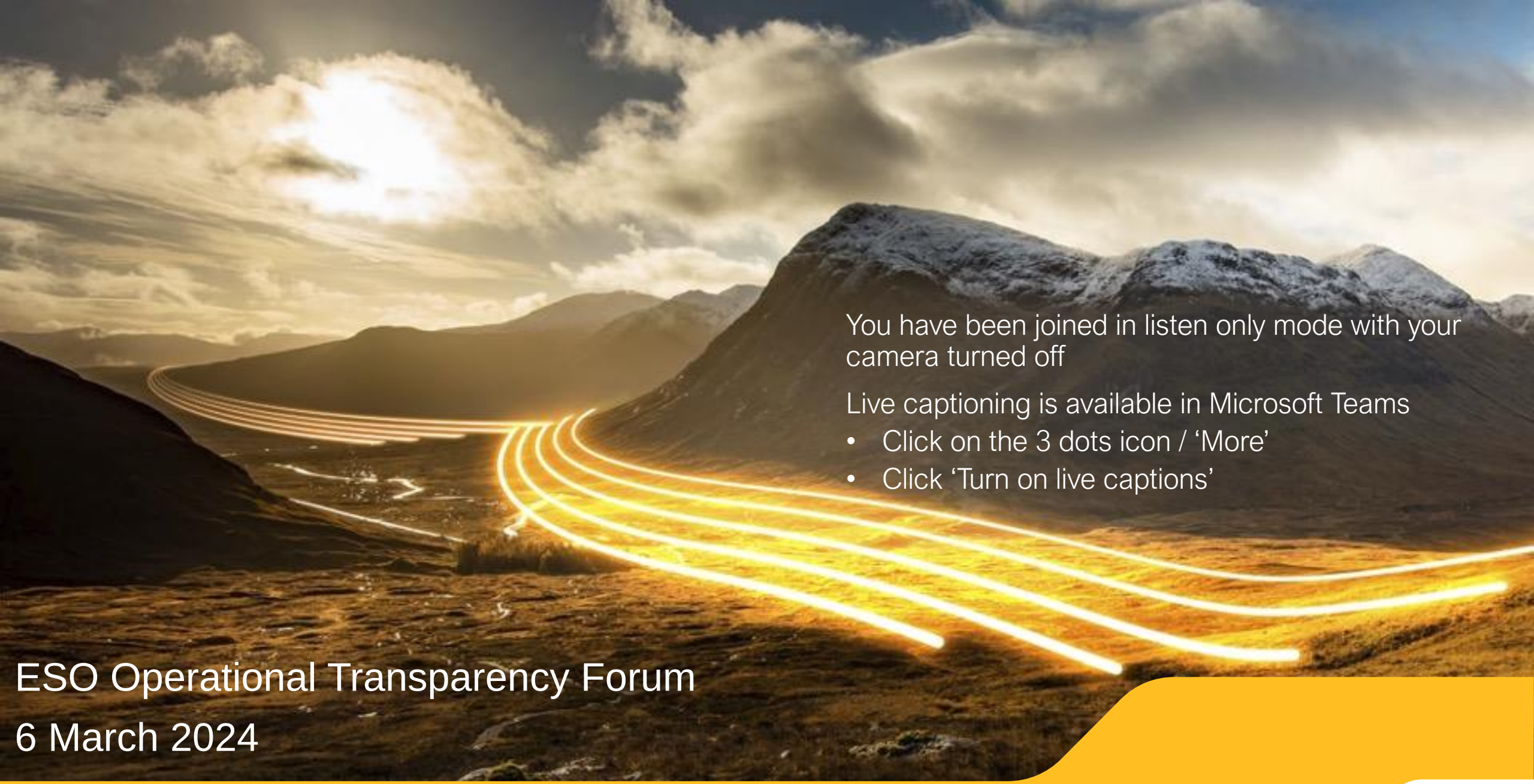


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

6 March 2024

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

Special Events Operational Strategy Process (including Managing Storm Conditions)

Future

We are currently reviewing the large number of requests we received via the OTF survey feedback.

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

System events

4 March 2023 Emergency Assistance requested for SP 27 and 28

System Warnings	
Warning Date/Time (GMT)	**Warning Text**
2024-03-04 12:45	A request for Emergency Assistance has been agreed on a GB connected Interconnector. The requesting party was NGESO. GB net flow will decrease by 716 MW between 12:50 04/03/2024 to 14:05 04/03/2024. Issued by Simon Williams at 12:45 on 04/03/2024

A circuit outage meant it was necessary for the ESO to restrict maximum flows on IFA1 into GB. This was managed throughout the morning by ESO energy trading actions.

