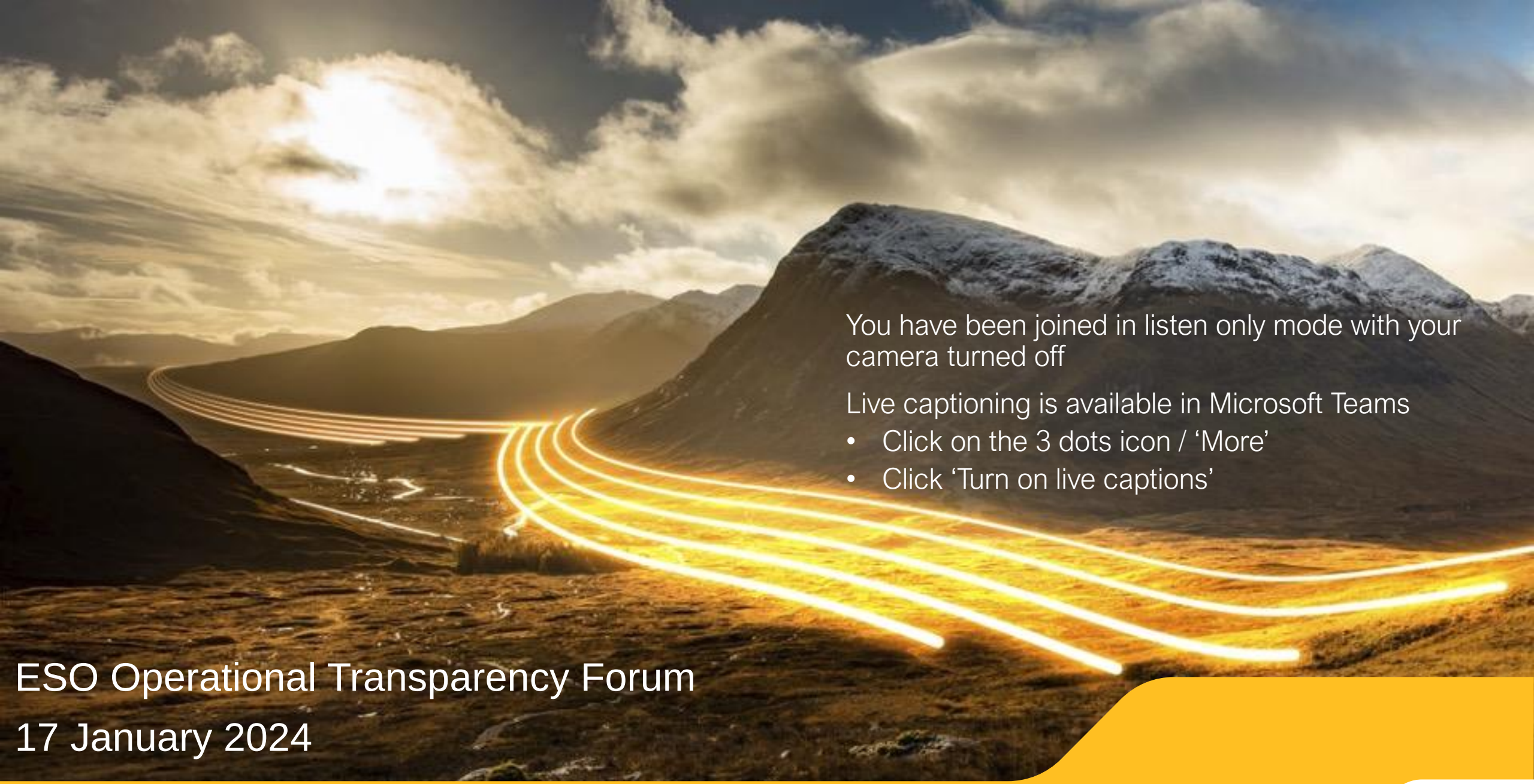


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

17 January 2024

ESO

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.
- **Please provide your name or organisation**. This is an operational forum for industry participants therefore questions from unidentified parties will not be answered live. If you have reasons to remain anonymous to the wider forum please use the advance question or email options given on the slide.
- **Questions will be answered in the upvoted order whenever possible**. We will take questions from further down the list when: the answer is not ready; we need to take the question away or the topic is outside of the scope of the OTF.
- **Sli.do will remain open until 12:00**, even when the call closes earlier, to provide the maximum opportunity for you to ask questions.
- **All questions will be recorded and published.** Questions which are not answered on the day will be included, with answers, in the slide pack for the next OTF.
- **Ask questions in advance** (before 12:00 on Monday) at: https://forms.office.com/r/k0AEfKnai3
- **Ask questions anytime** whether for inclusion in the forum or individual response at: box.NC.customer@nationalgrideso.com

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

Future deep dive / focus topics

Today

OTF Survey Results

Overview of frequency event on 22nd December

Future

DFS Update – 24th January

Managing Storm Conditions – date tbc

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

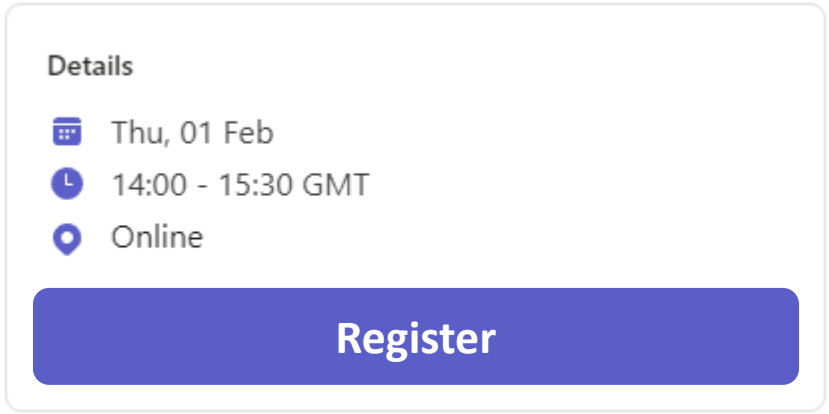
Reserve Reform Phase 1 Workshop

Please join us for the Phase 1 Reserve Reform industry workshop that we are organising on the **1st February 2024** from **14:00-15:30**.

This will be a focused interactive session specifically on **Quick Reserve Phase 1** (BM) where we will walk through the key technical and procurement requirements of the service design with an opportunity for providers to give specific feedback and input before we finalise our design.

We will share material for the session by publishing on our website closer to the date.

Please use the link to register for the workshop or click **Register** below:



Your opportunity to shape the FSO's future regulatory framework

- As we become a public corporation, the mechanisms Ofgem currently uses to hold us accountable, drive our performance and assess our cost efficiency will change.
- Given the substantial changes to the type of organisation we will be, there is a need to undertake a comprehensive review for our future regulatory framework - reflecting ownership structure, not for profit status and new roles.
- In December 2023, Ofgem launched a consultation on two areas:
  - **The FSO's financial framework for Day 1** – to allow the FSO to fully focus resources on delivering longer term consumer benefits, rather than profit
  - **Proposed changes to our future regulatory framework** – to make sure that existing licence requirements are compatible with new roles and legal duties and remove and replace any redundant financial elements
- To prioritise the delivery of the most critical aspects of the regulatory framework for Day 1 and allow time for stakeholder input on longer term changes, Ofgem is proposing three phases for these changes (from Day 1 July 2024, April 2025 and April 2026 onwards).
- This consultation is open until 2 February and Ofgem is keen to hear thoughts from a wide range of stakeholders.

- **Contact us at box.ESO.RIIO2@natioanalgrideso.com**
- if you'd like to discuss any areas of the consultation or our thoughts on the future regulatory framework.

OTF Survey Results

75% want OTF to be held every week

Slide access: 58% before & 85% after event

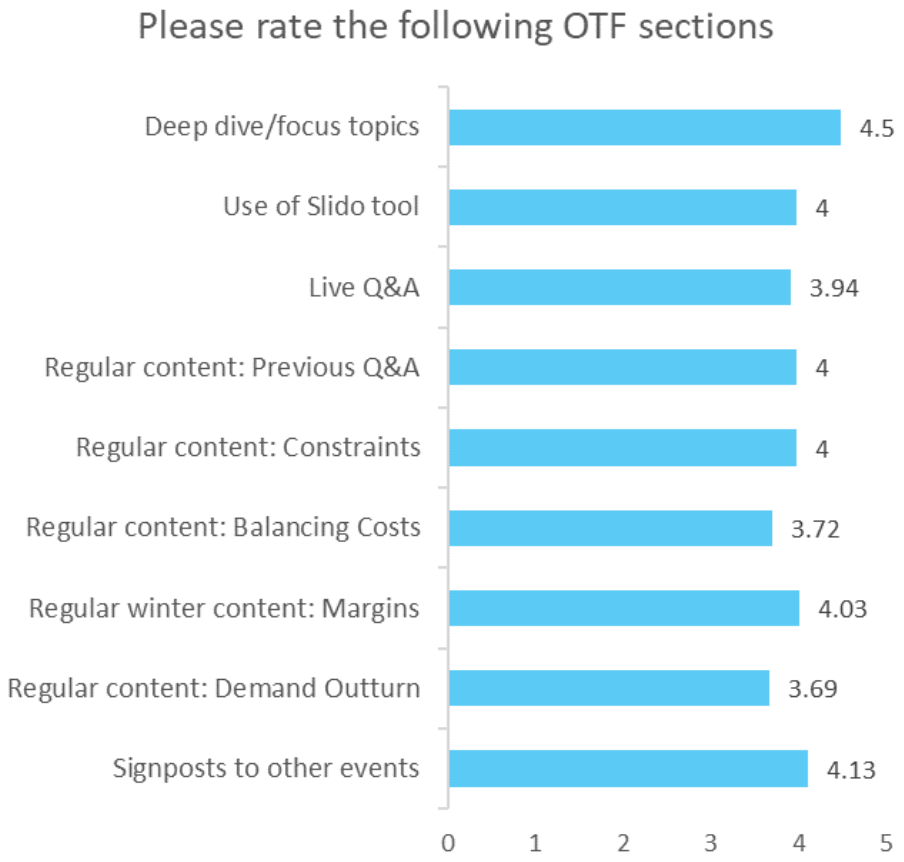
88% want OTF to be held virtually

External participants: 40 responses

86% ‘Always’ or ‘Mostly’ attend the live OTF webinar

75% have worked in the industry for more than 5 years

76% attend the OTF ‘Every week’ or ‘Most weeks’



OTF Survey Results – Next Steps

People have included very detailed comments in their responses, particularly on the different sections and suggestions for future deep dive topics. We will feed this back to the specific ESO teams responsible for each section.

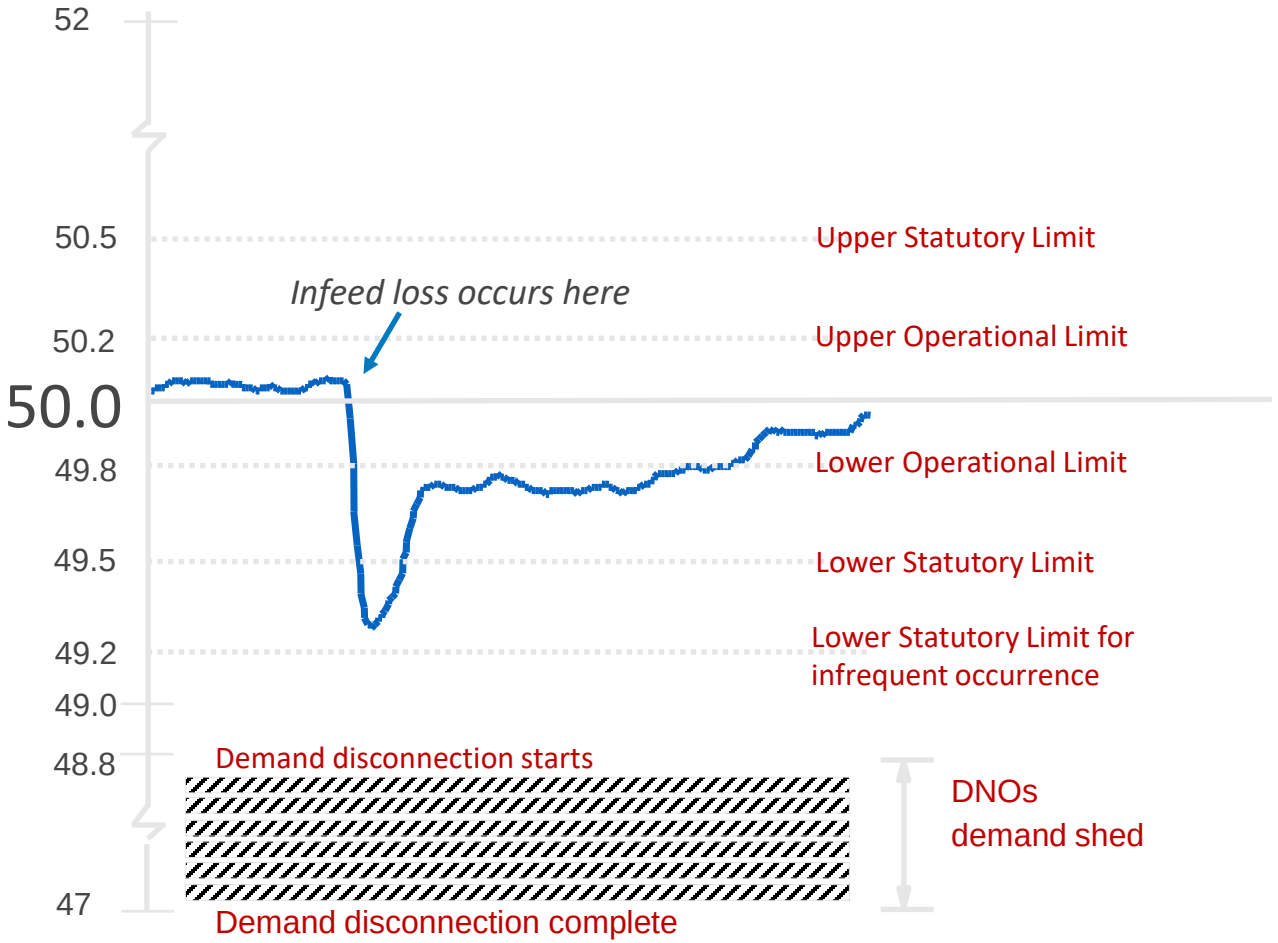
We will review all the comments and provide an update to a future OTF of ‘you said, we will do, we considered’.

