed deep dive topics

Other dates for your diary

28th December - no OTF planned in Christmas week

4th January – provisional booking for an abbreviated OTF

Notable Events

02 December – High Frequency Event

At 05:32 an interconnector tripped whilst exporting 1014MW.

The frequency increased to 50.233Hz

The frequency returned to operational limits by 05:34

Signpost – Balancing Reserve Consultation

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.
- We'd like to encourage people to submit responses early where possible as the ESO consultation review period falls over Christmas.
- Any providers who would like a 1-1, please contact vicci.page@nationalgrideso.com

Winter Contingency Service (coal) – Proving Runs

No further proving runs are planned at present

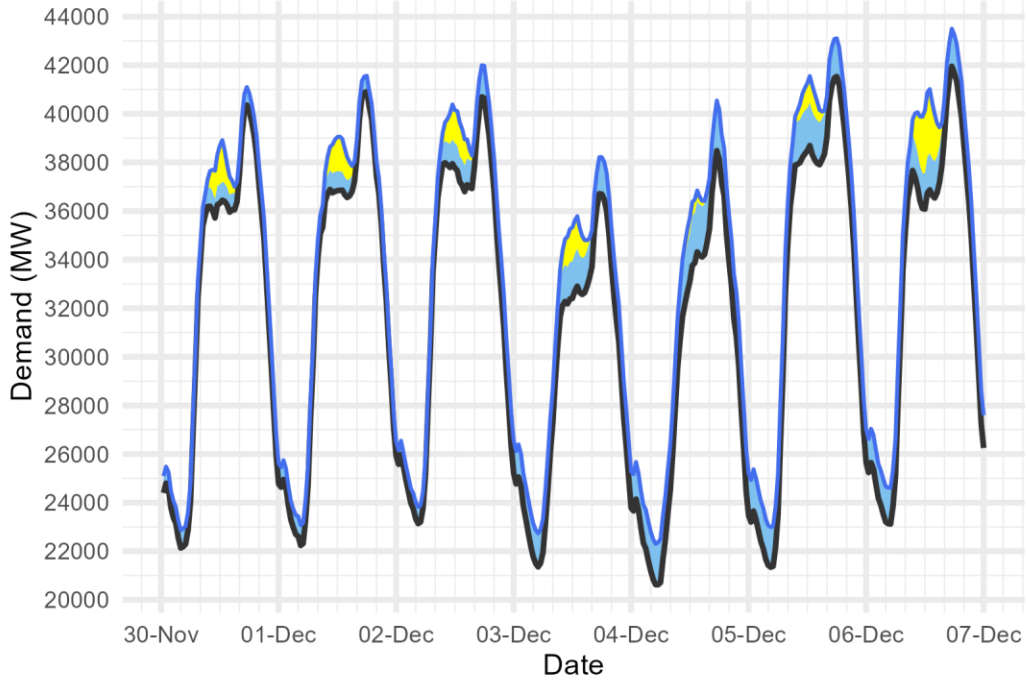
For the avoidance of doubt, where NGENSO instructs any contracted unit, either for initial proving runs or service instructions, across all three contracted sites (EDF, Drax and Uniper) NGENSO will inform the market via the [BMRS](#).

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

ESO National Demand outturn 30 November-06 December 2022



Demand type

- National Demand (ND) transmission connected generation requirement within GB
- ND + est. of PV & wind at Distribution network

Renewable type

- Distributed_Wind
- Distributed_PV

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

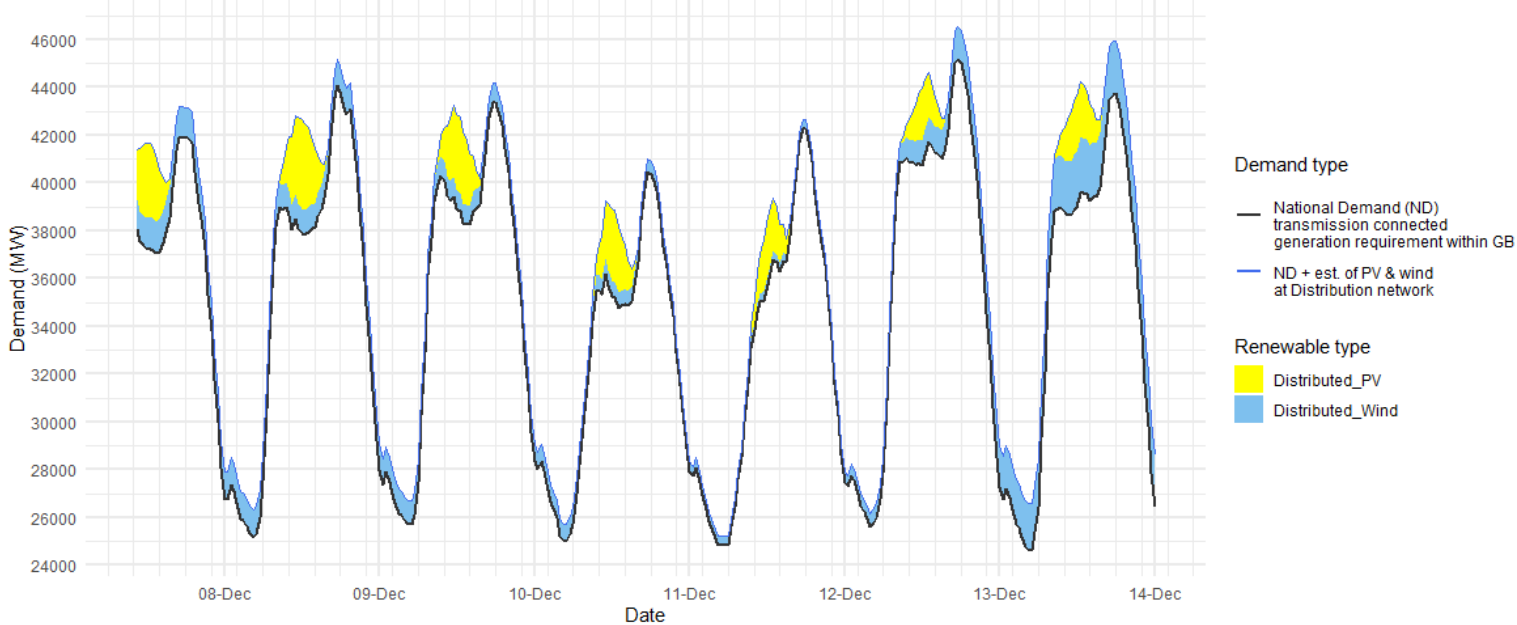
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it **does not include** demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

Date	Forecasting Point	FORECAST (Wed 30 Nov)		OUTTURN			
		National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Triad Avoidance est. (GW)	N. Demand adjusted for TA (GW)	Dist. wind (GW)
30 Nov	Evening Peak	40.6	0.8	40.4	0.0	40.4	0.7
01 Dec	Overnight Min	22.5	1.0	22.2	n/a	n/a	0.8
01 Dec	Evening Peak	41.4	0.8	40.9	0.2	41.1	0.7
02 Dec	Overnight Min	23.4	0.7	23.1	n/a	n/a	0.7
02 Dec	Evening Peak	40.2	1.0	40.7	0.0	40.7	1.3
03 Dec	Overnight Min	21.7	1.1	21.4	n/a	n/a	1.4
03 Dec	Evening Peak	37.2	1.1	36.7	0.0	36.7	1.5
04 Dec	Overnight Min	21.3	1.2	20.6	n/a	n/a	1.7
04 Dec	Evening Peak	38.6	1.4	38.5	0.0	38.5	2.1
05 Dec	Overnight Min	22.4	1.2	21.3	n/a	n/a	1.6
05 Dec	Evening Peak	42.8	1.2	41.5	0.4	41.9	1.6
06 Dec	Overnight Min	23.9	1.1	23.1	n/a	n/a	1.5
06 Dec	Evening Peak	42.9	1.3	42.0	0.2	42.2	1.5