A trading requirement was shared with the market at 11:13, but due to timing constraints no trades were accepted for the first hour 13:00-14:00 (SP 27 and 28). The use of Emergency Assistance to resolve the constraint was required for this time period .

The circuit was also recalled early from the outage to reduce uncertainty for the remainder of the day.

2024-03-04 12:57	NGESO has requested a Transmission Owner discontinue an outage within relevant Emergency Return to Service time, under STC Section C Part 2 (7). Issued by Simon Williams at 12:49 on 04/03/2024

For more information about Interconnectors please see the OTF Webinar and Slides from 8 March 2023.
Information about **Emergency Assistance** can be found on slide 23

Markets Forum – March 2024

7 March 2024 – **Publication of recorded webinar**. Including several topics, such as:

- Launch of Markets Roadmap
- Revenue stacking
- Operational metering
- Enhancing Energy Storage in the Balancing Mechanism
- REMA

To receive a link to the video, please sign up to the distribution list here or via the QR code below:

14 March 2024 – **Live Q&A webinar**

To sign up to the webinar, select here

If you have any questions, please contact the team at:

box.MarketsEngagement@nationalgrideso.com

Connections Monthly Forum

Date: 12 March 2024

Time: 11:00 – 12:00 PM

Monthly online forum for Connections customers and stakeholders.

Agenda

- Introduction
- Connections by numbers
- Recent developments
- Monthly deep dive (March topic is Two Step offers)
- Audience Q&A

Registration open for 12 March and 16 April 2024 forums. All dates, and future registration links on this page:

https://www.nationalgrideso.com/industry-information/connections/customer-connection-events#Monthly-Connections-Forum

Balancing Programme Webinar

Date: 27 March 2024

Time: 14:00 – 15:30 PM

Hear the latest on:

- Progress to transform our balancing capabilities
- Upcoming releases and their anticipated impact
- Opportunities for proactive collaboration

To sign up to the webinar, click here

To stay up to date with the latest information from the Balancing Programme, subscribe to our newsletter by clicking here

If you have any questions, please contact the team at: box.balancingprogramme@nationalgrideso.com

Sli.do code #OTF

Upcoming NESO Webinars

Join us in our upcoming webinars to learn more about the new responsibilities of NESO from Day 1, how these will evolve and how we can work together to deliver a net zero energy system that balances sustainability with affordability and security.

Resilience and Security	Strategic Planning	Market Development
26 February, 11:00	**1 March, 10:30**	**6 March, 10:00**
Find out how NESO is establishing a Directorate of Resilience and Emergency Management that will take a whole system perspective when considering resilience and security for GB.	Find out how NESO will deliver national and regional energy planning bringing electricity, gas and hydrogen plans together to efficiently deliver net-zero.	Find out how NESO will drive the evolution of market arrangements across the whole energy system to facilitate security of energy supply and deliver investible markets at the most equitable cost to consumers.

Recordings will be available online

Sign up via the registration links on the ESO website and LinkedIn

https://www.nationalgrideso.com/what-we-do/becoming-national-energy-system-operator-neso

Balancing Reserve – EAC Go Live

Key Milestone Achieved

On Thursday 8th February Ofgem approved the proposed amendments to the Balancing Reserve Procurement Rules and Service Terms. The Ofgem decision letter can be found using this link.

We can also confirm that we now have formal approval for technical go-live of the addition of Balancing Reserve to the EAC platform.

The EAC platform will now procure Response services as well as Balancing Reserve services.

Balancing Reserve has launched on the EAC platform on **Tuesday 27th February at 08:15,** this means the gate for bid submissions is open ahead of the first Balancing Reserve auction taking place on **Tuesday 12th March at 08:15.** Response auctions will continue to take place as normal on the EAC platform at 14:00 daily.