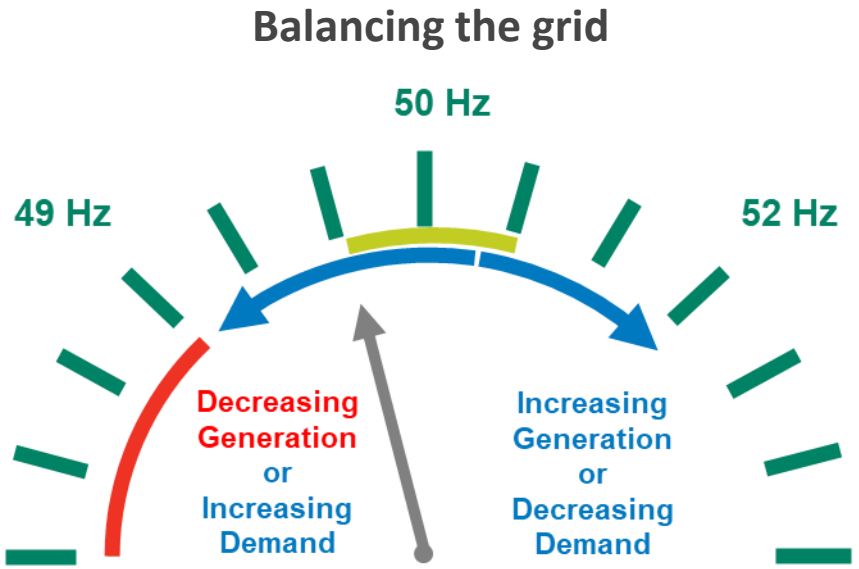
16 people said they were happy to be contacted so we may reach out to those individuals about their comments.

Low Frequency Event timeline for 22nd December 2023

ESO

Frequency behaviour following a major instantaneous infeed loss





More details about Frequency Control please refer to our OTF Frequency Deep Dive Session on 3 May 2023

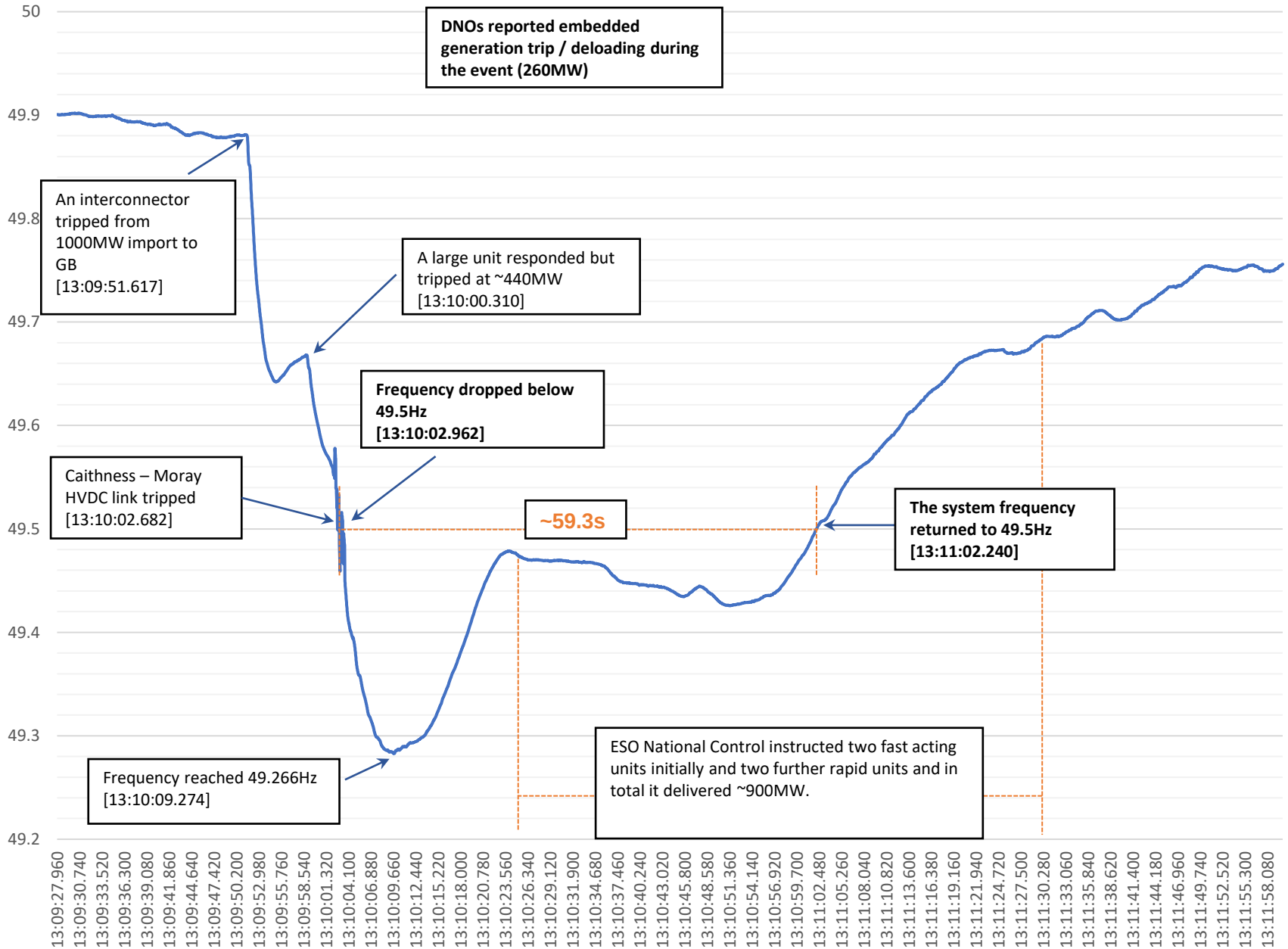
Slides: https://www.nationalgrideso.com/document/279721/download
Recording: https://players.brightcove.net/867903724001/default_default/index.html?videoId=6326671709112

System conditions before the event

Date and time	**Friday, 22nd December 2023 at 13:09:51**
National Demand	29GW
System frequency	49.88Hz
Inertia	172GVA.s
Contracted Response Services	Dynamic Containment – Low (DC-L): 873MW Dynamic Regulation – Low (DR-L): 203MW Dynamic Moderation – Low (DM-L): 150MW Static Firm Frequency Response (sFFR): 252MW
Weather	Relatively windy ~14GW transmission-connected wind ~5GW estimated embedded wind ~1.3GW estimated embedded solar

Sli.do code #OTF

Annotated Frequency Trace of the Events



* Note: the graph is based on currently available data

Detailed Timeline

Based on the currently available ESO's system data and evidence, the timeline of events is as follows:

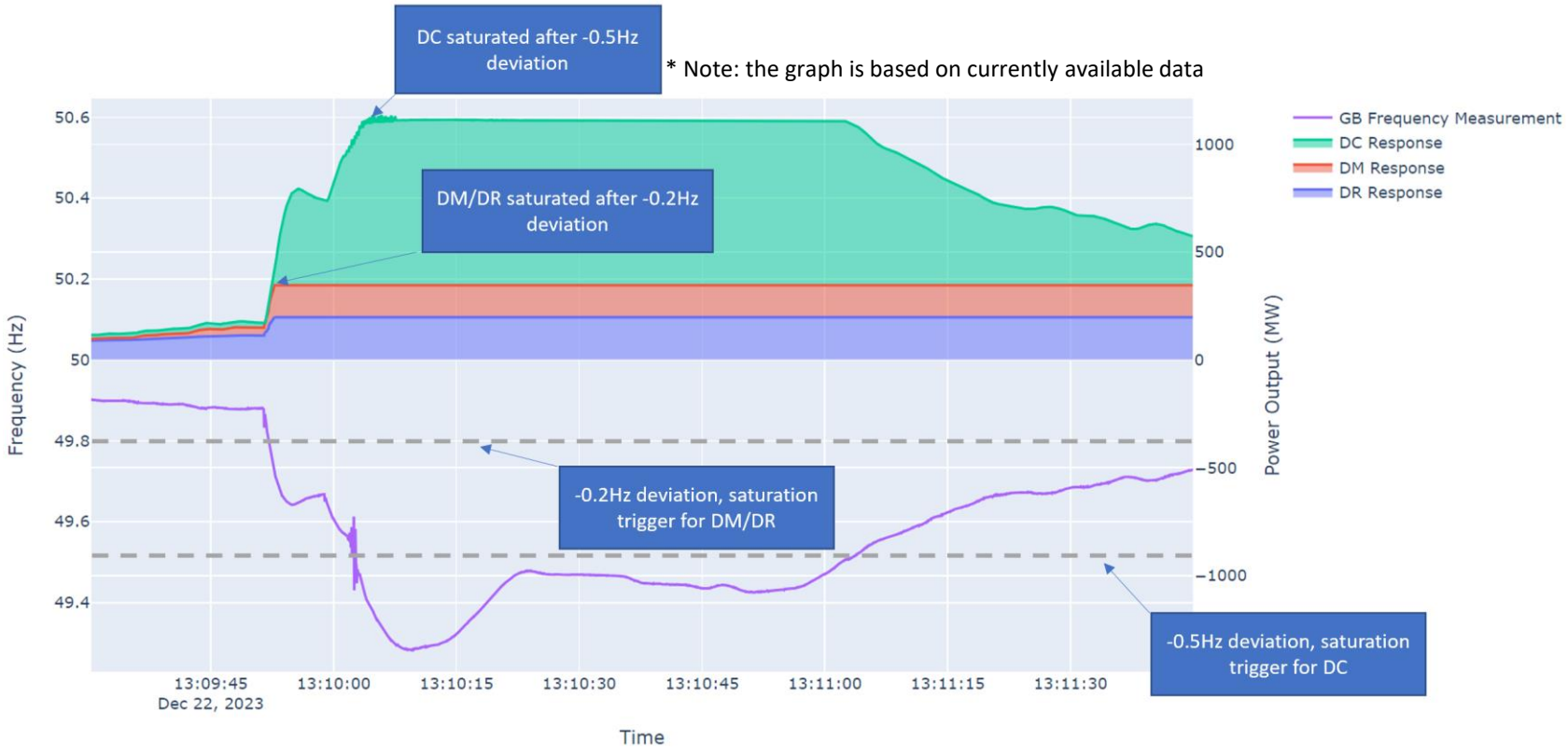
Time	Activity	Source
13:09:51.617	**An interconnector tripped** from importing 1000MW to GB causing a frequency deviation.	ESO
13:10:00.310	**A large unit** unit automatically responded to the frequency deviation, changing output from 350MW to 440MW. During the ramping a technical issue occurred, causing the unit to trip at ~440MW.	ESO
13:10:02.682	Caithness – Moray HVDC link tripped. The flow on the link was 200MW before the trip which redistributed across the AC network.	SSEN-T
13:10:02.962	The system frequency dropped below 49.5Hz.	ESO
13:10:09.274	The frequency reached a minimum of 49.266Hz. The estimated total cumulative infeed loss at this time was around 1700MW.	ESO
13:10:25	Two fast acting units instructed initially and two further rapid units also instructed.	ESO
13:11:02.240	The system frequency returned to 49.5Hz after 59.3 seconds.	
13:14:51.411	The system frequency returned to above the operational limit (49.8Hz) within 5 minutes	ESO
	DNOs indicated 260MW embedded generation loss in total.	ESO

Generation Unit	Infeed Loss	Cumulative Infeed Loss
An interconnector	1,000MW	1,000MW
A large unit	440MW	1,440MW
Reported embedded generation infeed loss	260MW	1,700MW

ESO Post-Event Review

Sli.do code #OTF

Based on the currently available information through ESO record and TO/DNO/3rd Party report, we can conclude:



Dynamic Service Contracts (MW)			Total Contracts (MW)	Estimated Delivery (MW)
DC-L	DR-L	DM-L		
873	203	150	1226	1110

- The system behaved as expected during the event and has been replicated using the ESO frequency simulation model.
- Dynamic Response Services, i.e. DC, DR and DM, responded to fast frequency changes. Total contracted volume = 1226MW vs. Estimated Delivery = 1110MW.
- Delivery shortfall in services was due to provider unavailability declared by the prior to the event and submitted data quality.
- We are following up with individual providers to understand more.
- Embedded generation loss volume is likely larger than 260MW as indicated by DNOs.