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

ESO Demand forecast for 07-13 December 2022



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

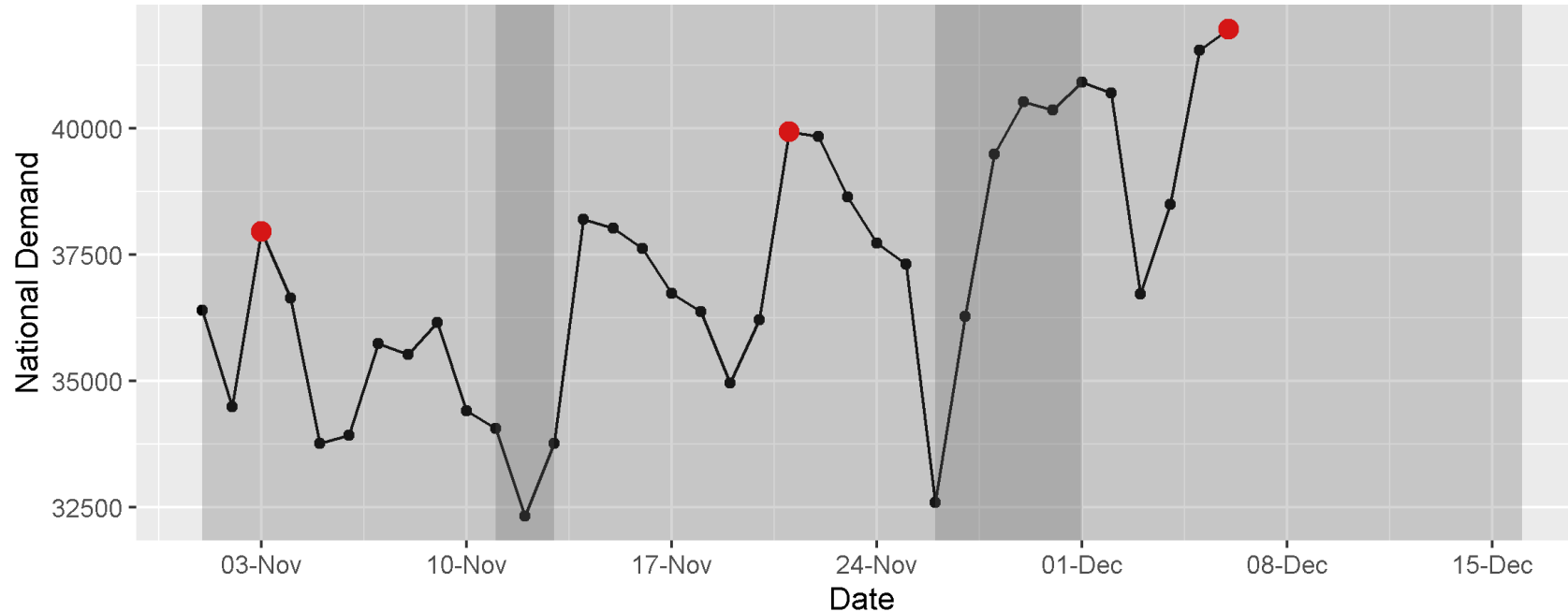
ND values **do not include** export on interconnectors or pumping or station load

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 07 Dec)	
		National Demand (GW)	Dist. wind (GW)
07 Dec 2022	Evening Peak	41.9	1.3
08 Dec 2022	Overnight Min	25.2	1.2
08 Dec 2022	Evening Peak	44.1	1.1
09 Dec 2022	Overnight Min	25.7	1.0
09 Dec 2022	Evening Peak	43.4	0.8
10 Dec 2022	Overnight Min	25.0	0.7
10 Dec 2022	Evening Peak	40.4	0.6
11 Dec 2022	Overnight Min	24.9	0.4
11 Dec 2022	Evening Peak	42.3	0.4
12 Dec 2022	Overnight Min	25.6	0.6
12 Dec 2022	Evening Peak	45.2	1.4
13 Dec 2022	Overnight Min	24.6	2.0
13 Dec 2022	Evening Peak	43.7	2.2

Triad avoidance: indicative triad data based on operational metering

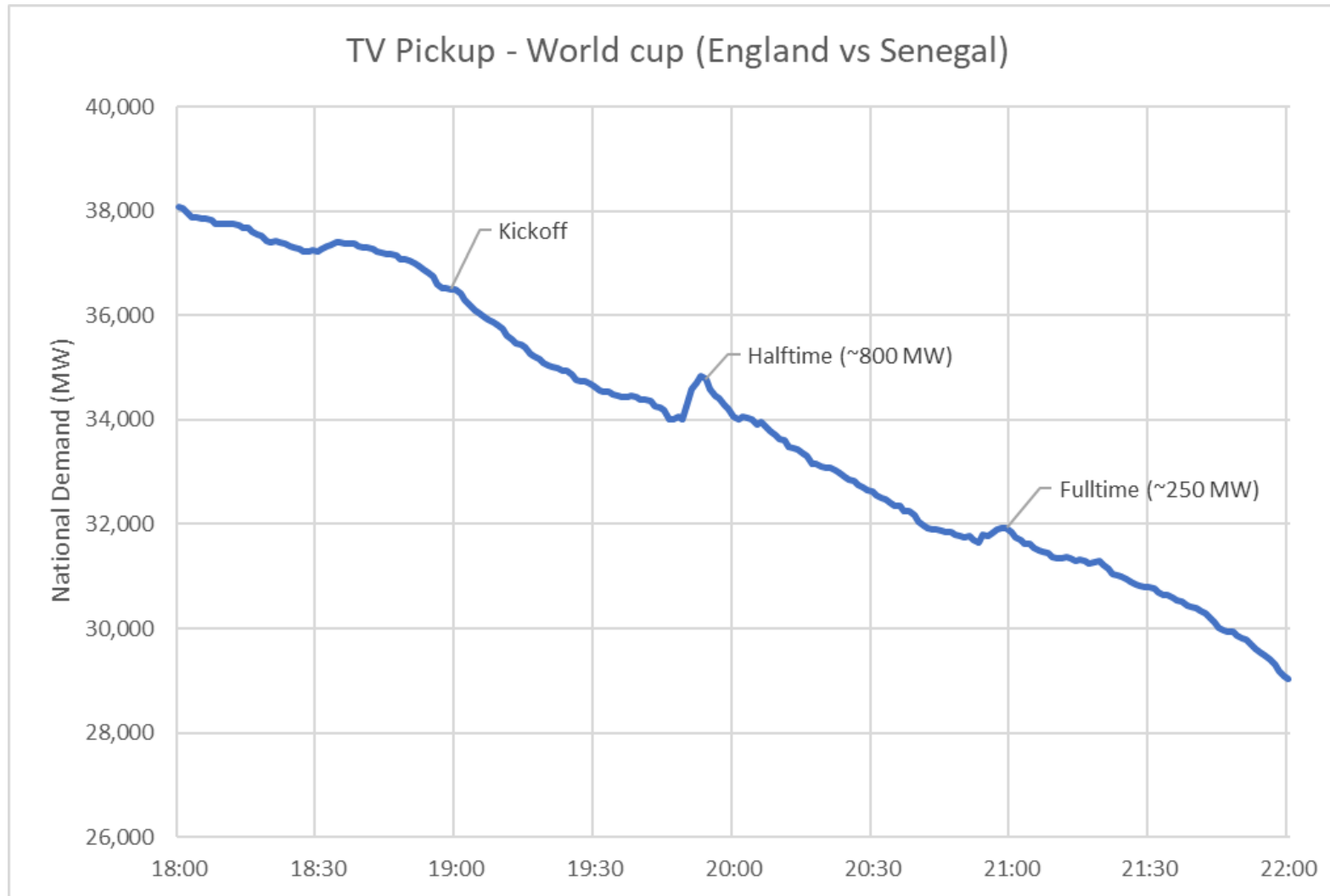


ESO operational metering			
Date	Time (HH ending)	National Demand (MW)	Estimated triad avoidance (HH corresponding with the time of the peak) (MW)
06/12/2022	1730	41956	200
21/11/2022	1730	39932	0
03/11/2022	1800	37957	0

ESO does not include station load.

Indicative triad demand on Elexon's BMRS [website](#) quotes "GB Demand" which is based on the Transmission System Demand definition (it adds 500MW of station load onto the National Demand). Also, it shows time as half hour **beginning**.

TV Pickup: World cup 2022 – Sun 4 Dec



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 7 December 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 expected to be tighter this week, particularly for the next few days. This is based on our current assessment and is subject to change.

Our control room have a range of operational tools available to manage this. These actions also include our enhanced actions. We are continuing to monitor the outlook and any decisions on needing to use any of our tools will be taken in the appropriate operational timescales. Market participants will be informed by notifications via the established channels.