We have updated the EAC Market Design Explainer document on the EAC webpage to now include Balancing Reserve. This document can be found using this link: https://www.nationalgrideso.com/document/277671/download

The EAC sandbox environment will remain in place for any providers to use as a testing platform, if you wish to register for access to this then please email box.futureofbalancingservices@nationalgrideso.com

More information on EAC and materials from previous webinars can be found on our website. If you have any queries please email us at: box.futureofbalancingservices@nationalgrideso.com

Enhancing the use of storage assets in our balancing activities

Sli.do code #OTF

Proposal to change the 15-minute rule to 30 minutes – planned for 11 March 2024

- This will allow energy storage units to be instructed for up to 30 minutes, depending on system conditions. Units must ensure they can sustain their declared available energy for the length of the instruction (up to 30 minutes + 2 minutes ramping), this will be monitored as per normal process. The new 30-minute rule will be in place until new energy storage parameters are introduced as part of GC0166
- We are asking for providers to start transitioning from 11 March 2024, looking to have completed by 25 March 2024
- We require a staggered approach to this transition, so we are asking providers to inform us of their intended date and time of transition, including the applicable Balancing Mechanism Units.
- New MEL/MIL guidance will be issued today with details of the 30-minute rule and how to inform us of your transition date
- Thanks for the feedback provided so far, we will be including this in our Q&A document over the next week
- Get in touch by emailing **box.balancingprogramme@nationalgrideso.com**

Link to questions & answers from the Storage event & webinar

Special Events Operational Strategy process

Cristian Ebau

ESO

Special Events Operational Strategy process

Provide guidance and strategy to the Control Room to operate the transmission network during events that require extra consideration.

Special events examples

- Sporting events
- State Funeral/Royal Wedding/ Coronation
- Weather Warnings

Content provided in Special Event strategy

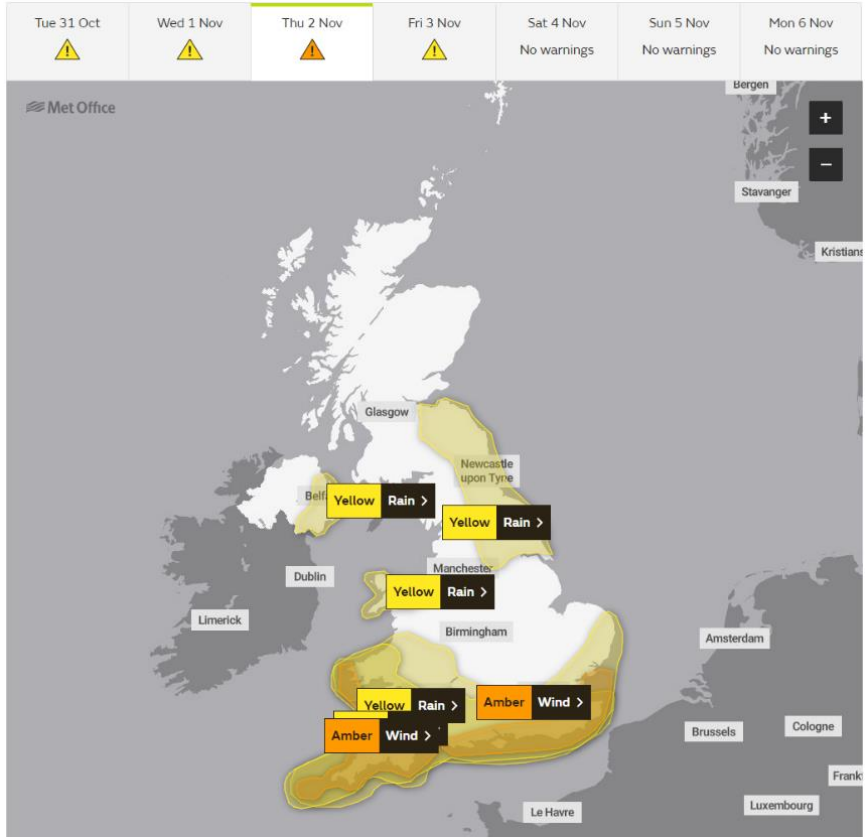
- Weather and demand forecast
- Response and Reserve
- Margin
- Network Planning and outages
- Trading Strategy and Interconnectors power flow
- IT Outage planning/upgrades
- Additional resource identified as a strategy requirement