System Impacts and Follow-ups

- **This event was not a breach of SQSS statutory limit, as frequency excursion was within 49.2Hz and returned to 49.5Hz less than 60 secs.**
- During the event, the system frequency reached a minimum of 49.266Hz. Low Frequency Demand Disconnection (LFDD) was not triggered.
- The system margin remained healthy throughout the event.
- The interconnector returned to service at 14:30hrs on the same day, further improving system margin.
- This is the largest frequency deviation and lowest frequency we have experienced since that on the 9 August 2019 and the implementation of Frequency Risk and Control Report (FRCR) policy in 2021.
- We continue to follow up with relevant parties to further understand the learnings from this event, and to ensure we implement any additional improvements for continued secure system operation.

Recap of Frequency Risk and Control Report (FRCR) Policy

Sli.do code #OTF

FRCR 2021

- The first edition of FRCR following 9 August 2019 Power Cut Event. Report created an operational policy of **allowing large infeed losses to cause consequential RoCoF loss** if the frequency drop can be contained at 49.2Hz and restored back to within 49.5Hz.
- Significant consumer value has been delivered through initiatives such as the **Accelerated Loss of Mains Changing Programme** (ALoMCP) and the introduction of **Dynamic Containment** (DC).

FRCR 2022

- FRCR 2021 already covered most of the **simultaneous losses**, where two losses could occur instantaneously or within a short period of time.
- The second edition of FRCR assessed the value in taking additional actions to secure **all simultaneous losses**.
- Due to the **low occurrence likelihood** and **high cost to mitigate**, FRCR 2022 recommended **not to take additional actions** to secure simultaneous losses that go beyond the largest securable loss.
- **This event was a simultaneous event where an interconnector and a large unit both tripped within ~10 secs. This event was covered under the current FRCR policy based on the system conditions and the response services holding. The frequency excursion was not outside of 49.2Hz and system frequency returned to 49.5Hz within 60 secs.**

FRCR 2023

- The third edition of FRCR assessed the value of lowering the **minimum inertia policy** and recommended to reduce the minimum inertia from 140GVA.s to 120GVA.s.
- More response services will be held to operate at lower inertia to achieve the same level of system security.
- The implementation of FRCR 2023 policy will be communicated in future OTF / forum.

Previously Asked Questions – Frequency Events

Q: The large frequency drop to 49.29hz on 22 December was the largest since the Aug.19 power disruption and strange from a 1GW loss? So it would have been useful to have more info today but are you at least able to say whether that 440MW unit loss in Scotland was related? Thanks

A: Thanks for the question. We hope we addressed your questions in previous slides. In line with OTF policy we are unable to comment the names or locations of any particular units involved in the event.

Q: Following the frequency drop on December 22 - is there a plan to assess the cost impact of that drop to understand the value of procuring more frequency response volume?

A: During this event frequency was contained and restored as expected. We always procure adequate response services to meet security standards. Dynamic Response requirements and procurement strategies are under continuous review to meet operational needs.

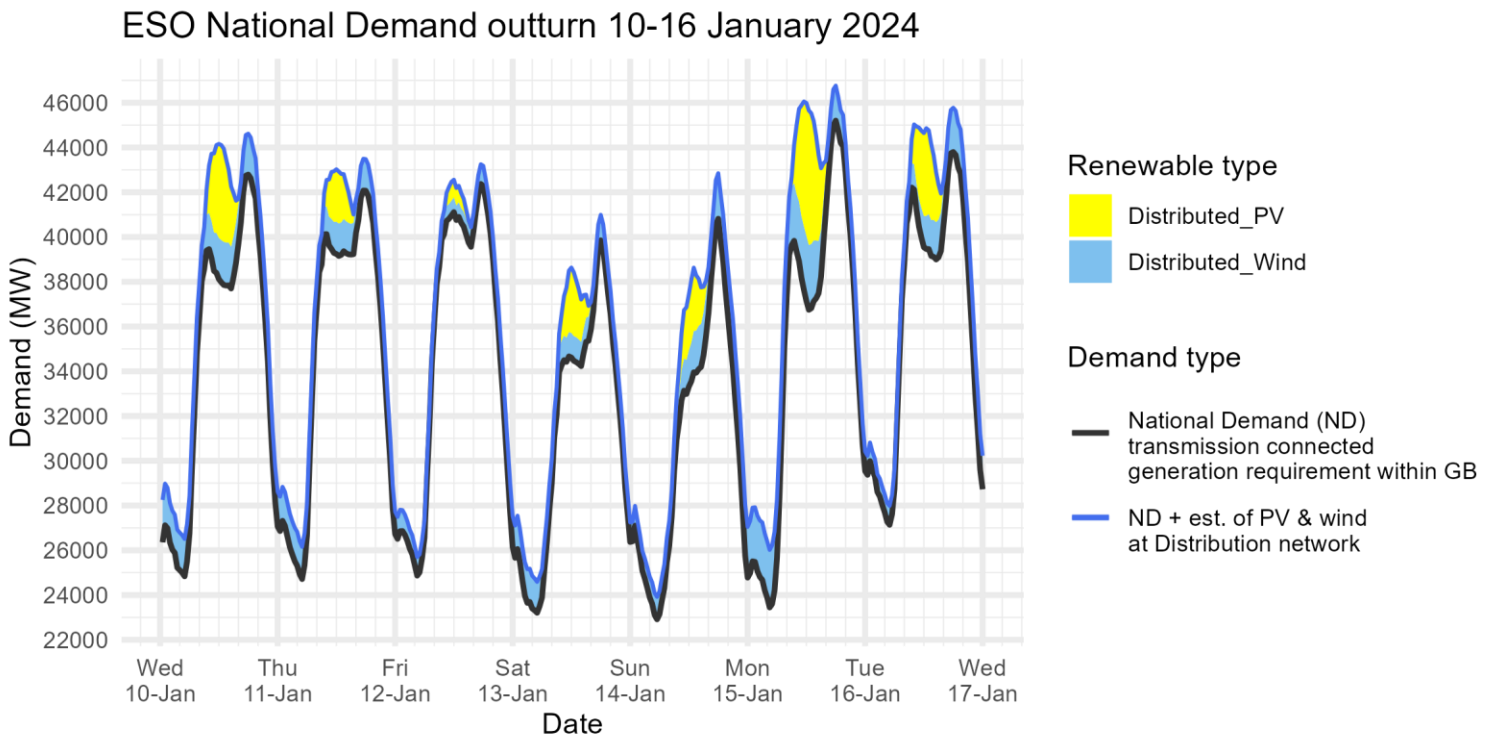
Q: Can the update of the frequency event next week highlight activity in grid code modification GC0155 and the importance of fault ride through?

A: Thanks for your question. Investigation is on-going. We are working with individual parties to understand their deload / trip mechanism. We are not able to comment at this stage.

Q: Re: 22/12/2023 frequency event; you mention a subsequent generator trip occurred; which would seem unusual given FRT resilience you'd expect- is there an ongoing investigation- need to look into FRCR? or is there another technical consideration at play here?

A: Thank you for your question. Please see above.

Demand | Last week demand out-turn



		FORECAST (Wed 10 Jan)		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)
10 Jan	Evening Peak	43.4	1.8	42.8	0.7	43.5	1.8
11 Jan	Overnight Min	25.2	1.4	24.7	n/a	n/a	1.4
11 Jan	Evening Peak	43.4	1.2	42.1	0.0	42.1	1.4
12 Jan	Overnight Min	25.2	0.7	24.9	n/a	n/a	0.8
12 Jan	Evening Peak	42.6	0.8	42.4	0.0	42.4	0.9
13 Jan	Overnight Min	23.8	1.1	23.2	n/a	n/a	1.4
13 Jan	Evening Peak	40.2	0.9	39.9	0.0	39.9	1.1
14 Jan	Overnight Min	23.5	1.0	22.9	n/a	n/a	1.0
14 Jan	Evening Peak	40.7	1.6	40.8	0.0	40.8	2.0
15 Jan	Overnight Min	23.1	2.3	23.4	n/a	n/a	2.6
15 Jan	Evening Peak	44.0	2.2	45.2	0.4	45.6	1.6
16 Jan	Overnight Min	25.2	1.8	27.1	n/a	n/a	0.8
16 Jan	Evening Peak	45.0	1.6	43.8	0.8	44.6	2.0

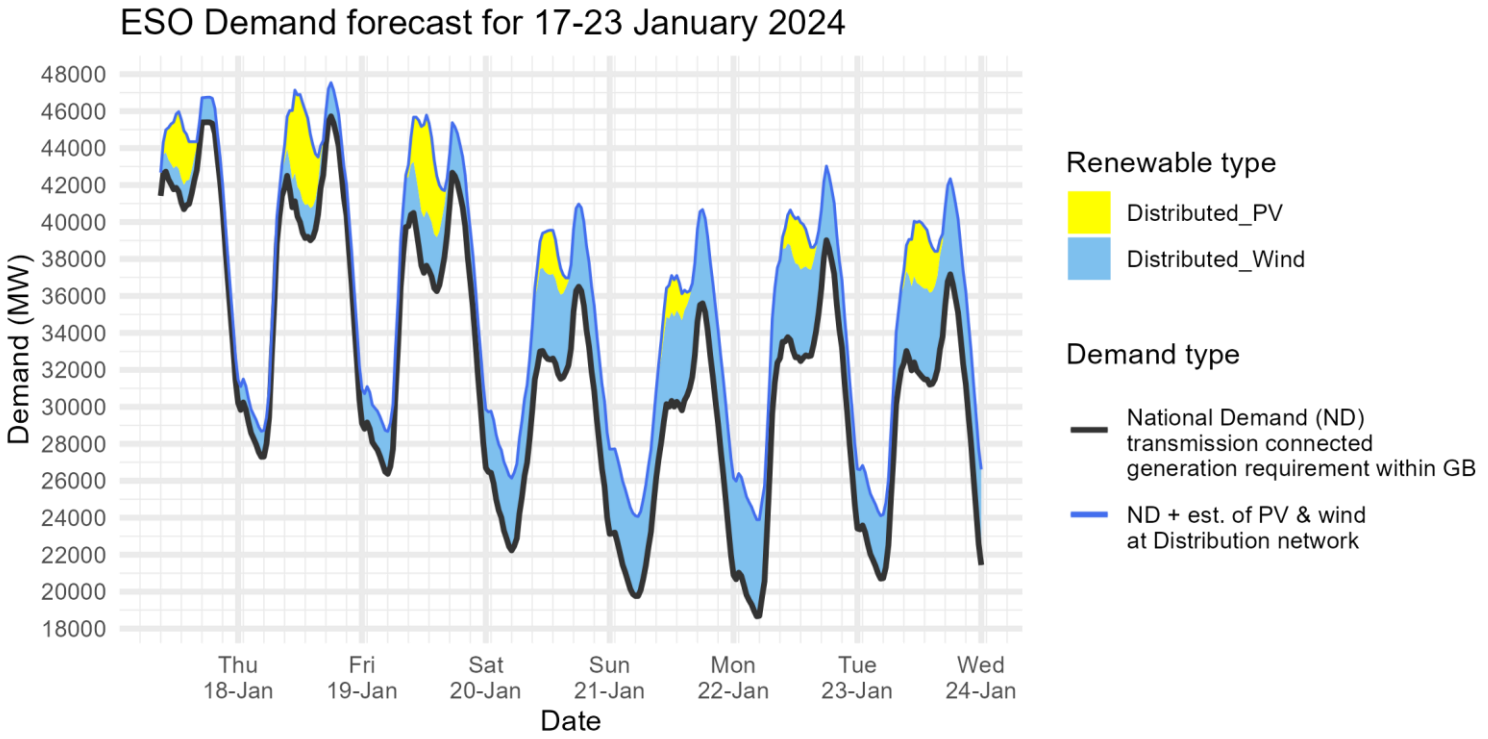
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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 17 Jan)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
17 Jan 2024	Evening Peak	45.4	1.4
18 Jan 2024	Overnight Min	27.3	1.4
18 Jan 2024	Evening Peak	45.7	1.8
19 Jan 2024	Overnight Min	26.4	2.3
19 Jan 2024	Evening Peak	42.7	2.7
20 Jan 2024	Overnight Min	22.2	3.9
20 Jan 2024	Evening Peak	36.5	4.5
21 Jan 2024	Overnight Min	19.8	4.3
21 Jan 2024	Evening Peak	35.6	5.1
22 Jan 2024	Overnight Min	18.7	5.2
22 Jan 2024	Evening Peak	39.0	4.0
23 Jan 2024	Overnight Min	20.7	3.4
23 Jan 2024	Evening Peak	37.2	5.2

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

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 18th January 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.