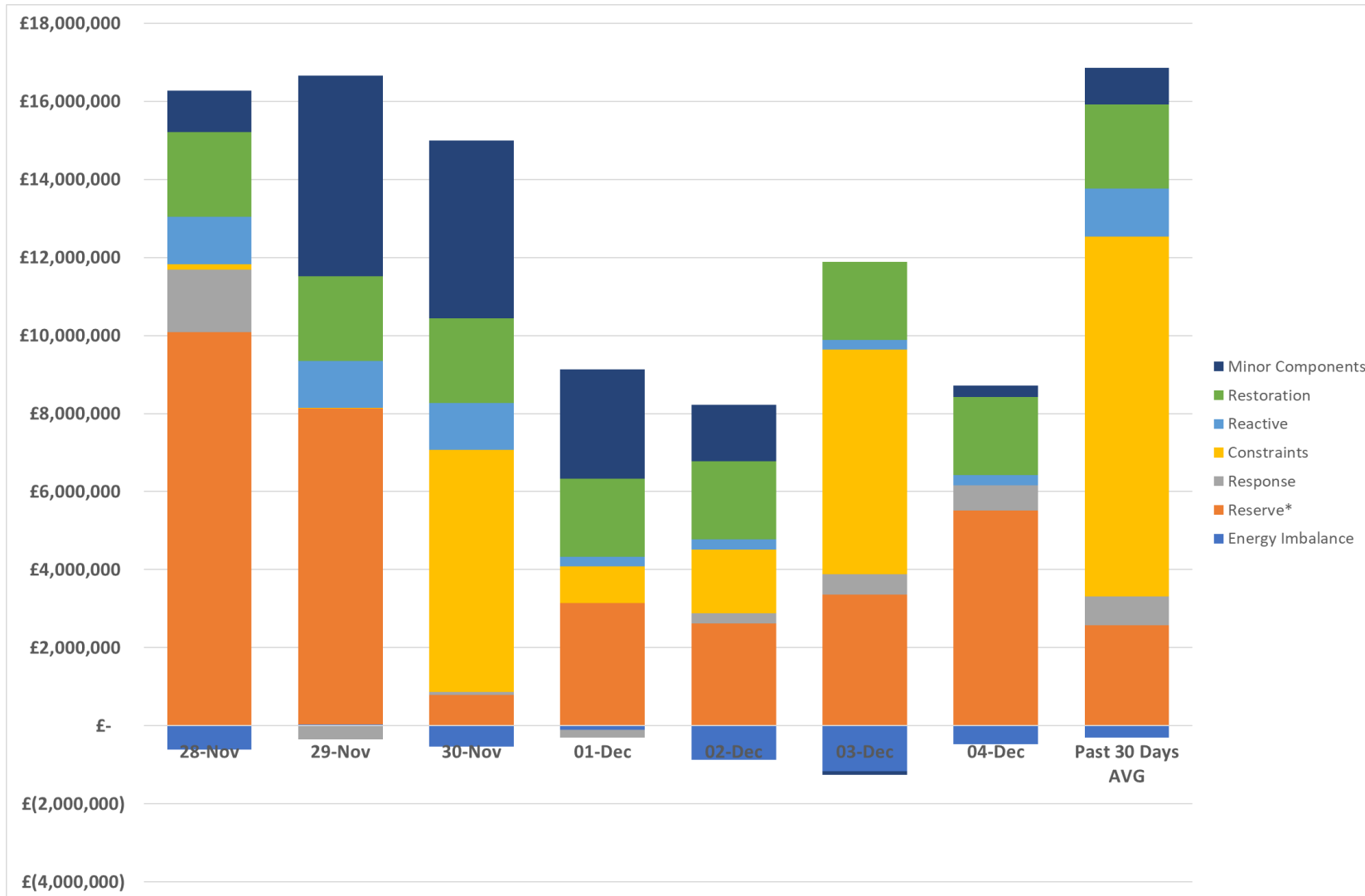
Day	Date	Notified Generation (MW)	Wind (MW)	IC Flows* (MW)	Peak demand (MW)	Indicative surplus (MW)
Thu	08/12/2022	42062	4490	4020	44020	1870
Fri	09/12/2022	42388	2930	4020	43700	930
Sat	10/12/2022	41680	1780	4020	41290	1680
Sun	11/12/2022	42505	1110	4020	42520	600
Mon	12/12/2022	42595	4930	4020	44500	2340
Tue	13/12/2022	43069	11510	4020	44100	9520
Wed	14/12/2022	43195	10130	4020	44100	8250

*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 \(nationalgrideso.com\)](https://nationalgrideso.com))

Adequate when Indicative Surplus \geq 1000 MW

ESO Actions | Category costs breakdown for the last week

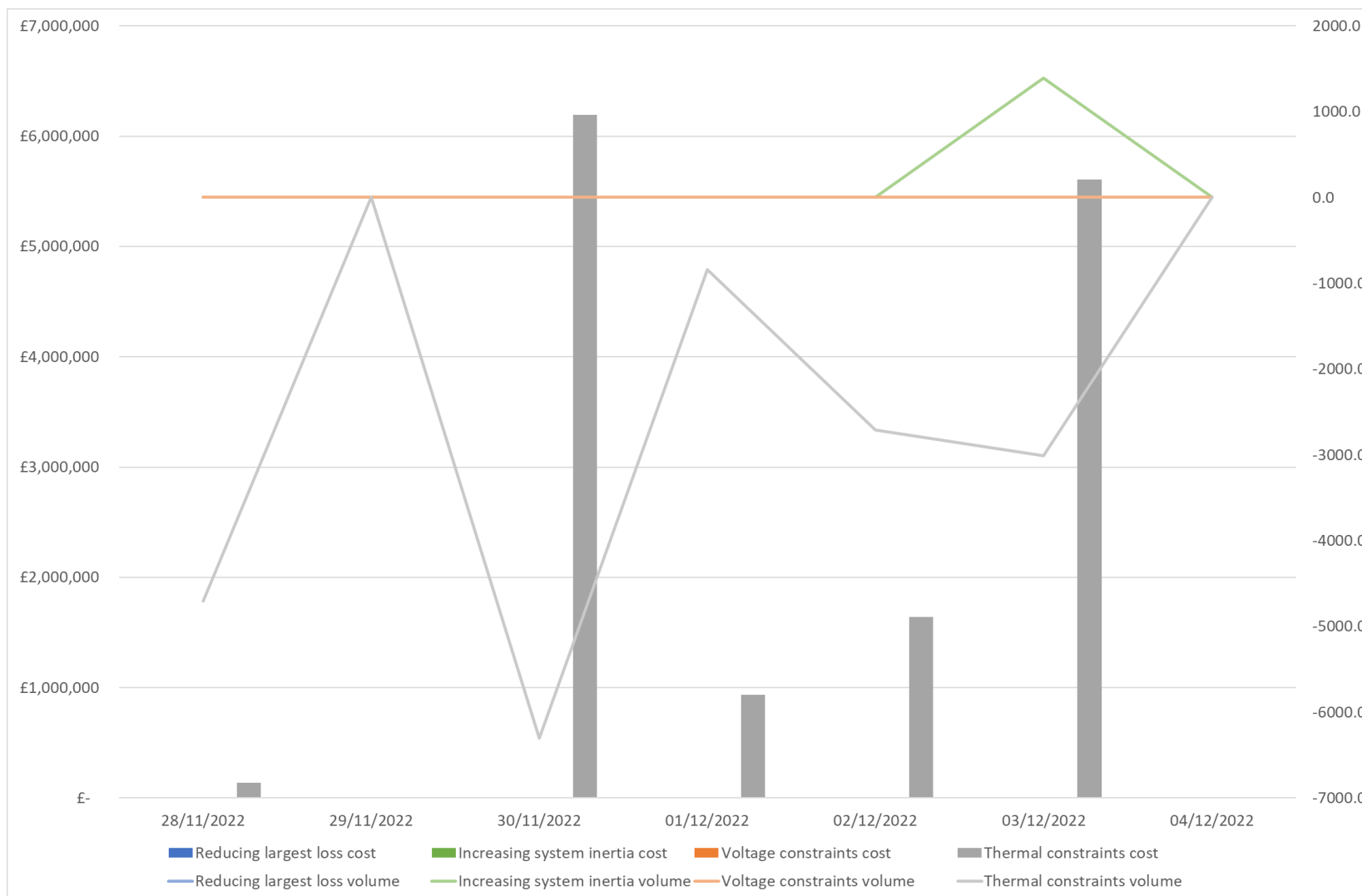


Date	Total (£m)
28/11/2022	15.7
29/11/2022	16.3
30/11/2022	14.5
01/12/2022	8.8
02/12/2022	7.4
03/12/2022	10.6
04/12/2022	8.2
Weekly Total	81.5

Reserve and Constraints costs 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