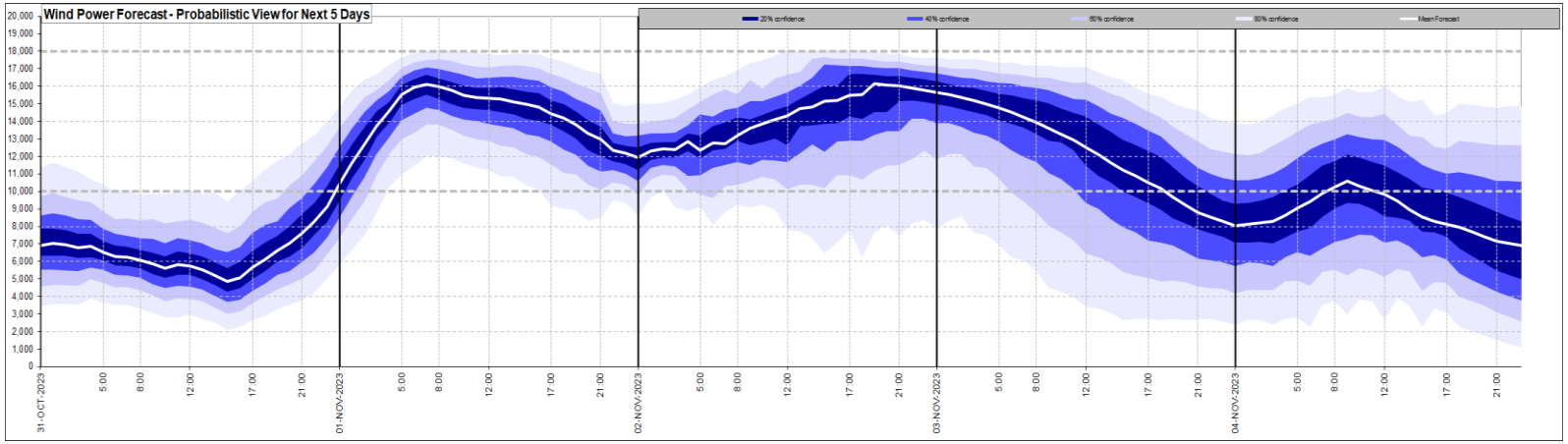
Special event preparation improves the system operation efficiency through providing ahead of time risk mitigation, and seeking to minimise the cost of these actions.

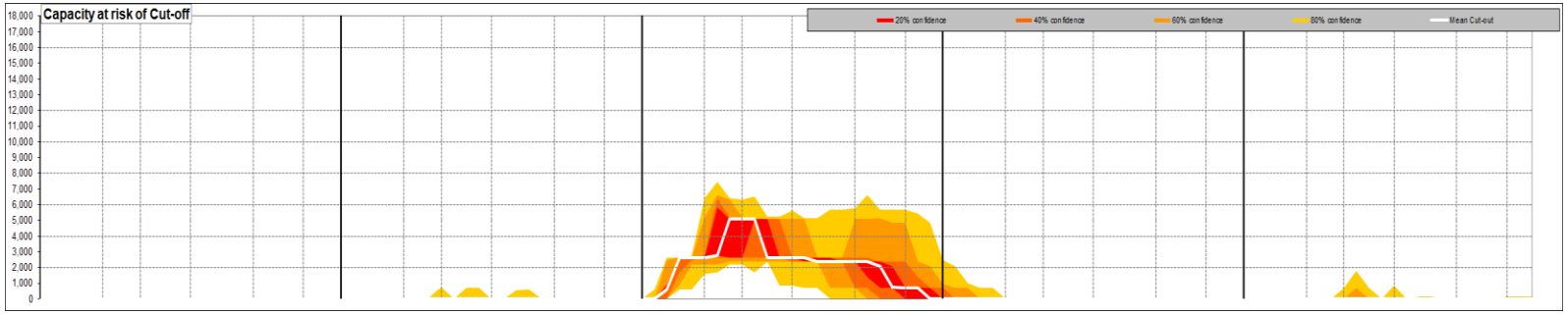
Though the process we are able to identify areas of improvement for future events.