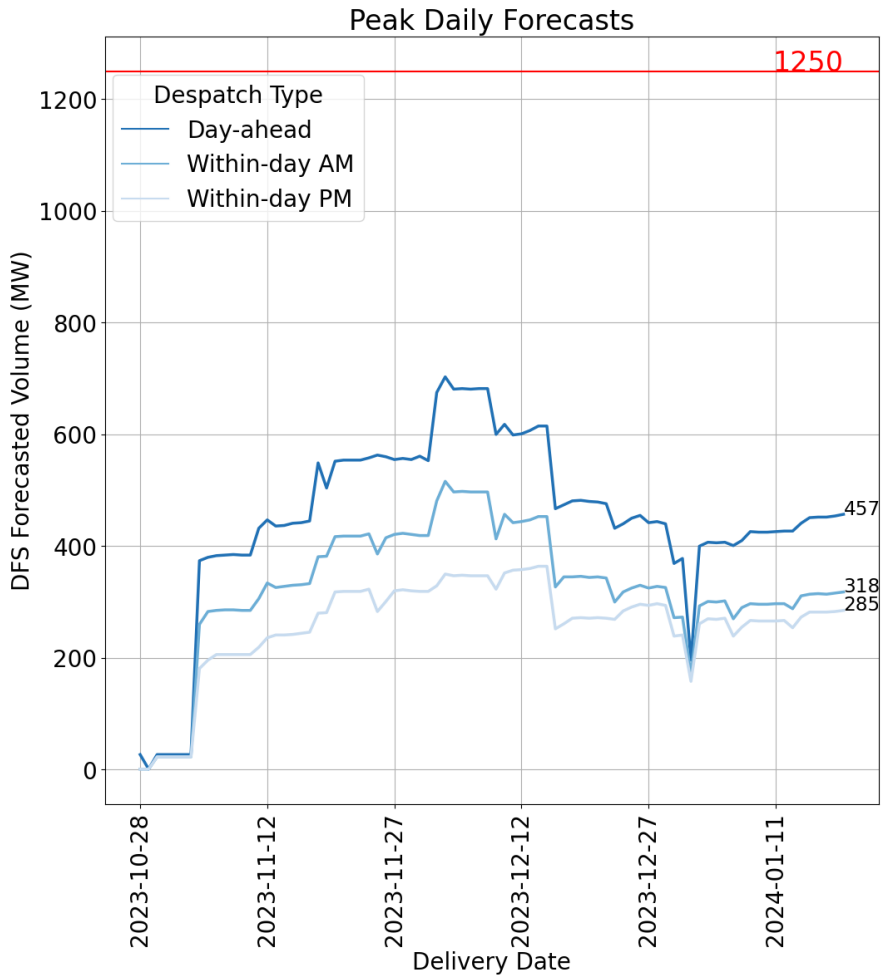
For lower (and potentially negative) surplus values, then this indicates operational margins could be tight and that there is a higher likelihood of the ESO needing to use its tools, such as issuing margins notices. We expect there to be sufficient supply available to respond to these signals to meet 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	18/01/2024	42860	12080	3370	45600	8160
Fri	19/01/2024	43365	13630	3370	43480	12330
Sat	20/01/2024	40613	18600	3370	37130	19120
Sun	21/01/2024	42625	17670	3370	36430	21030
Mon	22/01/2024	43646	17960	3370	39420	19460
Tue	23/01/2024	43551	18800	3370	38120	21290
Wed	24/01/2024	44006	12440	3370	40510	14680

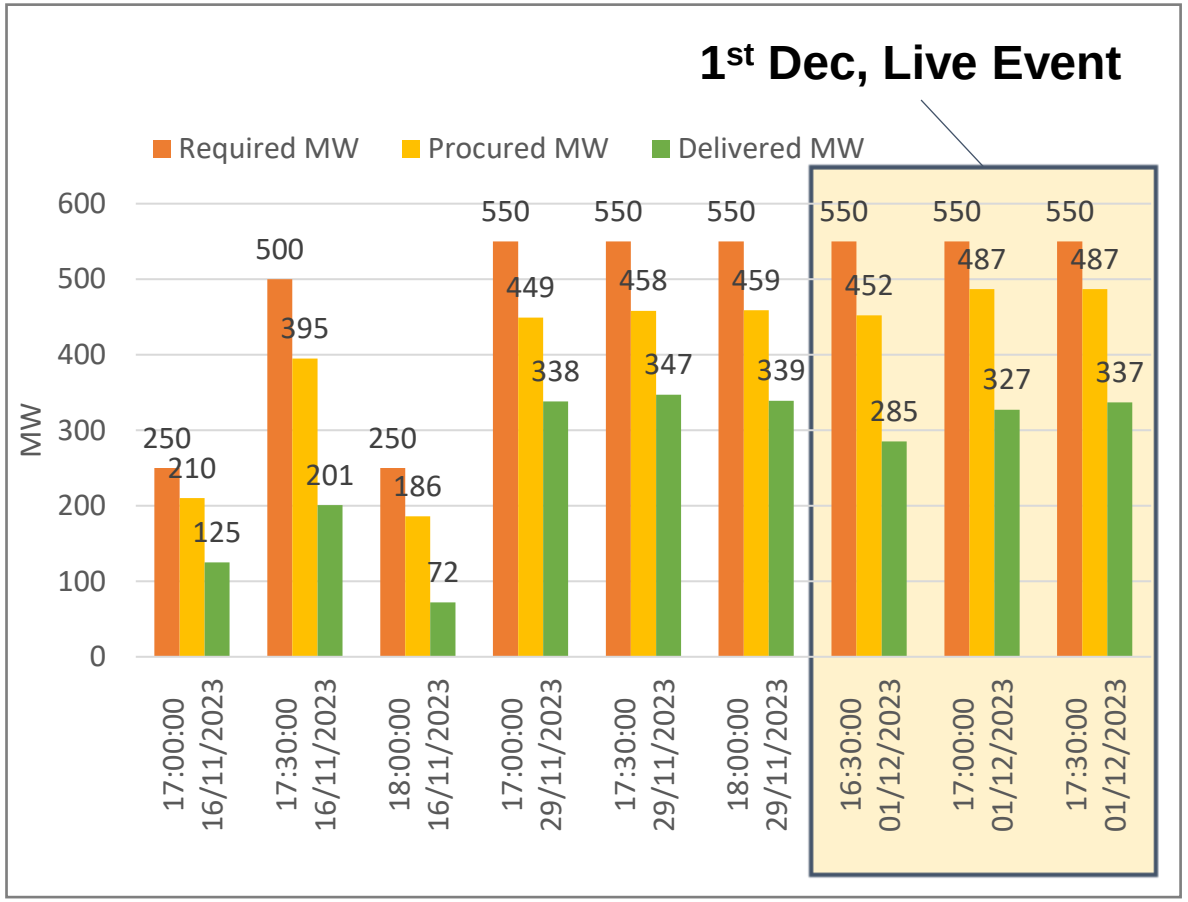
*Interconnector flow in line with the Winter Outlook Report Base Case but will ultimately flow to market price

Demand Flexibility Service

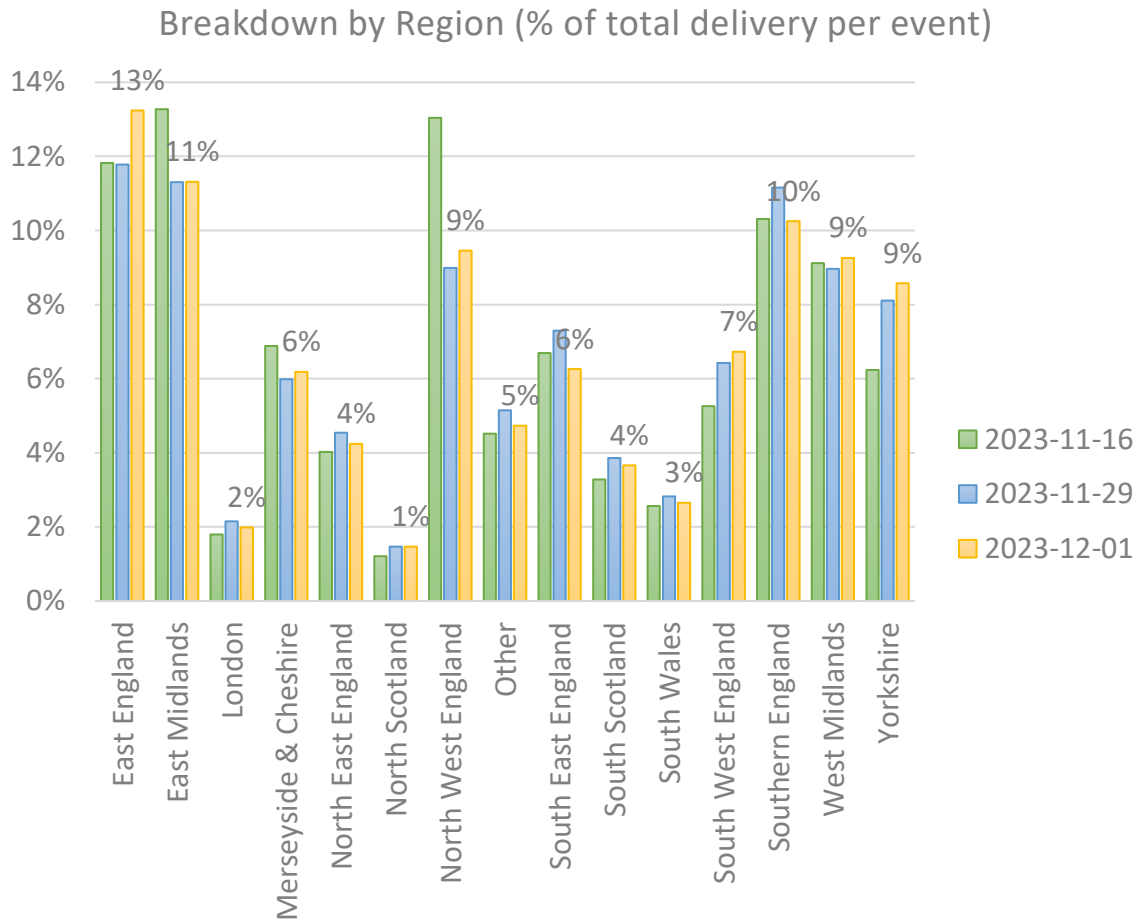


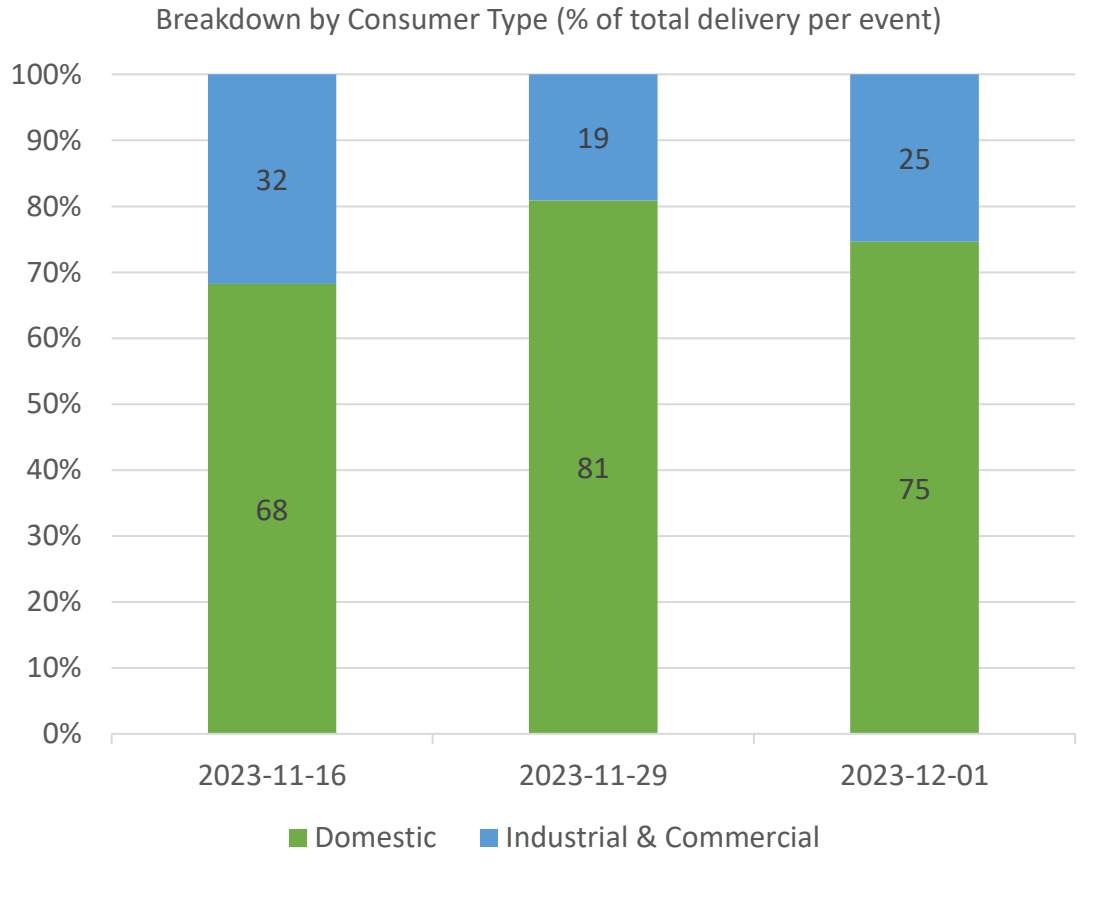
Latest events:

- ❑ No events last week
- ❑ 17 Jan 2024, within-day AM TEST

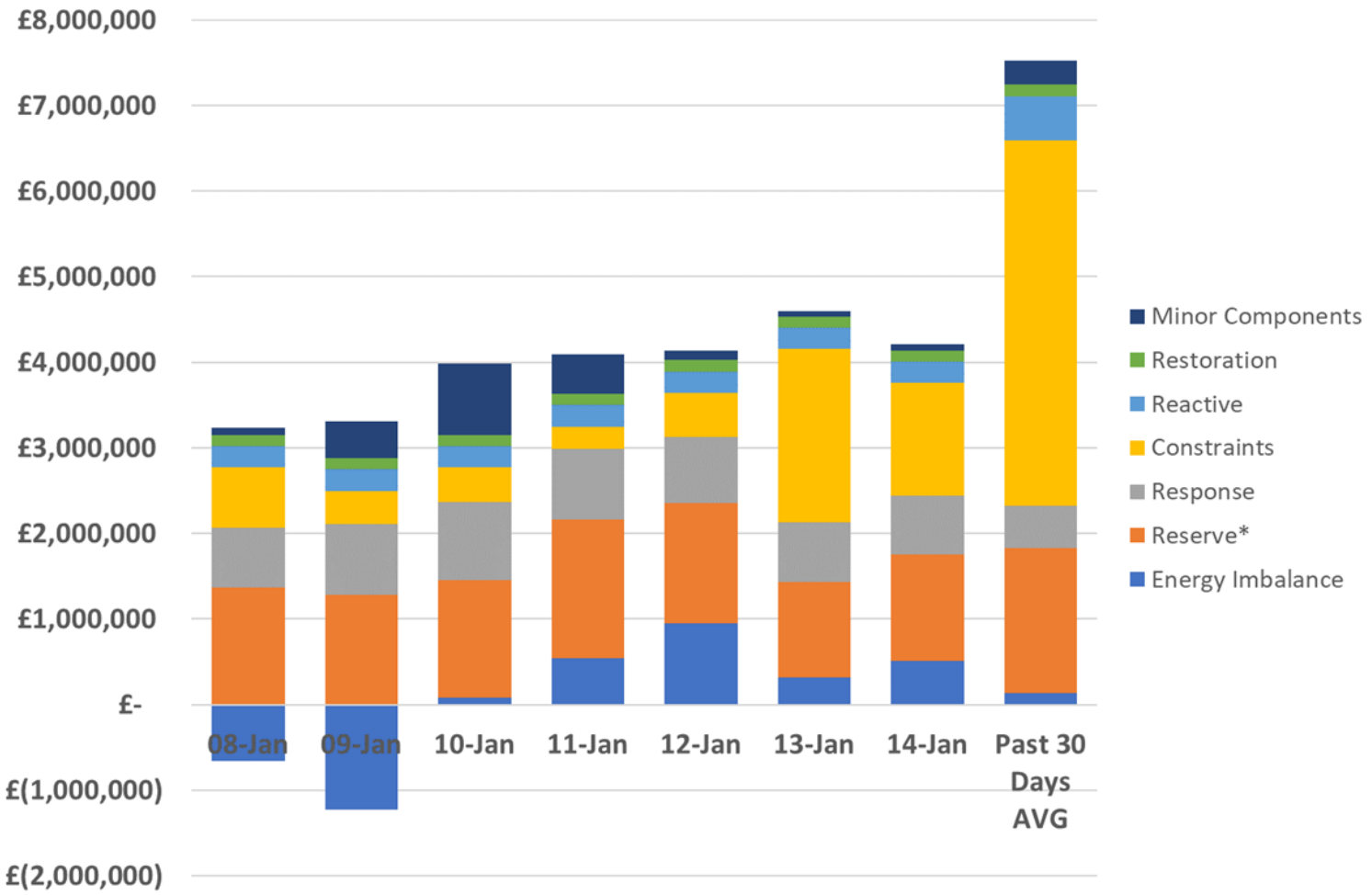


Demand Flexibility Service





ESO Actions | Category costs breakdown for the last week



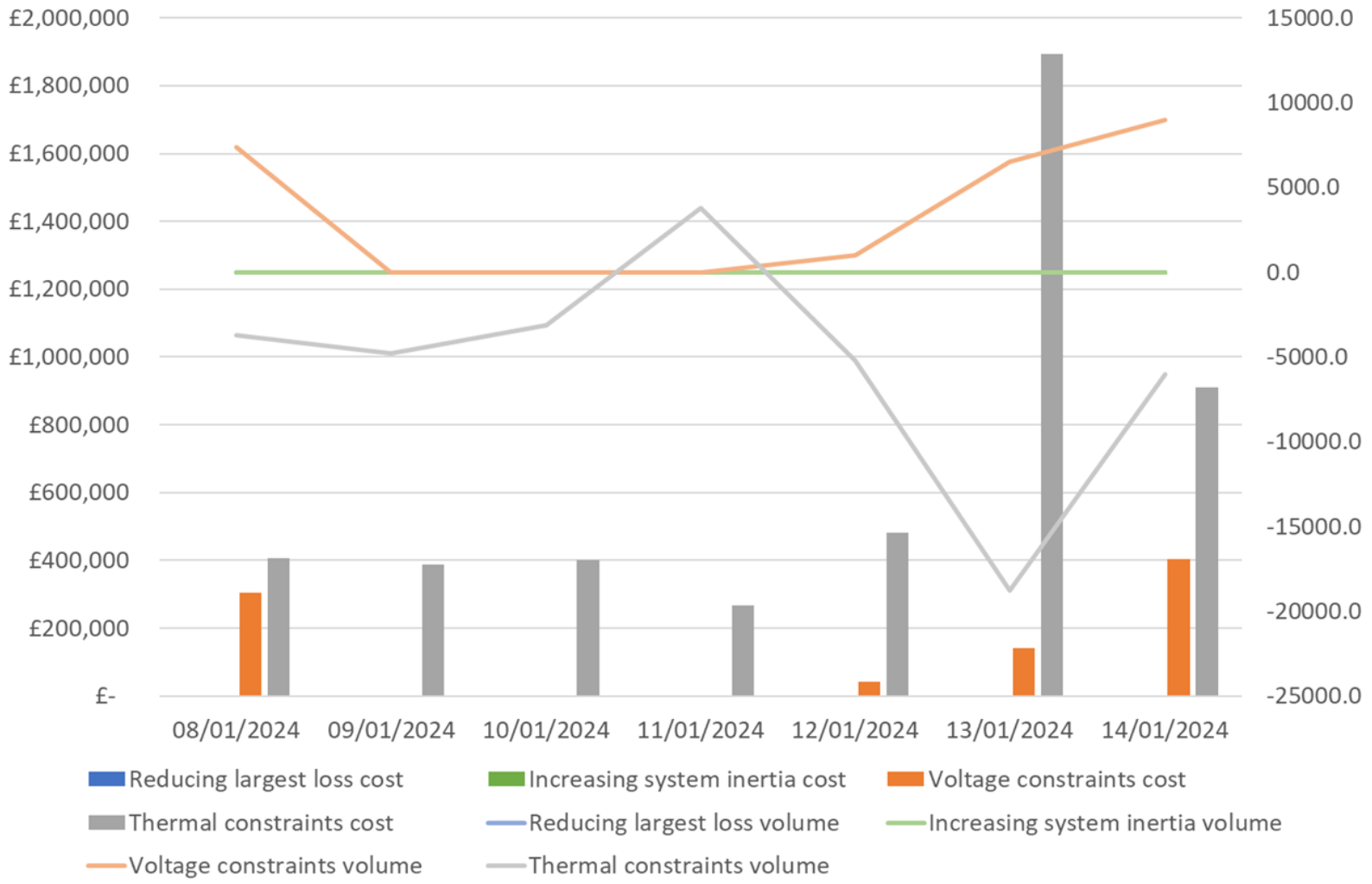
Date	Total (£m)
08/01/2024	2.6
09/01/2024	2.1
10/01/2024	4.0
11/01/2024	4.1
12/01/2024	4.1
13/01/2024	4.6
14/01/2024	4.2
Weekly Total	25.7
Previous Week	34.9

Constraints and Reserve 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



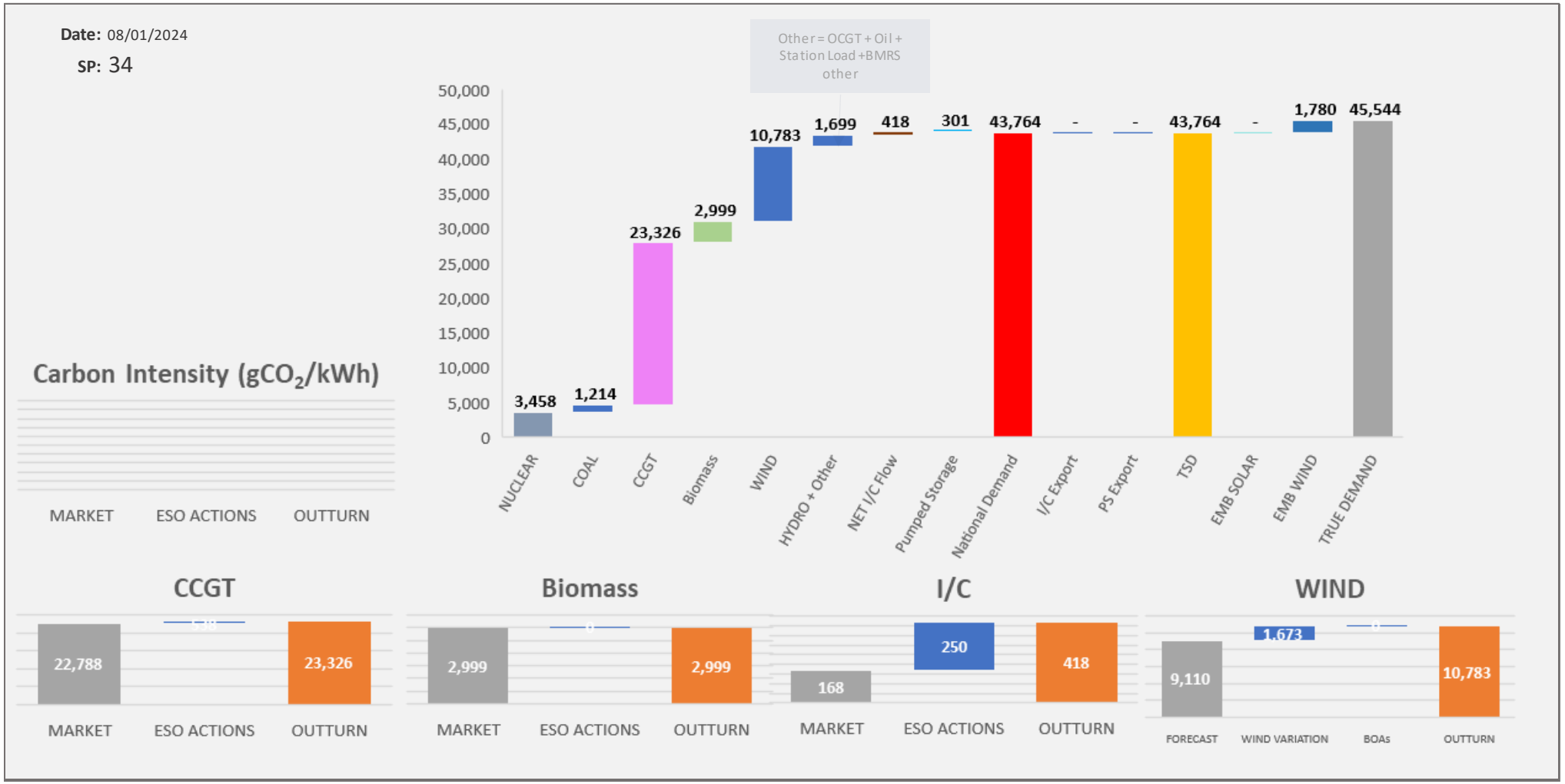
Thermal – network congestion
Actions were required to manage thermal constraints throughout the week, with the most significant costs on Saturday and Sunday.