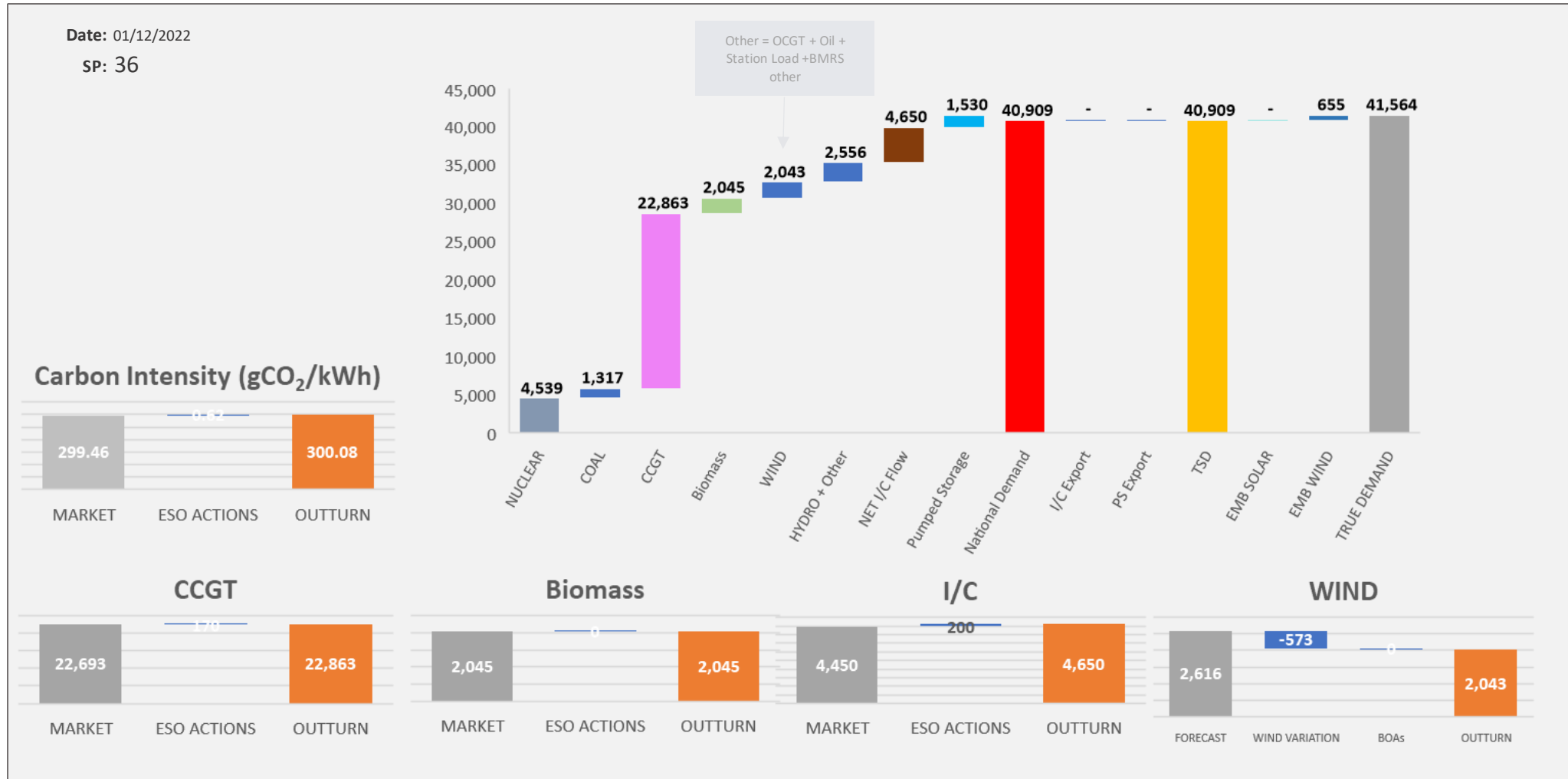
Thermal – network congestion
 Actions required to manage Thermal Constraints on Wednesday and Saturday.

Voltage
 No intervention was required for voltage control.

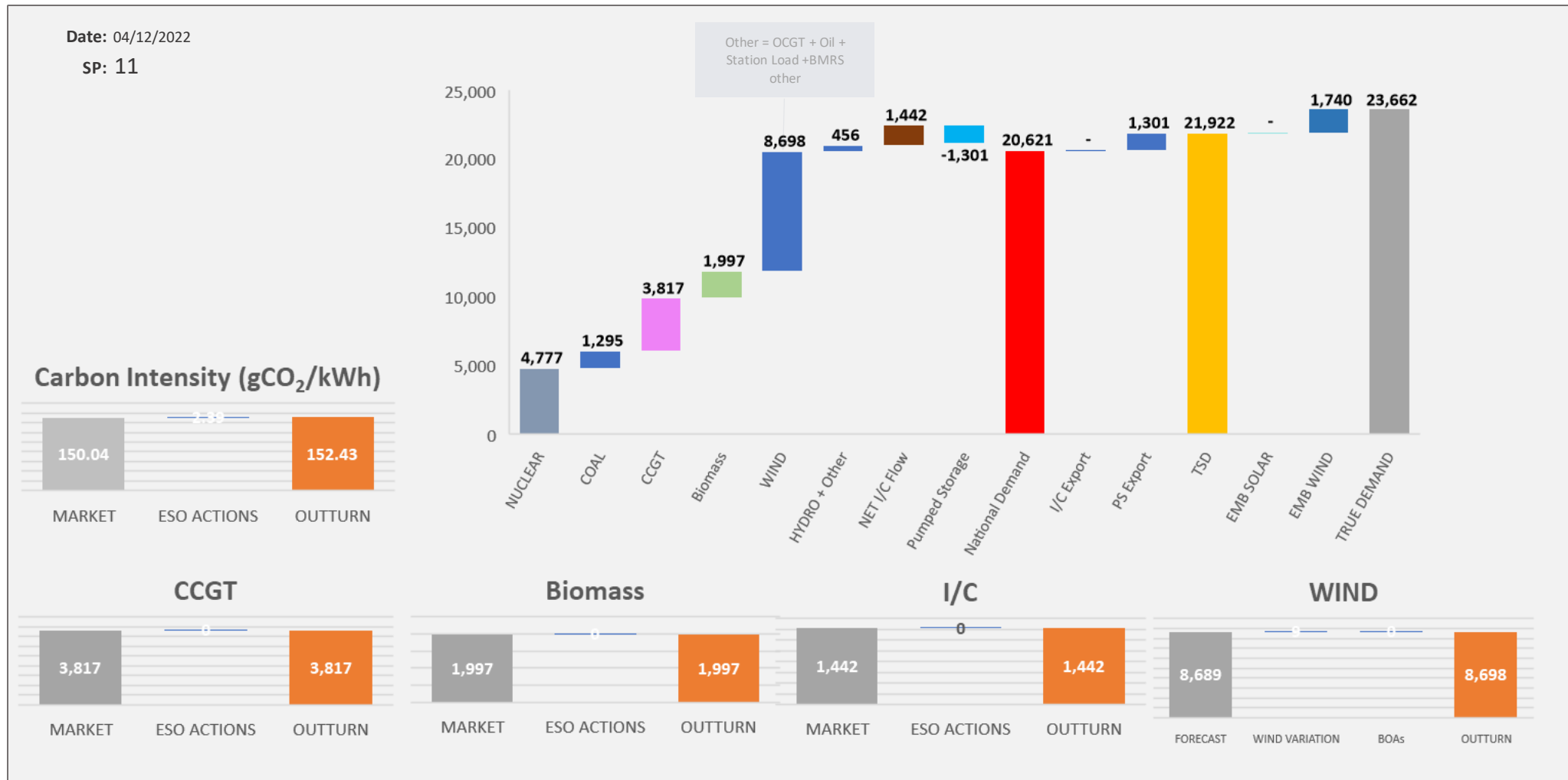
Managing largest loss for RoCoF
 No intervention was required to manage largest loss.

Increasing inertia
 Intervention required to manage system inertia on Sunday.

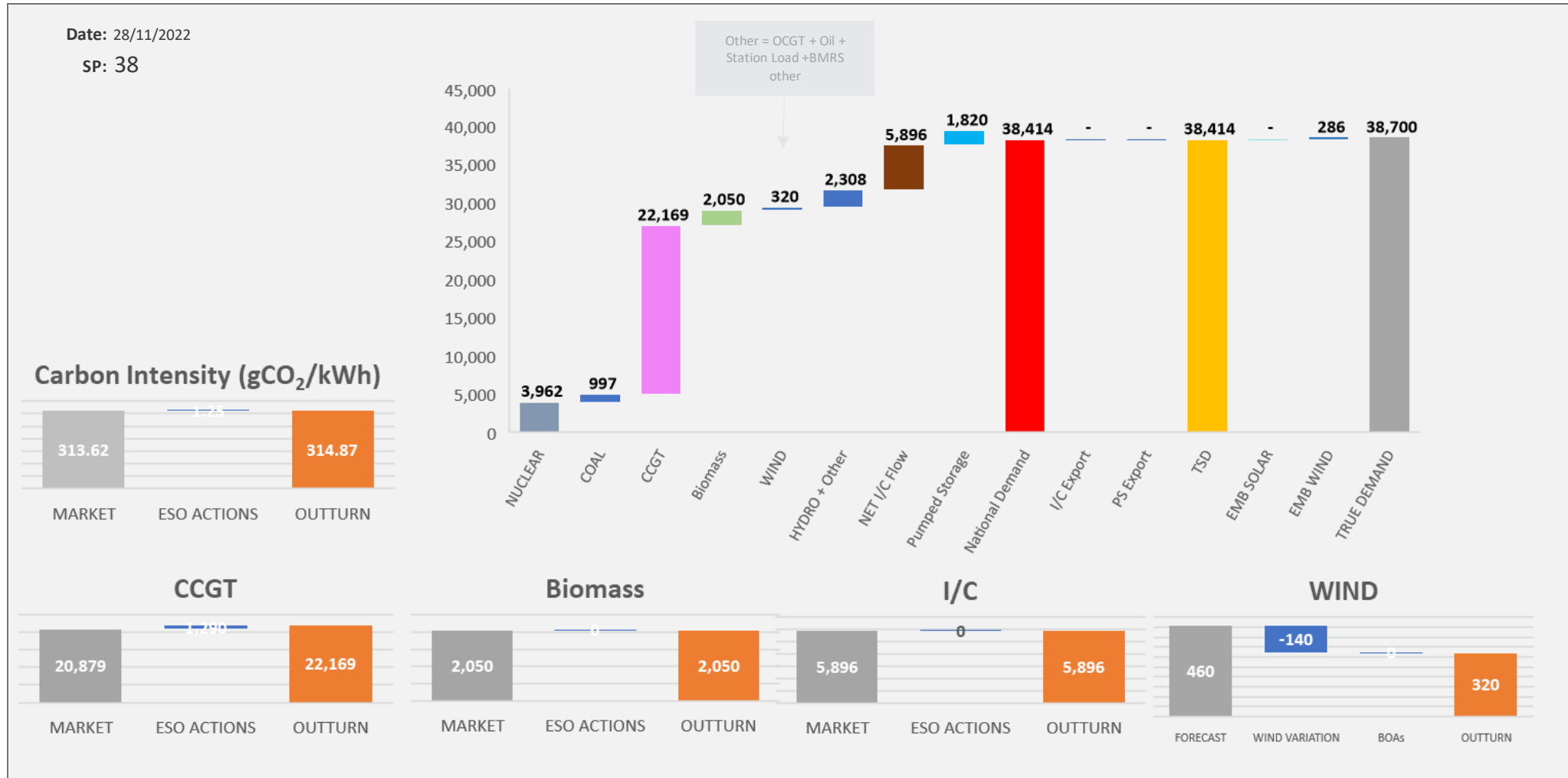
ESO Actions | Thursday 1 December – Peak Demand – SP spend ~£101k