Special Event – Storm Ciarán – 1st and 2nd November 2023

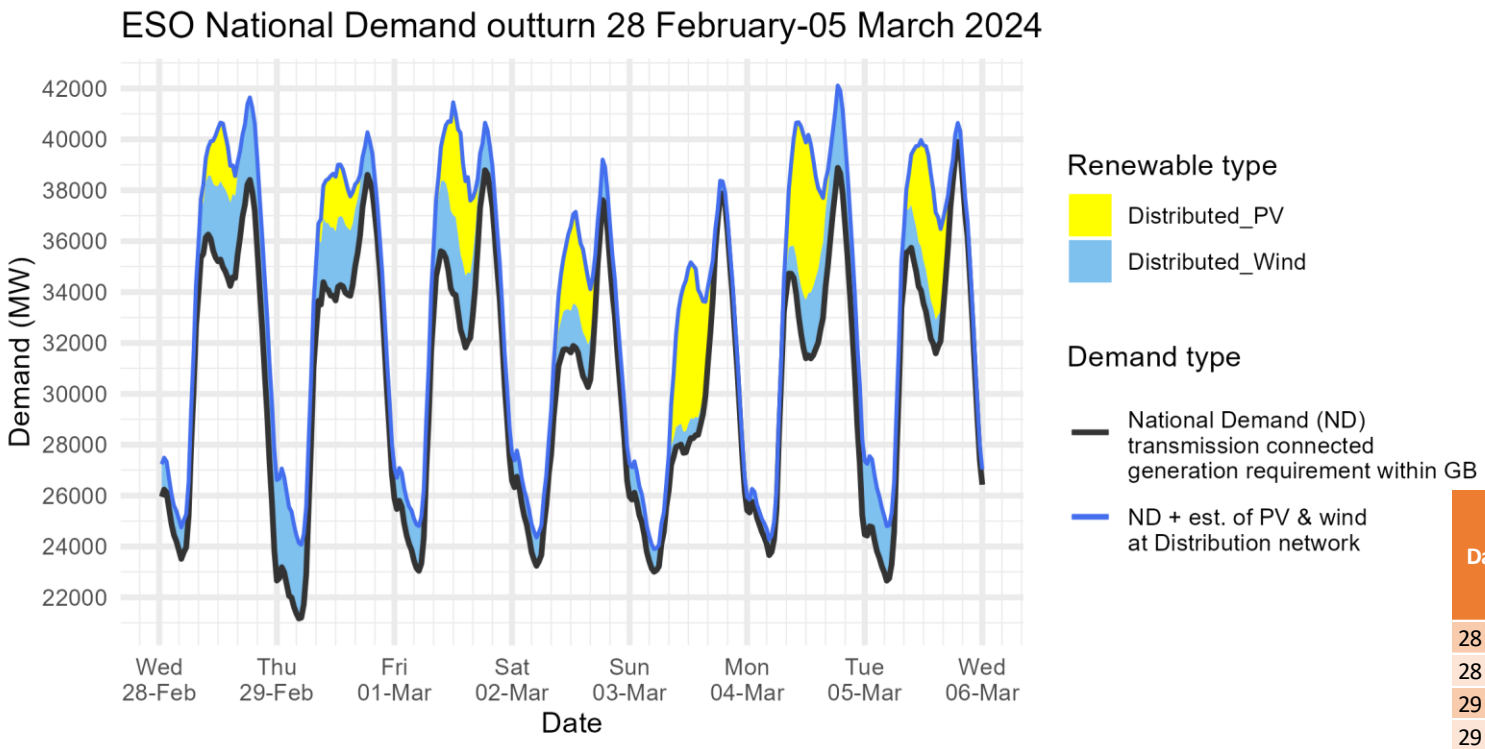
Higher risk of circuit tripping for network areas with high concentration of Offshore Wind farms and Interconnectors terminals







Demand | Last week demand out-turn



		FORECAST (Wed 28 Feb)		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)
28 Feb	Overnight Min	23.2	1.5	23.5	n/a	n/a	1.2
28 Feb	Evening Peak	38.5	3.1	38.4	0.0	38.4	3.2
29 Feb	Overnight Min	19.8	3.7	21.2	n/a	n/a	3.0
29 Feb	Evening Peak	38.9	2.3	38.6	0.0	38.6	1.7
01 Mar	Overnight Min	21.8	2.4	23.0	n/a	n/a	1.8
01 Mar	Evening Peak	38.6	1.8	38.8	0.0	38.8	1.8
02 Mar	Overnight Min	22.4	1.2	23.2	n/a	n/a	1.1
02 Mar	Evening Peak	35.4	2.0	37.6	0.0	37.6	1.5
03 Mar	Overnight Min	21.3	1.5	23.0	n/a	n/a	0.9
03 Mar	Evening Peak	36.8	1.3	37.9	0.0	37.9	0.5
04 Mar	Overnight Min	22.3	1.3	23.7	n/a	n/a	0.6
04 Mar	Evening Peak	39.8	1.5	38.9	0.0	38.9	3.2
05 Mar	Overnight Min	22.9	1.4	22.7	n/a	n/a	2.1
05 Mar	Evening Peak	39.3	1.6	39.9	0.0	39.9	0.7