Voltage
Intervention was required to manage voltage levels throughout the week, except on Tuesday, Wednesday, and Thursday.

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

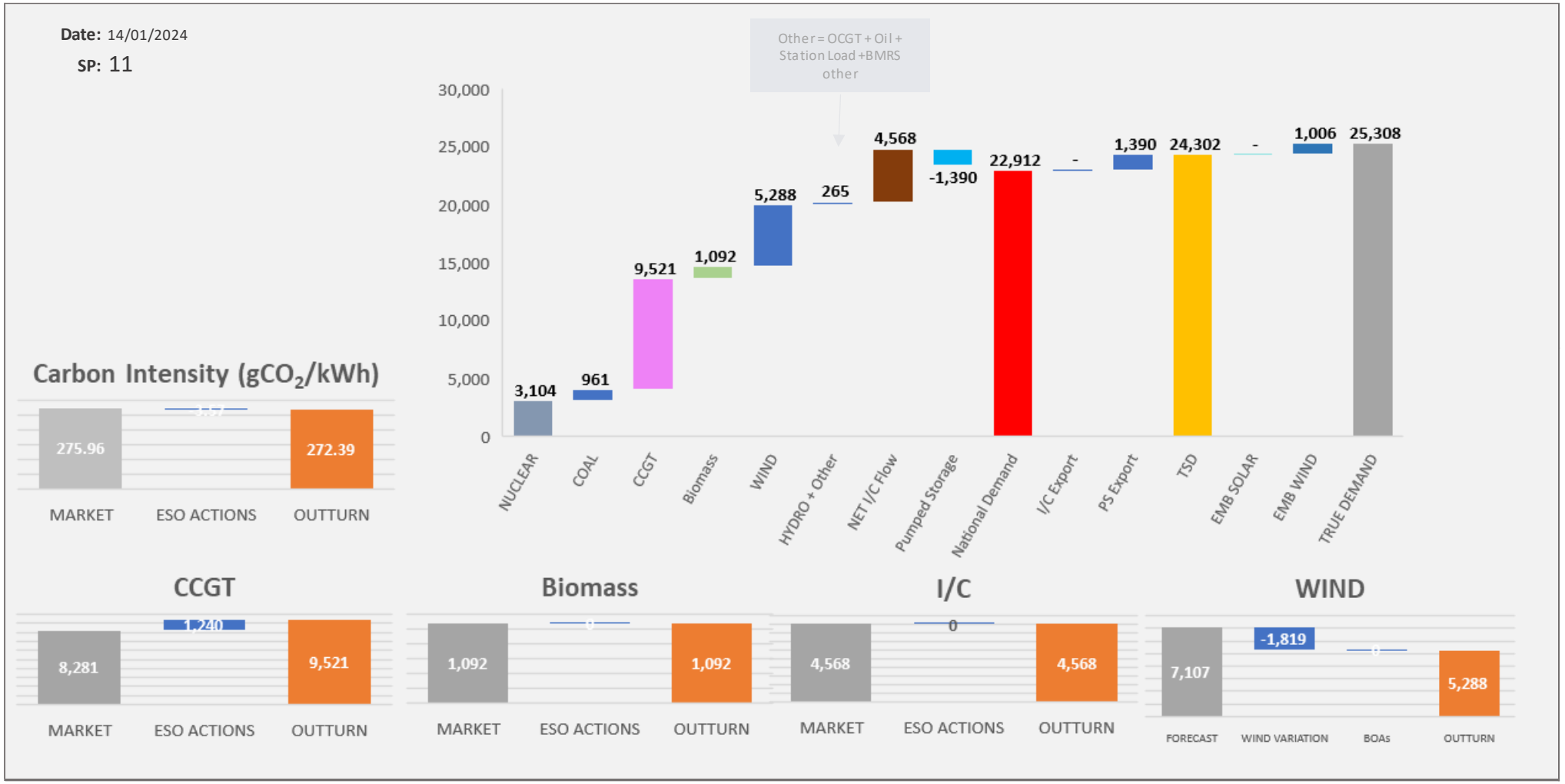
Increasing inertia
No intervention was required to manage System Inertia.

ESO Actions | Monday 08 January – Peak Demand – SP spend ~£53k



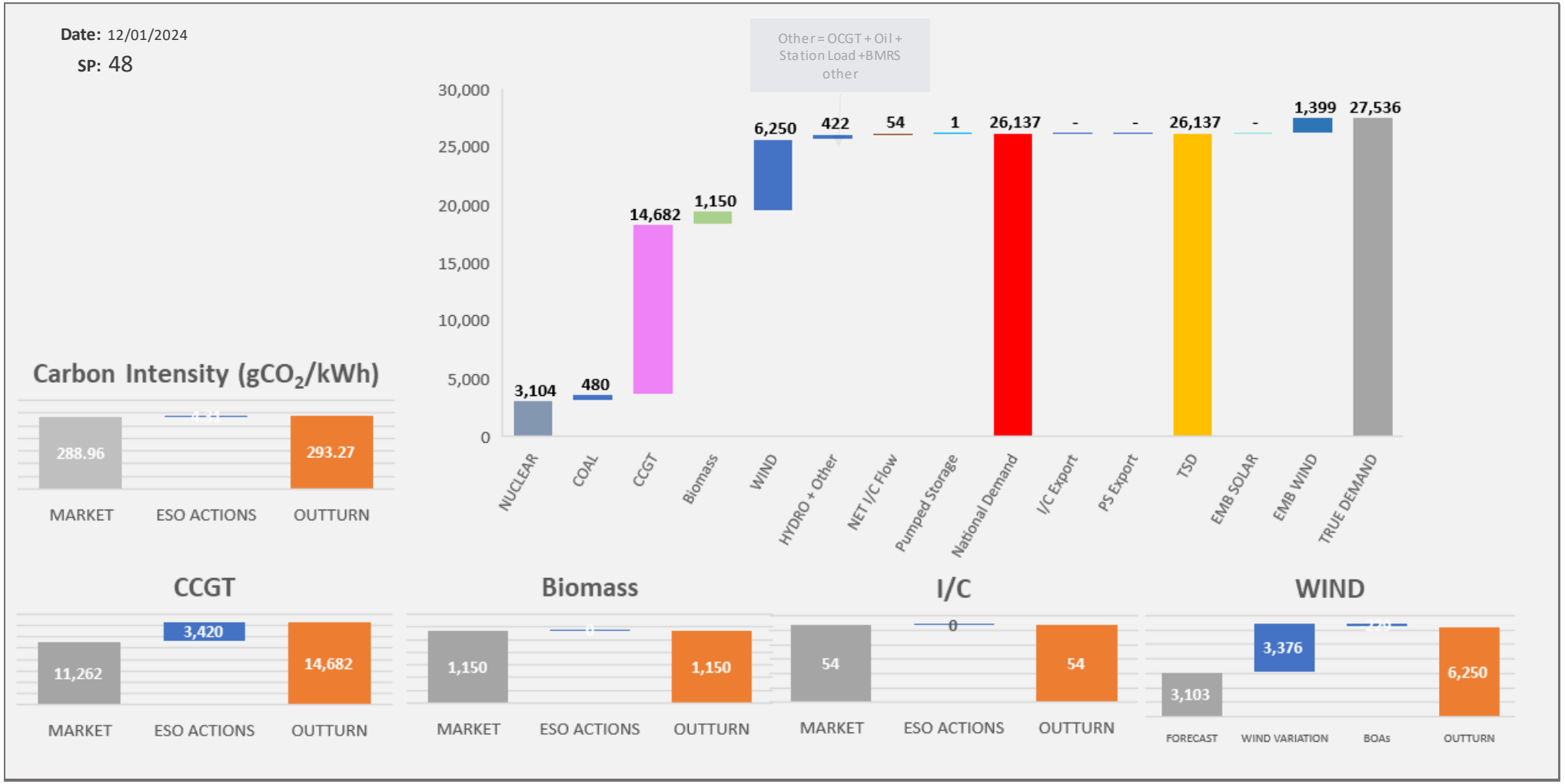
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Sunday 14 January – Minimum Demand – SP Spend ~£56k



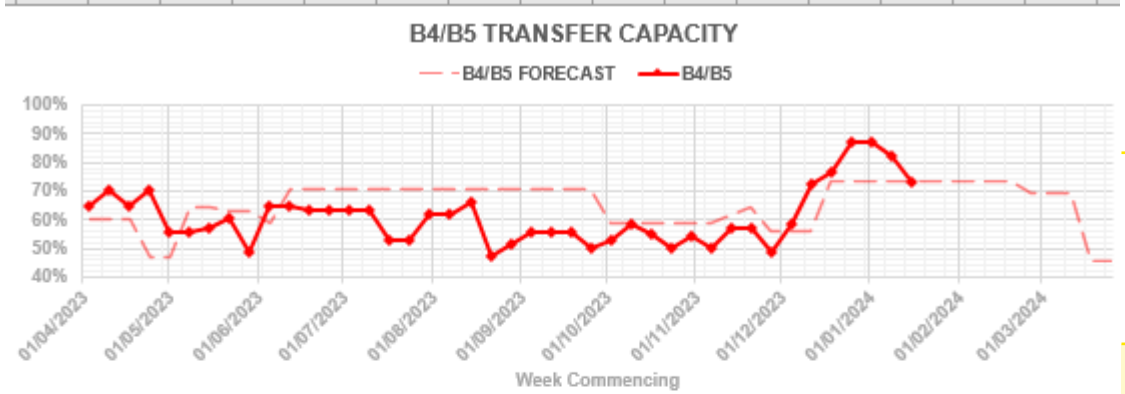
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

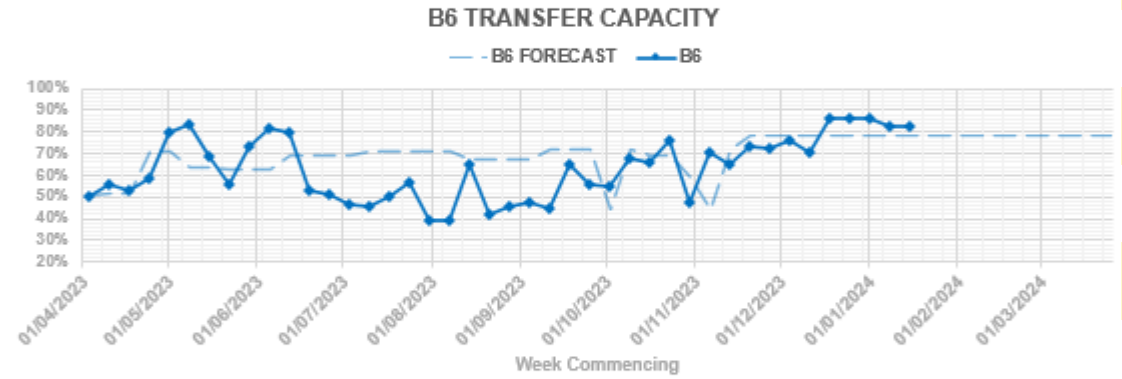
ESO Actions | Friday 12 January – Highest SP Spend ~£159k