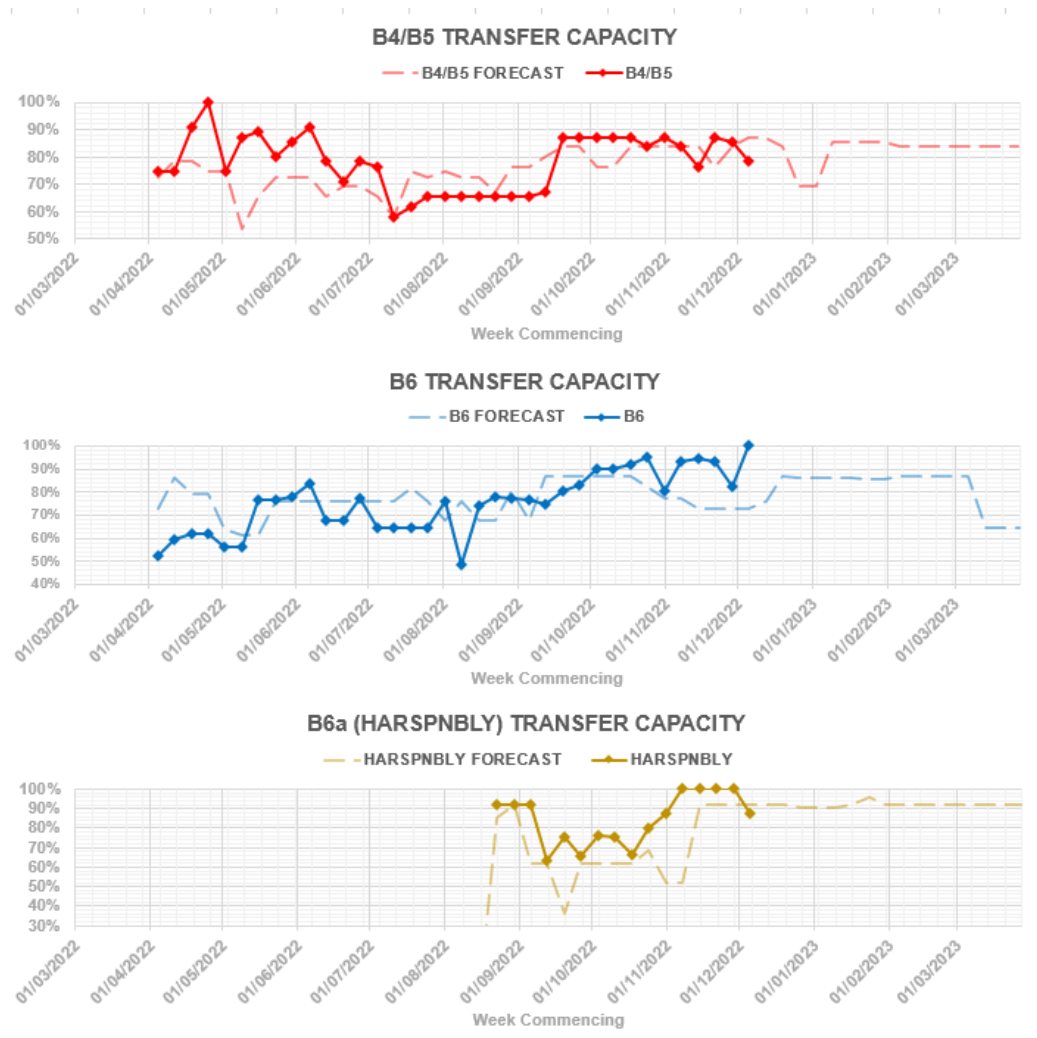
ESO Actions | Sunday 4 December – Minimum Demand – SP Spend ~£67k



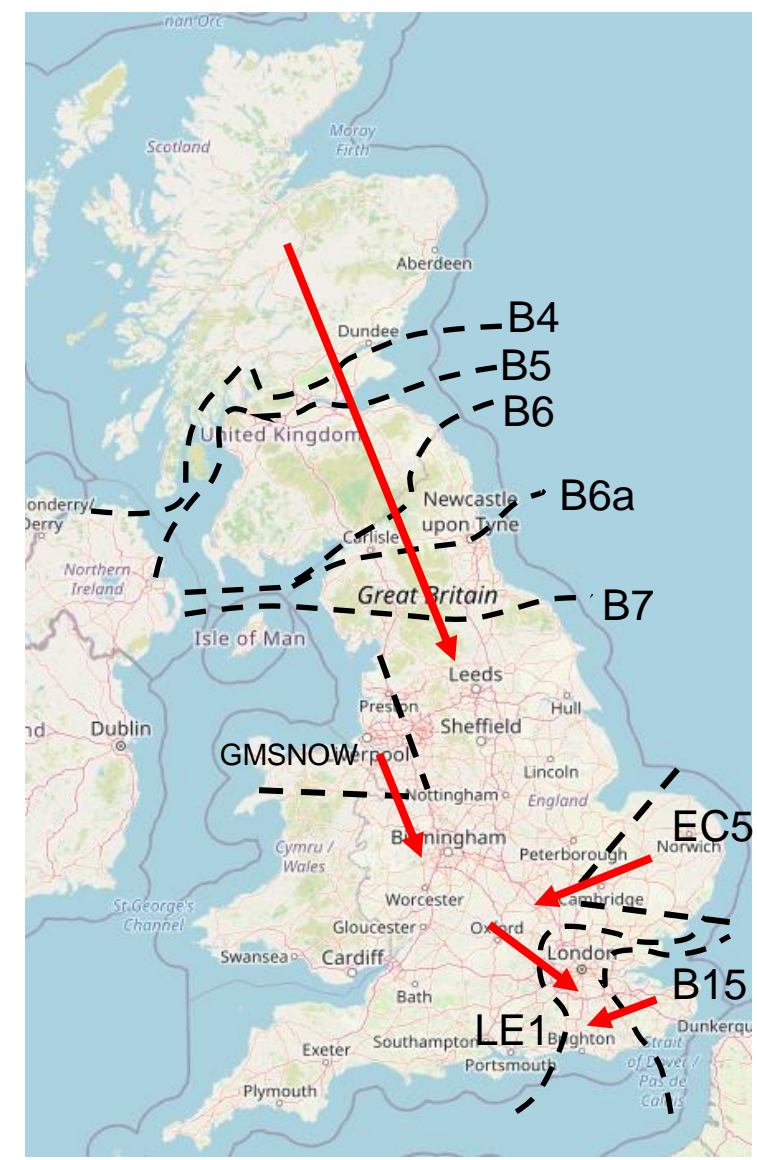
ESO Actions | Monday 28 November – Highest SP Spend ~£689k