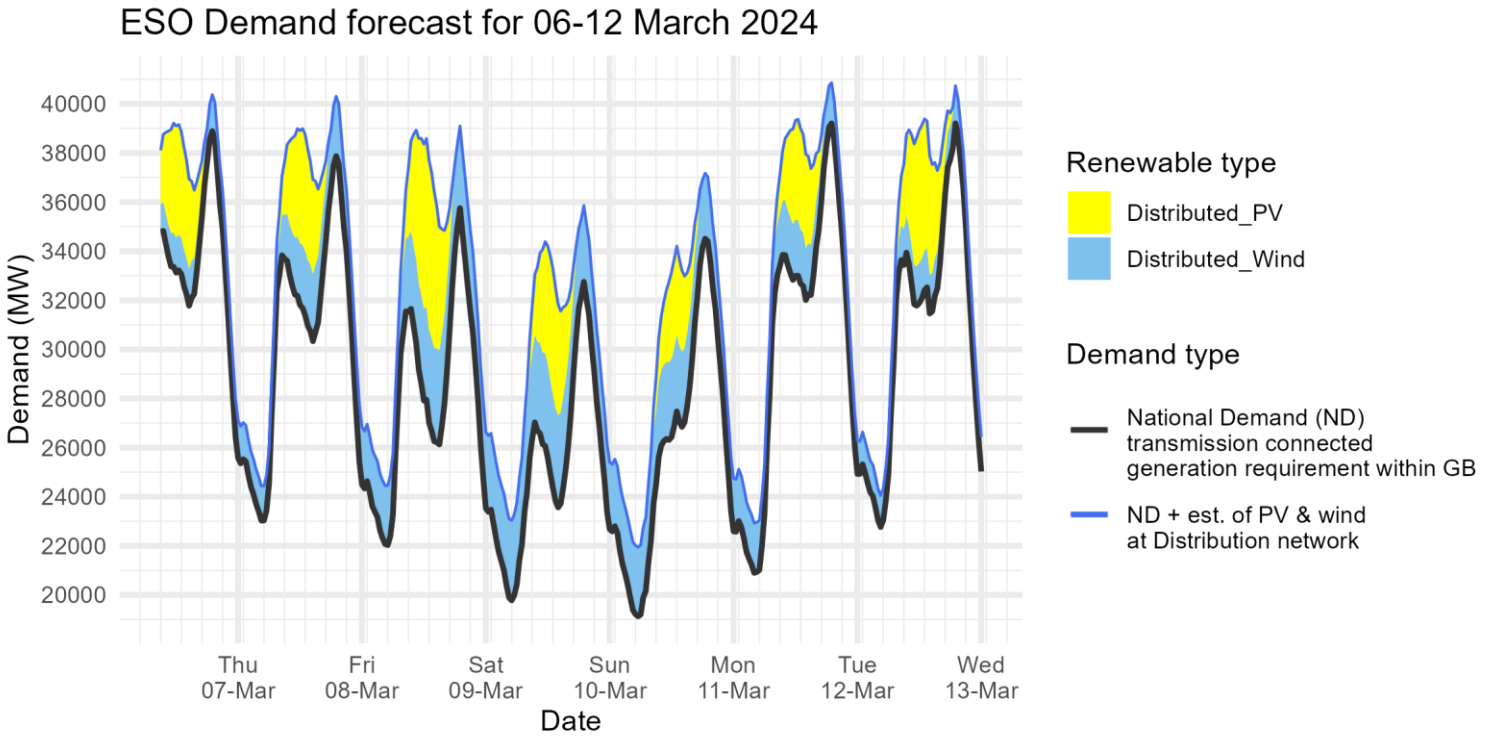
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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 06 Mar)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
06 Mar 2024	Evening Peak	38.9	1.5
07 Mar 2024	Overnight Min	23.0	1.4
07 Mar 2024	Evening Peak	37.9	2.4
08 Mar 2024	Overnight Min	22.0	2.4
08 Mar 2024	Evening Peak	35.8	3.3
09 Mar 2024	Overnight Min	19.8	3.3
09 Mar 2024	Evening Peak	32.8	3.1
10 Mar 2024	Overnight Min	19.1	2.8
10 Mar 2024	Evening Peak	34.5	2.7
11 Mar 2024	Overnight Min	20.9	2.0
11 Mar 2024	Evening Peak	39.2	1.7
12 Mar 2024	Overnight Min	22.8	1.3
12 Mar 2024	Evening Peak	39.2	1.4

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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 6th March 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.