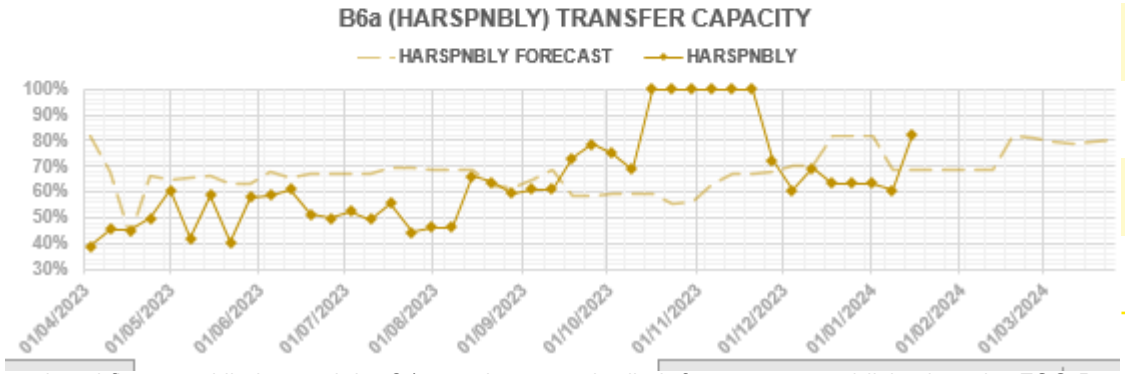


Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

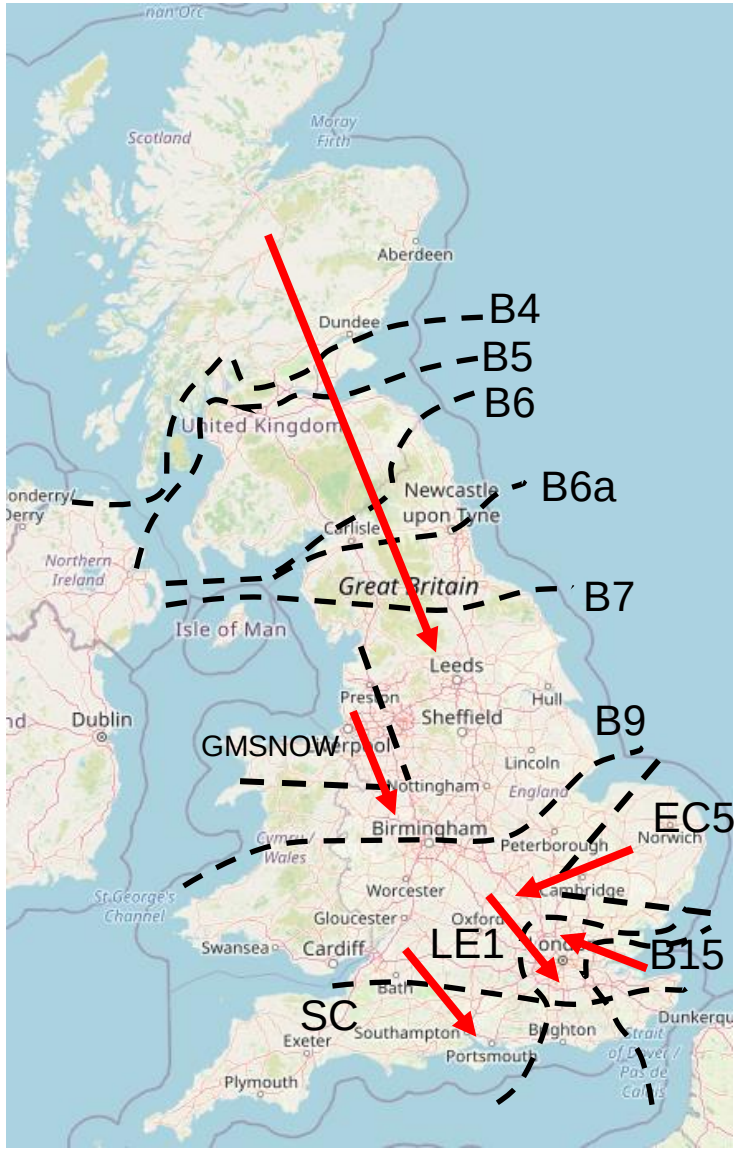
Transparency | Network Congestion





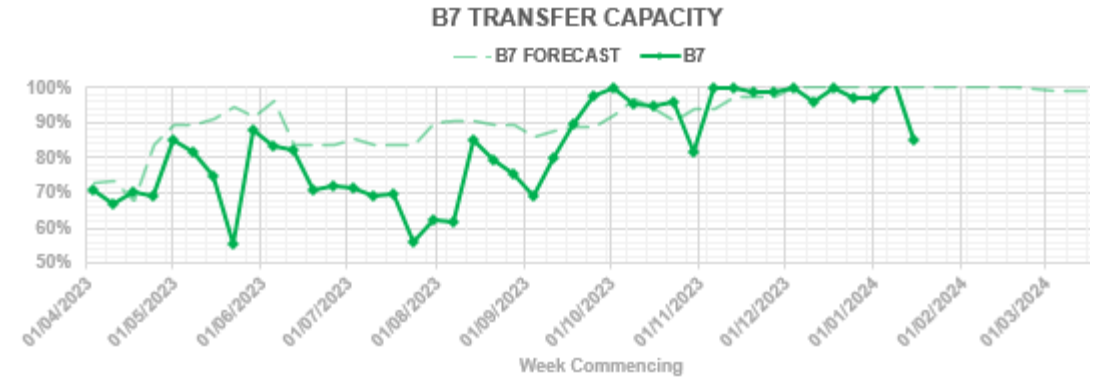


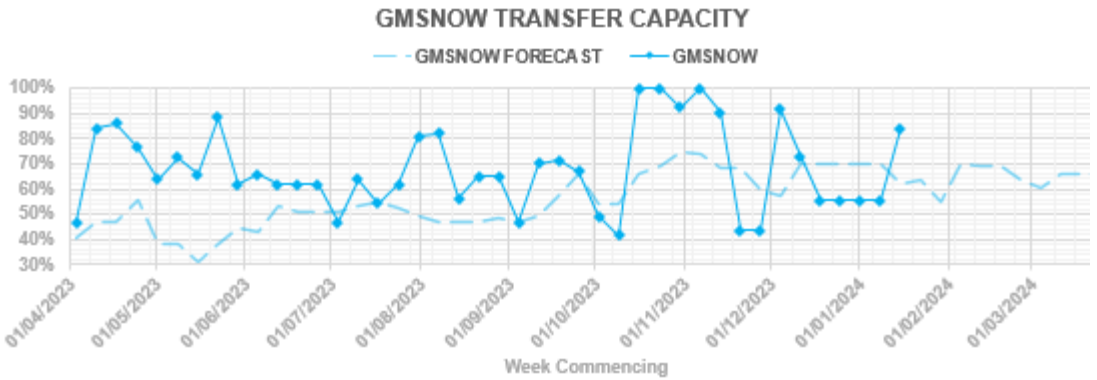
Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300

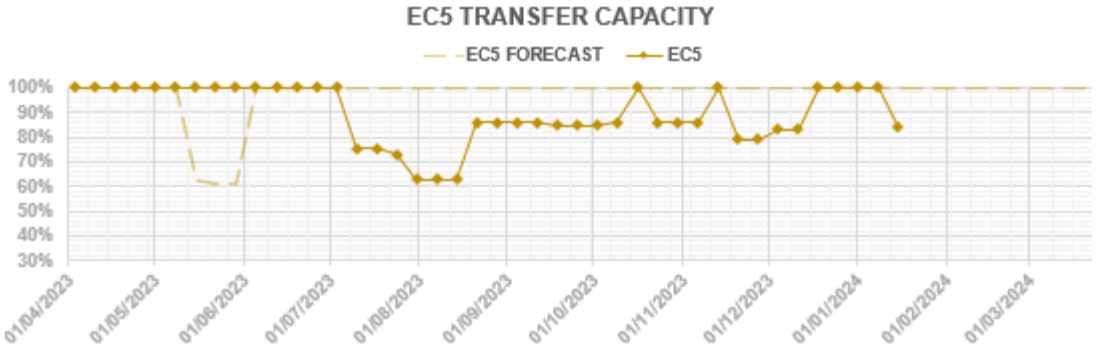


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

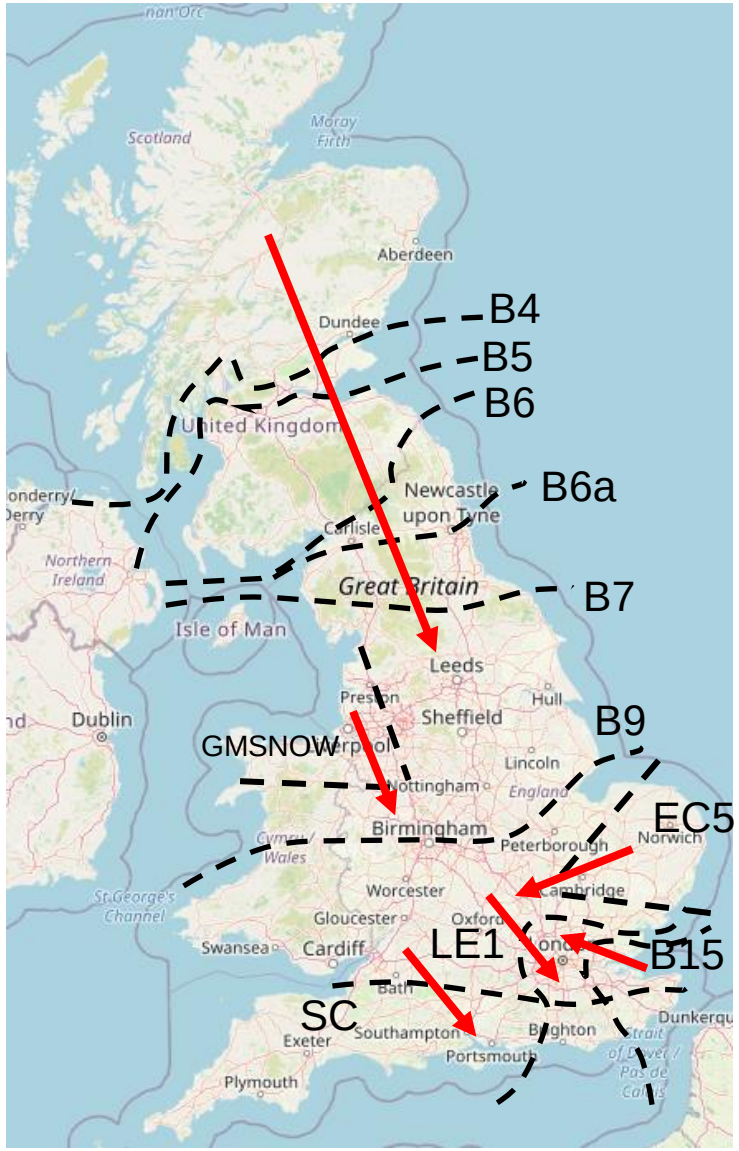
Transparency | Network Congestion





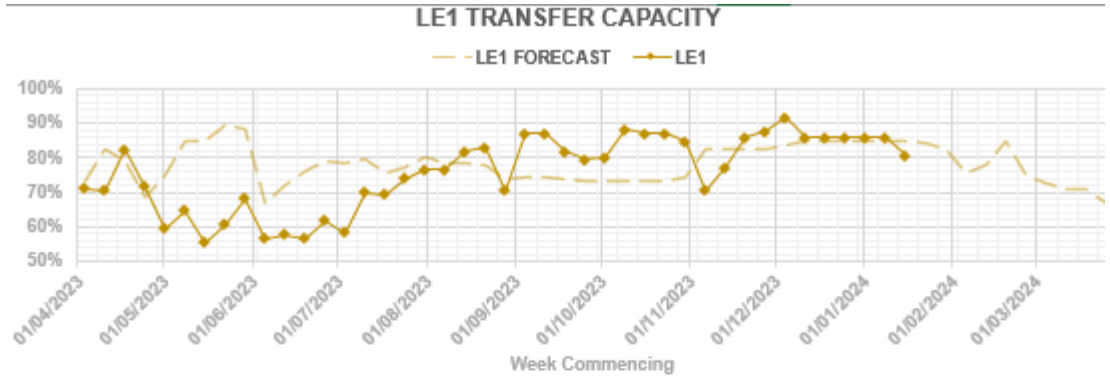


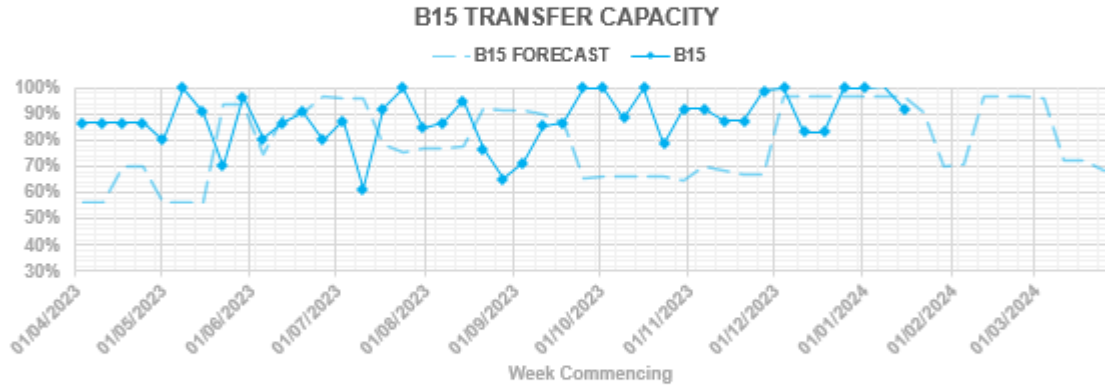
Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300