Transparency | Network Congestion

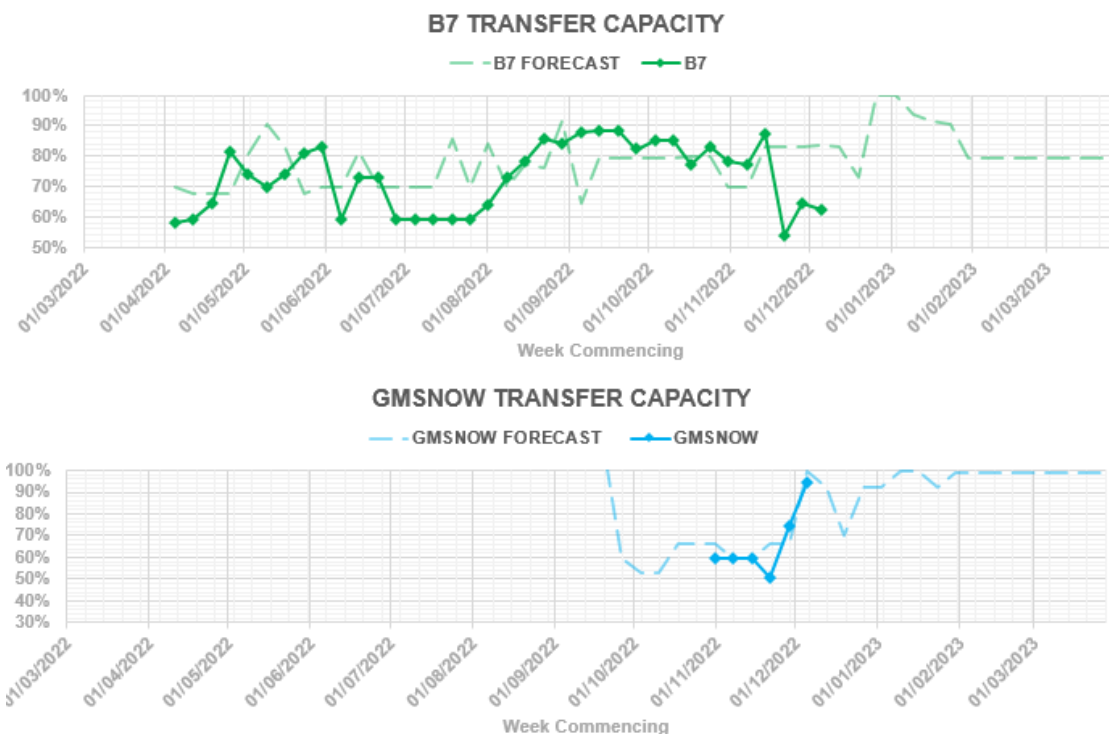


Boundary	Max. Capacity (MW)
B4/B5	2750
B6	6200
B6a	6300
B7	9300
GMSNOW	4550
EC5	5000
LE1	8400
B15	7500

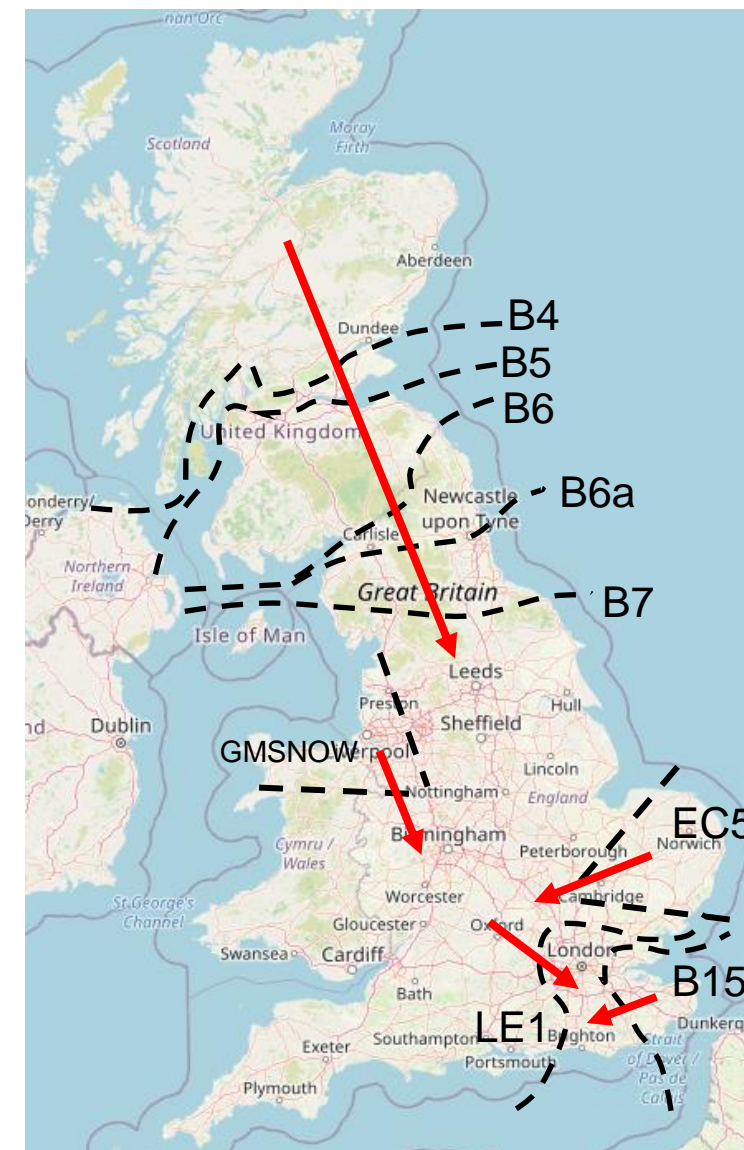


Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

Transparency | Network Congestion



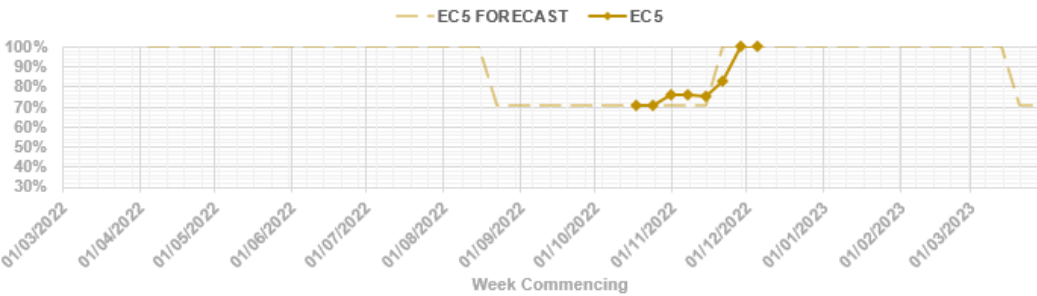
Boundary	Max. Capacity (MW)
B4/B5	2750
B6	6200
B6a	6300
B7	9300
GMSNOW	4550
EC5	5000
LE1	8400
B15	7500



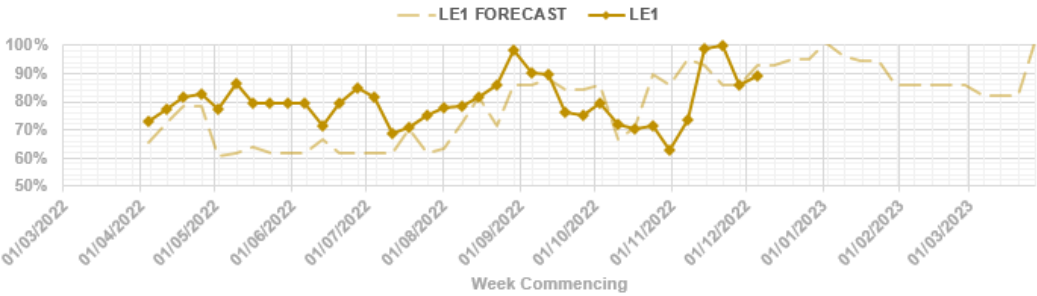
Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