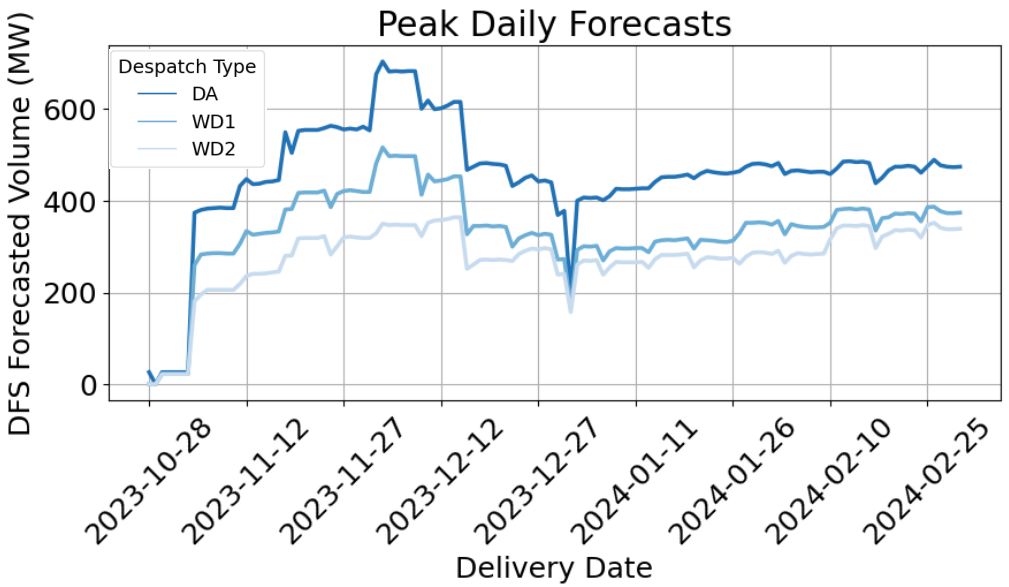
Margins are adequate for the next week.

Day	Date	Notified Generation (MW)	Wind (MW)	IC Flows* (MW)	Peak demand (MW)	Indicative surplus (MW)
Thu	07/03/2024	40640	11370	4080	38690	13620
Fri	08/03/2024	40256	14580	4080	36260	17850
Sat	09/03/2024	40771	14530	4080	32800	21280
Sun	10/03/2024	41828	11950	4080	34550	18720
Mon	11/03/2024	42462	7720	4080	39700	10220
Tue	12/03/2024	42573	7100	4080	40080	9300
Wed	13/03/2024	43060	5830	4080	40310	8410

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

DA *Day-ahead procurement.*
WD1 *Procurement at around 09:00 for same day delivery.*
WD2 *Procurement at around 12:00 for same day delivery.*

Demand Flexibility Service



Despatch Type	Number of events		
	Live	Test (GAP £3,000/MWh)	Test (GAP £0/MWh)
Day-ahead	2	2	0
Within day 1	0	3	2
Within day 2	0	2	3
Total	**2**	**7**	**5**

Latest events:

Delivery Date: 29th February 2024 (Thursday); 18:00 to 18:30 h, WD2, GAP = 0£/MWh.

On this day, 22 participants engaged via 50 DFS Units to offer up to 342 MW distributed in varying quantities from a minimum price of £900/MWh to a maximum of £2450/MWh. The maximum accepted price was £1200/MWh which was sufficient to secure 151 MW. Equivalent to 121% of the procurement target of 125 MW.

Delivery Date: 1st March 2024 (Friday); 18:00 to 18:30 h, WD2, GAP = 0£/MWh.

On this day, 21 participants engaged via 46 DFS Units to offer up to 200 MW. The highest accepted price was £750/MWh whilst the lowest started from £400/MWh. The accepted quantity was 56 MW, which represented 112% of the procurement target of 50 MW.