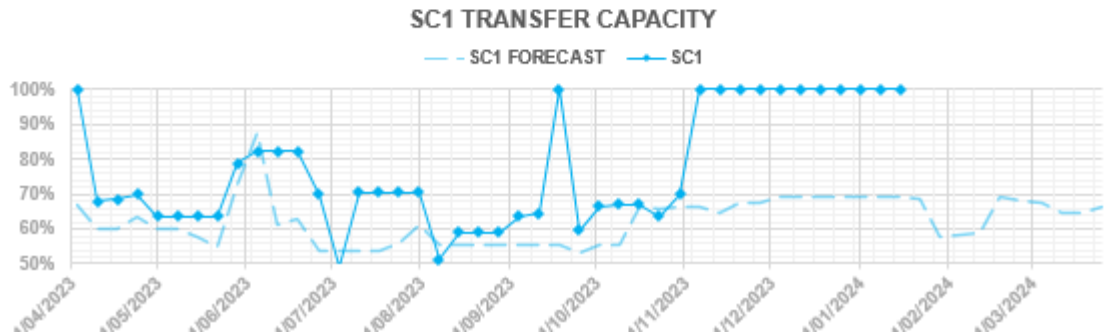


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Transparency | Network Congestion







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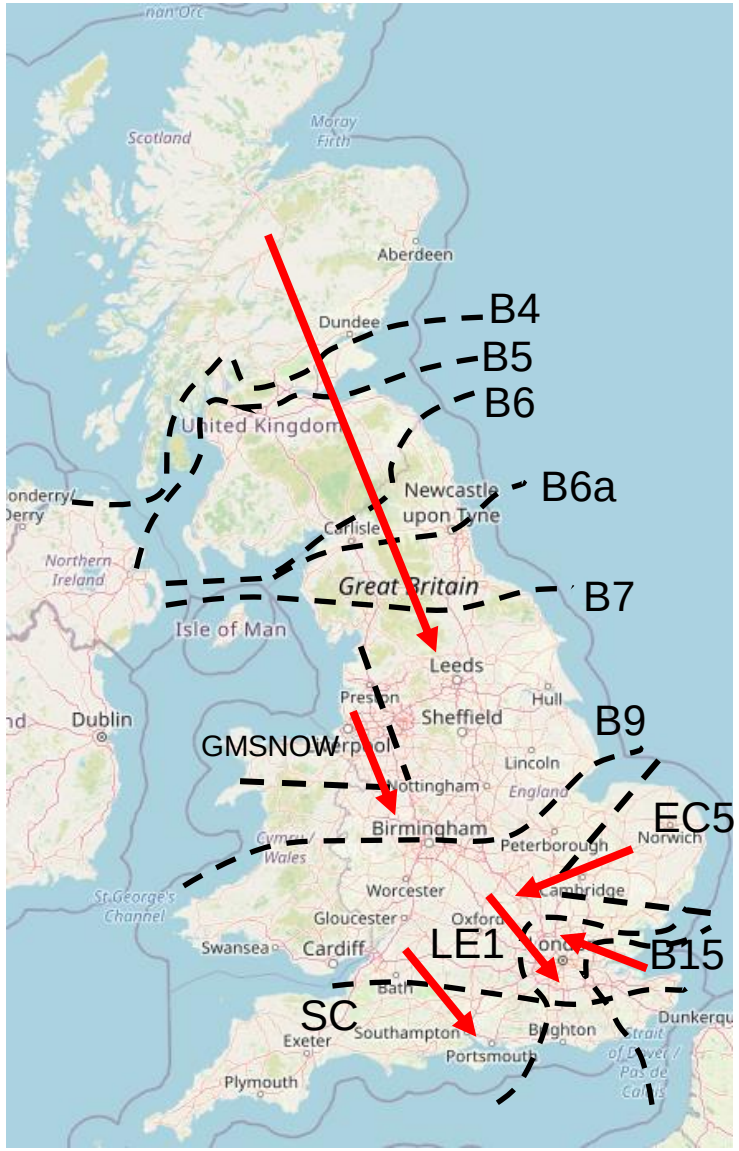

Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Previously Asked Questions

Q: Regarding Demand Flexibility Service (DFS) and the chart that shows delivery by region - is there a risk that you'll be paying for DFS which are subject to constraints (ESO is already paying for generation reduction). If so, won't reducing demand in these regions mean that even more money is spent reducing generation further?

A: Introducing more granular, locational procurement was considered at the design stage and was deemed not necessary at this stage where we are focused on growing volume. The benefits this could bring were outweighed by the benefits of a simplified GB-wide procurement strategy.

In general terms we would only need to instruct DFS when there is insufficient generation available to meet demand which would mean that export constraint boundaries would not be active.

Q: Since DFS live events are energy flagged actions at prices of ~£3000, what is the ESO doing to ensure the volumes reported are not false/distortive? ~110MW shortfall of actions at £3000 during scarcity could lead to incorrect calculations for system prices and give misleading signals to the market.

A: We recognise that higher price services have the potential to affect system prices more. This is why we are waiting until we have settlement data to feed this into the imbalance process. Internally we review the data to check for inconsistencies for example duplication of MPAN submissions to ensure robustness of settlement of the service.

One of the core reasons for running tests outside of live events is to improve the forecast accuracy, so that the industry has the best possible information when the service is contracted, and Balancing Responsible Parties can protect from exposure to high system prices through delivering their contracted portfolio position.

Previously Asked Questions

Q: DFS is delivering far less than is purchased. It looks like the providers are offering power they cannot deliver with no non-delivery charges, which seem may be misleading ESO. How is ESO addressing this and are you discussing the problem with Ofgem?

A: We've provided an overview of DFS delivery from our first event and will continue to do through the OTF. We are discussing the service and service development internally and with Ofgem and will be giving a further update at 24 January OTF.

Q: Voltage constraint costs - seem the highest on record last week and outweighing Thermal costs, with £3m on one day alone! Can you say more about this - why it happened and what pant were being brought on to resolve it (e.g was it in Scotland or in the south etc to get energy to where its needed)?

A: The Voltage costs may look higher than normal on the graphs due to the relatively low thermal constraint costs for the week.

The Voltage constraints cost is over £3m for December 25th, 26th 2023 and 1st January 2024 due to:

- Demands were at very low levels (normal for these days – Bank holidays)
- Wind was at high levels
- Interconnectors flows were generally from Europe to GB

Hence very little gas BMUs were economic for the market to run – thus ESO has to trade them on or buy them in the BM. Obviously ESO then had to create room for these additional sets by trading back on the interconnectors, and / or buying back wind. Wind bids taken to create room for the voltage plant were of a greater volume than required to solve thermal constraints – hence the high Voltage constrains cost is over 3M for these dates.

Previously Asked Questions

Q: On Monday, two large units were activated in the BM from mid-day at £169+ for 6 hours+ when there were 100's of MWs of small flexible units available under £140 that were not used. Do these actions count as "Skips" and should the OBP be stopping these kind of actions that increase consumer costs?

A: Can you please provide us more details on box.NC.customer@nationalgrideso.com?

The first release of OBP has delivered the ability for control room to Bulk dispatch instructions to Batteries and Small BMU's. There are wider plans to enhance utilisation of small flexible assets through new services and products as per our Markets roadmap. Note that at the time of this action the OBP fix for the battery zone was not yet in place.

Previously Asked Questions – Data Quality in the BM

Q: We are conscious this is a wider market reform, but: moving Gate Closure to 30 or 15 minutes ahead of delivery instead of 60 would make Physical Notification (PN) submissions significantly more accurate, particularly for renewable plants.

A: Moving Gate Closure to 30 or 15 minutes ahead of delivery, while providing the opportunity for more accurate PN submissions would not disincentivise erroneous PN submissions. Also, there are other aspects of PN misalignment which would still need addressing, including BMUs generating during a settlement period when they haven't submitted a PN, or the submission of an inaccurate PN. While it is acknowledged that forecasts are better the closer to real time they are made, this would not resolve the underlying problem of erroneous data submission and thus is out of scope for this work.

Q: Have you taken the Period BM Unit Non-Delivered Bid Volume into account in your calculations of inaccurate PN costs? generators face imbalance for the difference between BM expected and delivered volumes - so there is a penalty cost for getting PNs wrong, as the delivered volume should be different?

A: Yes, this has been taken into account in our calculations. Non-delivered volumes are calculated based on whether or not Bids and Offers are accepted. Similarly, there is no direct relationship between the PN and the commercial position held by that party, imbalance penalties apply to non-delivered energy compared to the commercial position rather than the PN. There is still no disincentive for BMUs submitting inaccurate PNs. All PNs should be prepared in accordance with Good Industry Practice. As part of this project we are looking to clarify what an accurate PN looks like.

Q: Why is there no mention of non-delivery charges in the slides about over- or under-delivery of Bid and Offers?

A: These have been taken into consideration in our analysis. We will present back to the OTF when we have further updates.

Previously Asked Questions – Data Quality in the BM

Q: Data quality issues leading to higher balancing costs -this has been increasing over last 10 years so could you say more why Gen output is higher/lower than PN and is this particularly a wind issue? Also are there any particularly bad parties & are you speaking to these directly understand problem?

A: Information inaccuracy has indeed been increasing over recent years. We are currently investigating PN misalignment across all generation types, and will aim to clarify what the ESO may see as good industry practice. Some BMUs submit less accurate PNs than others, but we will not publicly name these units. We will be engaging individually with BMUs that require support and education to improve their data submissions. Should you wish to provide information on either

1. Specific details the ESO should consider into your specific operations that would result in inaccurate PNs relative to an industry standard; or

2. Information on how you believe your particular unit is able to submit accurate PNs relative to other industry participants, and advice on how these values can be improved;

Then please reach out to box.Balancing.Costs@nationalgrideso.com

Outstanding questions

Q: Does INDO (used to determine Triads) exclude Battery Storage? The Elexon Glossary doesn't specify it, but it seems reasonable given Pumped Storage is excluded.

INDO (Initial National Demand Out-Turn) is a term defined in the BSC. The glossary definition referred to in the question is provided at this link. Glossary Term: Initial National Demand Out-Turn - Elexon BSC

Q: Last week the control room turned off some wind units (non SO-flagged) at -40 £/MW in the middle of the day when there were over 5GW of bids in the stack at ~0£/MW. Quite clearly this activity wasn't for energy balancing. What can be done to make these decisions more predictable for the market?

We are still working on these questions and we will aim to provide an answer to the OTF as soon as possible.

Reminder about answering questions at the ESO OTF

- **Questions from unidentified parties will not be answered live**. If you have reasons to remain anonymous to the wider forum please use the advance question or email options. Details in the appendix to the pack.
- **Questions will be answered in the upvoted order whenever possible**. We will take questions from further down the list when: the answer is not ready; we need to take the question away or the topic is outside of the scope of the OTF.
- **Sli.do will remain open until 12:00**, even when the call closes earlier, to provide the maximum opportunity for you to ask questions.
- **All questions will be recorded and published** All questions asked through Sli.do will be recorded and published, with answers, in the Operational Transparency Forum Q&A on the webpage: https://www.nationalgrideso.com/what-we-do/electricity-national-control-centre/operational-transparency-forum
- **Takeaway questions** – these questions will be included in the pack for the next OTF, we may ask you to contact us by email in order to clarify or confirm details for the question.
- **Out of scope questions** will be forwarded to the appropriate ESO expert or team for a direct response. We may ask you to contact us by email to ensure we have the correct contact details for the response. These questions will not be managed through the OTF, and we are unable to forward questions without correct contact details. Information about the OTF purpose and scope can be found in the appendix of this slide pack

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

Appendix

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.

Scope

Aligns with purpose, see examples below:

In Scope of OTF

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

Out of Scope of OTF

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
ESO policy & strategic decision making
Formal consultations e.g.: Code Changes, Business Planning, Market development

Managing questions at the ESO Operational Transparency Forum

- OTF participants can ask questions in the following ways:
  - Live via Sli.do code #OTF
  - In advance (before 12:00 on Monday) at https://forms.office.com/r/k0AEfKnai3
  - At any time to box.NC.Customer@nationalgrideso.com

- **All questions asked through Sli.do** will be recorded and published, with answers, in the Operational Transparency Forum Q&A on the webpage: Operational Transparency Forum | ESO (nationalgrideso.com)
- **Advance questions** will be included, with answers, in the slide pack for the next OTF and published in the OTF Q&A as above.
- **Email questions** which specifically request inclusion in the OTF will be treated as Advance questions, otherwise we will only reply direct to the sender.
- **Takeaway questions** – we may ask you to contact us by email in order to clarify or confirm details for the question.
- **Out of scope questions** will be forwarded to the appropriate ESO expert or team for a direct response. We may ask you to contact us by email to ensure we have the correct contact details for the response. These questions will not be managed through the OTF, and we are unable to forward questions without correct contact details. Information about the OTF purpose and scope can be found in the appendix of this slide pack