Transparency | Network Congestion

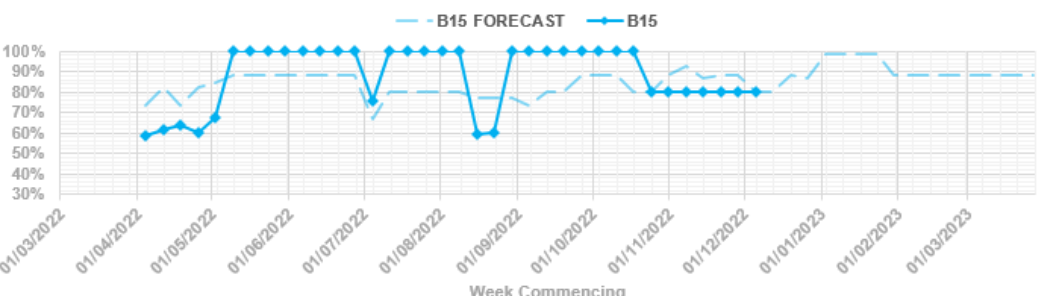
EC5 TRANSFER CAPACITY



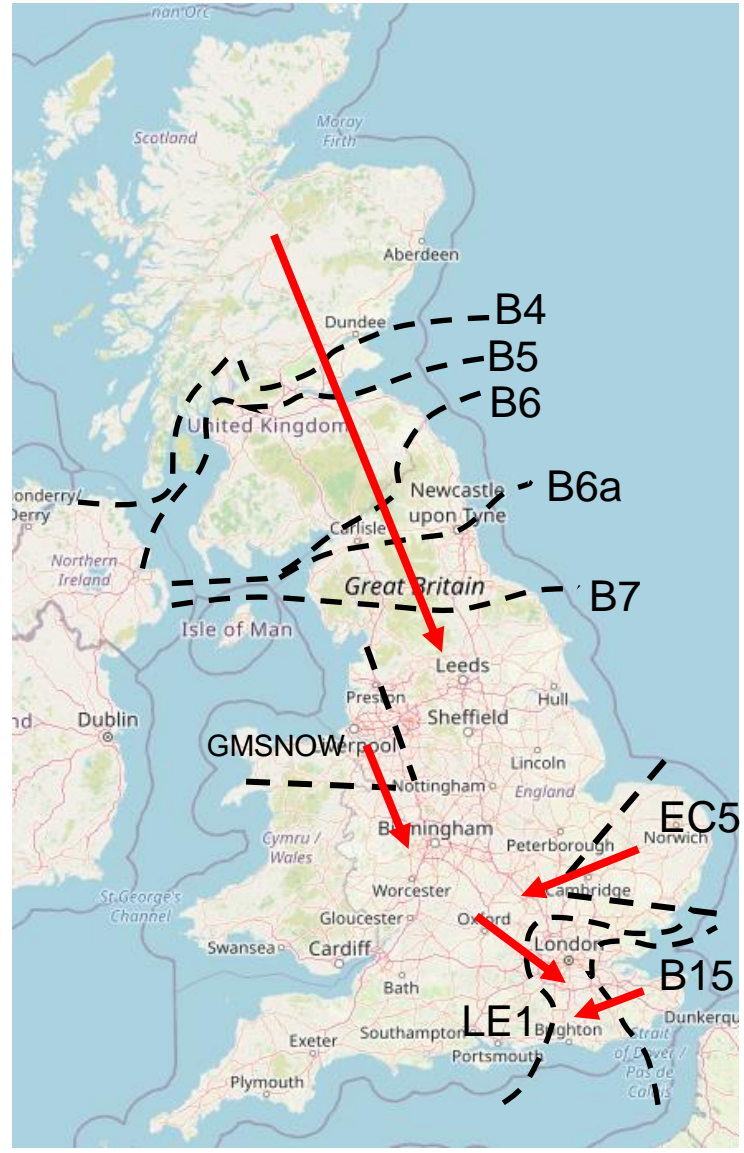
LE1 TRANSFER CAPACITY



B15 TRANSFER CAPACITY



Boundary	Max. Capacity (MW)
B4/B5	2750
B6	6200
B6a	6300
B7	9300
GMSNOW	4550
EC5	5000
LE1	8400
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>



Dispatch Transparency Event Update

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

Twenty nine industry colleagues joined us in Wokingham for a transparent discussion about how we dispatch and "Skip Rates".

What we talked about:

- How the ESO currently dispatch – an interactive session beginning with the actual and forecast demand for the previous and next day and including discussion of a number of the cumulative dispatch challenges illustrated using a whiteboard.
- The future of dispatch – overview of the Open Balancing Platform roadmap highlighting how progress will improve transparency and support the control room to manage the dispatch challenges
- Current ESO Dispatch Transparency methodology – explaining the reasons for accepting bids or offers which appear to be out of merit; or not accepting those which appear to be in merit. Included discussion of risk management actions

Attendees also had the opportunity to view the control room and engage in a Q & A session

Dispatch Transparency - what attendees said they wanted from the event:

- Further understanding on the decision making process
- How non immediate transparent factors and plant capabilities are factored in to optimal decisions
- What plant capabilities are most valuable to ESO
- Time horizons ESO work to
- A better understanding of the challenges faced by the ESO Control Room and how storage assets can help with that
- Why skip rates are required? i.e. main drivers
- A better understanding of actions taken and why things are taken out of merit
- A more in depth explanation on why batteries sit in the balancing mechanism and are skipped for more expensive units
- Plans and timelines for improved multi-dispatch systems
- Integrate SoC for BESS in smarter way than 15m MEL submission
- To understand the various types of actions and probability of being skipped
- Understand skip rates, what they are and why and understand impact on market and investment

Dispatch Transparency - what attendees said after the event

- good to have a high level overview of plans but would like more detail on systems

- we need to be on the same page as ESO and other parties

- increased understanding – good explanation and examples. Good questions and concerns from other participants

- Good to see what competitors are thinking on the subject too

- informative, really useful Q&A session and very transparent

- a first step to understand the rationale behind prices and dispatch

- good length of session. Subject matter experts. Some colleagues couldn't attend as in person only

Dispatch Transparency - what happens next?

- We will publish material and Q&A from the event on the OTF page on our website before next week's OTF (14 December) and provide a link
- We will send attendees a survey request asking for their feedback on the event and use this to consider how to improve the event and deliver it online. We will tell the OTF when this event is set up.
- We will provide future opportunities to comment on the ESO approach to Dispatch Transparency and suggestions for the changes you would like to see. We need to work on the details but we will tell the OTF when we have set this up.
- We will use your responses to help inform our work on the continuing efforts to increase transparency and understanding of our dispatch decisions.

Previous weeks questions

Q: ESO have over procured across all EFA blocks for DCH everyday for the last 6 days. Why is this the case? And how can the market reliably trust forecasts when making decisions if actual procurement is consistently different?

A: Thanks for the comment and question. We noticed there have been some discrepancies between the DC 4-day forecasts and the day-ahead auction requirements, we are running a deep dive to understand the root causes within the forecasting model and make sure the processes aligned across various timescales. We shall communicate soon on this topic on OTF.

However, it is worth noticing that, there would always be differences between the forecasts and the actual procurement setting, due to the system volatilities caused by quickly changing demands, generation availabilities etc.

Previous weeks questions

Q: How did your wind forecast change by 400MW so close to delivery on the 28th? I see the 9am NG forecast as 400MW for the peak, which is in line with outturn? This suggests that the forecast must have been close to 0MW before (which wasn't published)?

To clarify: the response below refers to November 22 - the date being discussed in last week's OTF presentation where the CMN was cancelled - not Nov 28. This was based on the MODIS snapshots from the latest wind forecasts received from the BM system.

Not all these forecasts are published externally – bmreports is only updated a certain number of times each day. The forecasts used were from 14:30 and 15:00, and the two MODIS values were 2494MW and 2874MW respectively.

It is possible for wind forecasts to change by large amounts – this can be for many reasons like gusty weather systems, updates to the timing a weather system hits, or just general wind variability.

A: Demand outturn on Monday 28th was well below all forecasts. Are there options available to the ESO to manage demand outside of DFS and the Balancing Mechanism?

There was sizable triad avoidance activity on this day therefore national demand outturn was lower. Estimated triad avoidance on Mon 28th Nov: SP34: 500MW, SP35: 800MW, SP36: 1000MW, SP37: 500MW, SP38: 400MW and SP39: 100MW.

Once we add the estimated triad avoidance to the national demand outturn, the peak demand on this day was 40.3GW which is in line with national demand outturn on other days at the end of November 2022. There are no other mechanisms outside of the BM and DFS for ESO to manage demand.

DC Long-term forecasting

Q: When will you publish the 2023 DC requirement? Are you going to publish them once a year going forward?

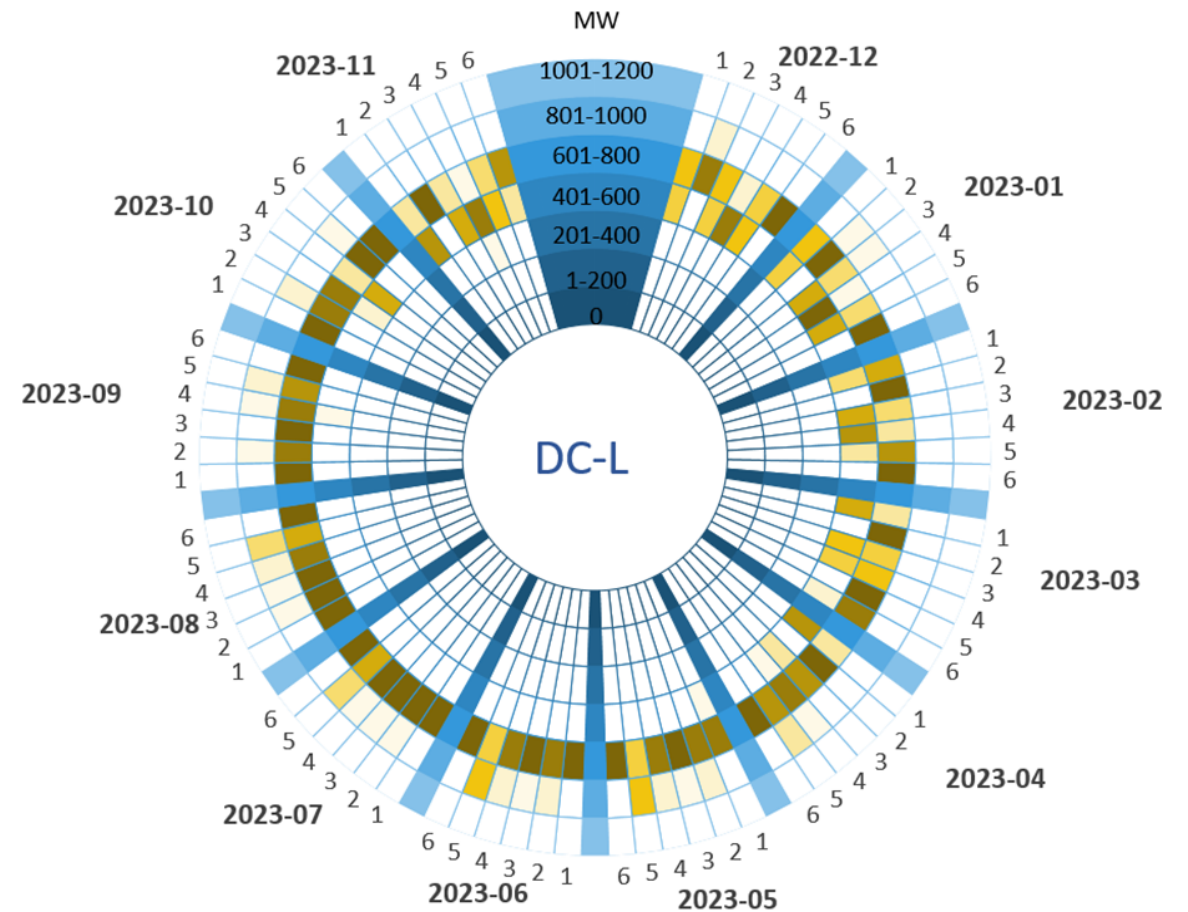
From this month we will be utilising a dynamic DC requirement forecast. This will be updated each month in the published Market Information Report, providing a more accurate outlook for our requirement.

The detailed input parameters for the new forecast are

- 1) System conditions on demand and inertia
- 2) Loss risks aligned with the current FRCR policy
- 3) LOM risks aligned with ALoMCP outcome
- 4) Pre-fault response holdings aligned with DM/DR/FFR development progress

[Link to MIR which can be found in the ESO data portal...](#)

<https://data.nationalgrideso.com/ancillary-services/firm-frequency-response-market-information>



Example of DCL chart in November's report

[Link to Market Information Report](#)

DR/DM volume cap

Q: Can you provide a clear date for when the DM/DR volume cap of 100 MW will be raised? We'd like to know it in advance so we can get ready.

The intention is to amend this in the near future as per Stage 2 outlined in the ESO Frequency Response Requirement Update back in February.

With Stage 1 being the launch of the DR/DM auctions, stage 2 refers to the an increase in the cap of procured volume in these markets and reduce the volumes of PSH (primary/secondary/high) procured through the monthly FFR tender.

We are currently working through and are close to completing the assurance checks and system changes needed and hope to share more in the coming months.

Link to ESO Frequency Response Requirement Update (Feb) which can be found in the ESO data portal...

https://data.nationalgrideso.com/ancillary-services/firm-frequency-response-market-information/r/eso_frequency_response_requirements_update_%E2%80%93_february_2022

Link to ESO Frequency Response Requirement Update

Stability Pathfinder Phase 3

On Wednesday 23rd November ESO announced the results of Stability Pathfinder Phase 3

Follow Up

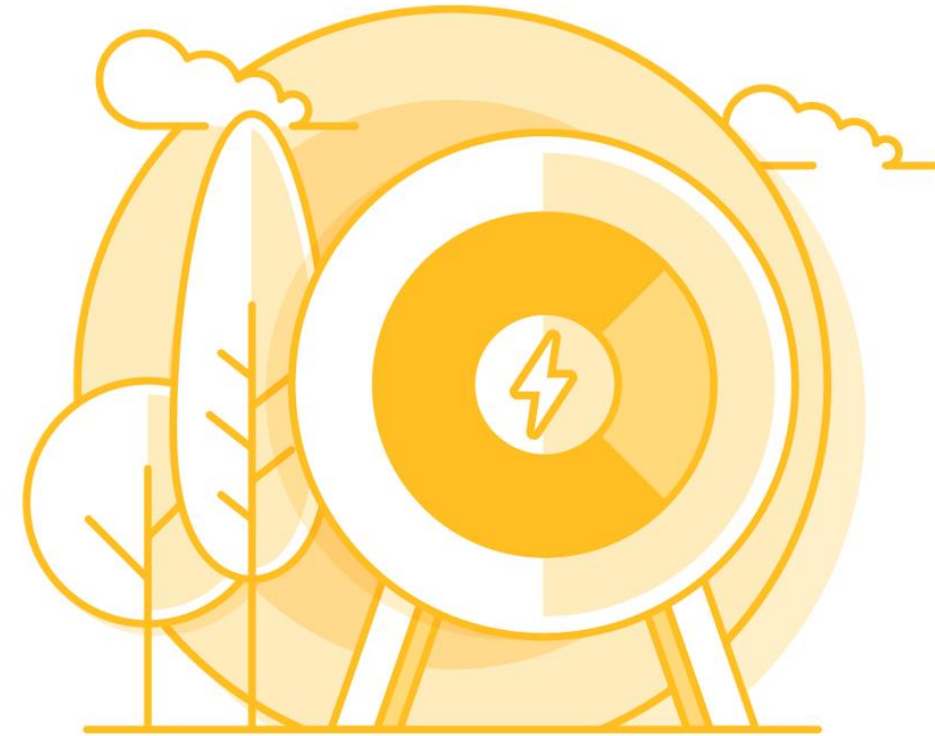
Please can the ESO explain their assumptions behind the published benefit of £14.9bn between 2025 and 2035 for the recent Stability Pathfinder 3 contracts?

The figure is based on the impact a lack of these stability services would have on the ESO's ability to operate the system securely and cost effectively.

In the absence of this Pathfinder contracts (£1.3bn), costly actions would need to be taken to maintain a stable system, which would include buying on generators in the balancing mechanism and curtailing large amounts of generation in some areas.

This alternative cost is calculated by modelling these actions across the contract period using expected hourly stability requirements and the expected contributions and availabilities of generation to these requirements, based on data from the Future Energy Scenarios. The need for stability services increases substantially from 2025.

The £14.9b figure is then calculated by the difference in the cost of these alternative actions to the cost of the Pathfinder solution (£1.3bn), taking the 'best case' (lowest) alternative cost from four FES scenarios.



Advance questions

Q: Stability Phase 3 - Was a penalty value applied in the optimisation to SCL not procured for the largest-loss requirement? If so, what was the number/curve?

A: By 'penalty value' we understand this to mean the cost of alternative actions to procure SCL.

In the economic assessment, figures for alternative actions in each region were used to highlight where the additional cost to obtain the final MVA of SCL with an extra pathfinder contract could be high. Specific edge cases were then tested to compare the options of buying slightly less than the requirement versus spending extra to meet/exceed the requirement. These costs informed the decision over whether to meet the remaining amount of SCL for the largest loss requirement through additional pathfinder contracts or alternative actions

These costs were specific to each region, as was the amount of shortfall investigated, however they came from the same model as was used to calculate an alternative cost for the savings figure we have shared. This alternative cost is calculated by modelling these actions across the contract period using expected hourly stability requirements and the expected contributions and availabilities of generation to these requirements, based on data from the Future Energy Scenarios.

Q: Stability Phase 3 - How can we tell which assets (both successful and unsuccessful) had their capacity considered collectively for the largest-loss calculations? If this is in an unpublished data set, please could the data be released?

A: For background context, the assessment was based on requiring the regional needs to be met through two or more bays in a region such that if one substation bay was unavailable the requirement could be met through solutions connected to the remaining substation bay(s) in a region.

Therefore, whether capacity is considered collectively is based on point of connection and connection design. The 'Summary' tab in the Stability Phase 3 results spreadsheet shows how this was applied for the procured options, where you can see the formula in the calculations in each region.

Questions outstanding we are still working on

Q: Shouldn't an instruction under for voltage control be signalled under P305?

Q: Re the question about access to minute-by-minute data is there a way download historic minute by minute data? We have a use case where ideally; we would like even high time resolution, down to second-by-second. This related to load steps at settlement period boundaries.

Q: SONAR notifications not working. No messages issued when Ratcliffe unit warmed on 23rd- 25th November. Doesn't give confidence it'll work when / if you actually warm winter contingency coal

Q: On 16th November settlement period 35, 3 assets were bid at -£500, for energy. Why? There is nothing on dispatch transparency. Ignoring the positive prices available to NG during the time, bidding a windfarm would have been cheaper. Bids taken significantly out of merit over the peak appears BAU.

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