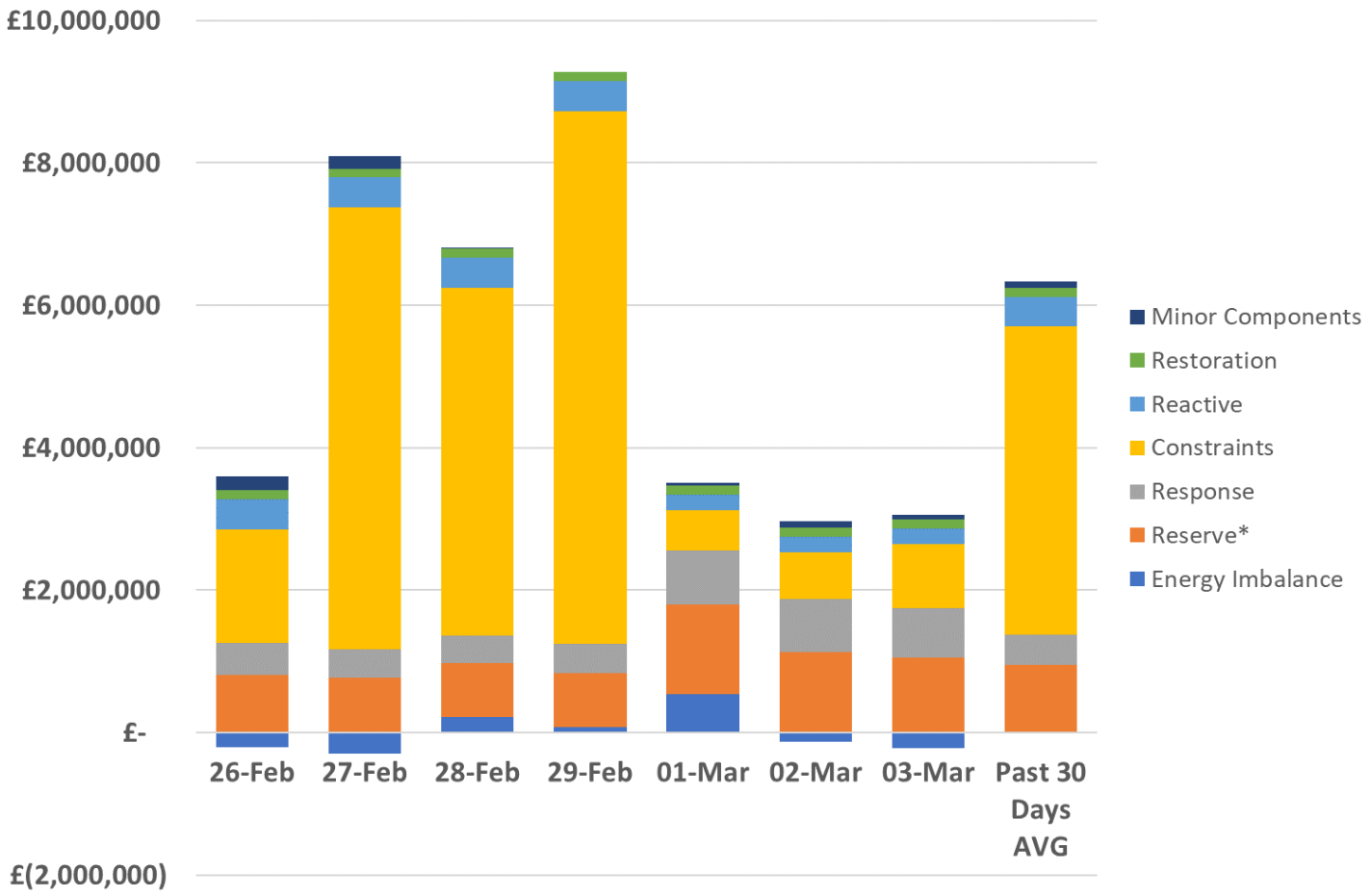
Delivery Date: 2nd March 2024 (Saturday); 18:00 to 18:30 h, WD1, GAP = 0£/MWh.

On this day, 18 participants took part in the event, involving a total of 44 DFS Units. The total quantity offered was 242 MW, of which 100 MW was accepted, accounting for 100% of the procurement target. The lowest and highest accepted prices were £499/MWh and £1000/MWh respectively.

https://www.nationalgrideso.com/data-portal/demand-flexibility-service

ESO Actions | Category costs breakdown for the last week

Date	Total (£m)
26/02/2024	3.4
27/02/2024	7.8
28/02/2024	6.8
29/02/2024	9.3
01/03/2024	3.5
02/03/2024	2.8
03/03/2024	2.8
Weekly Total	36.4
Previous Week	38.4

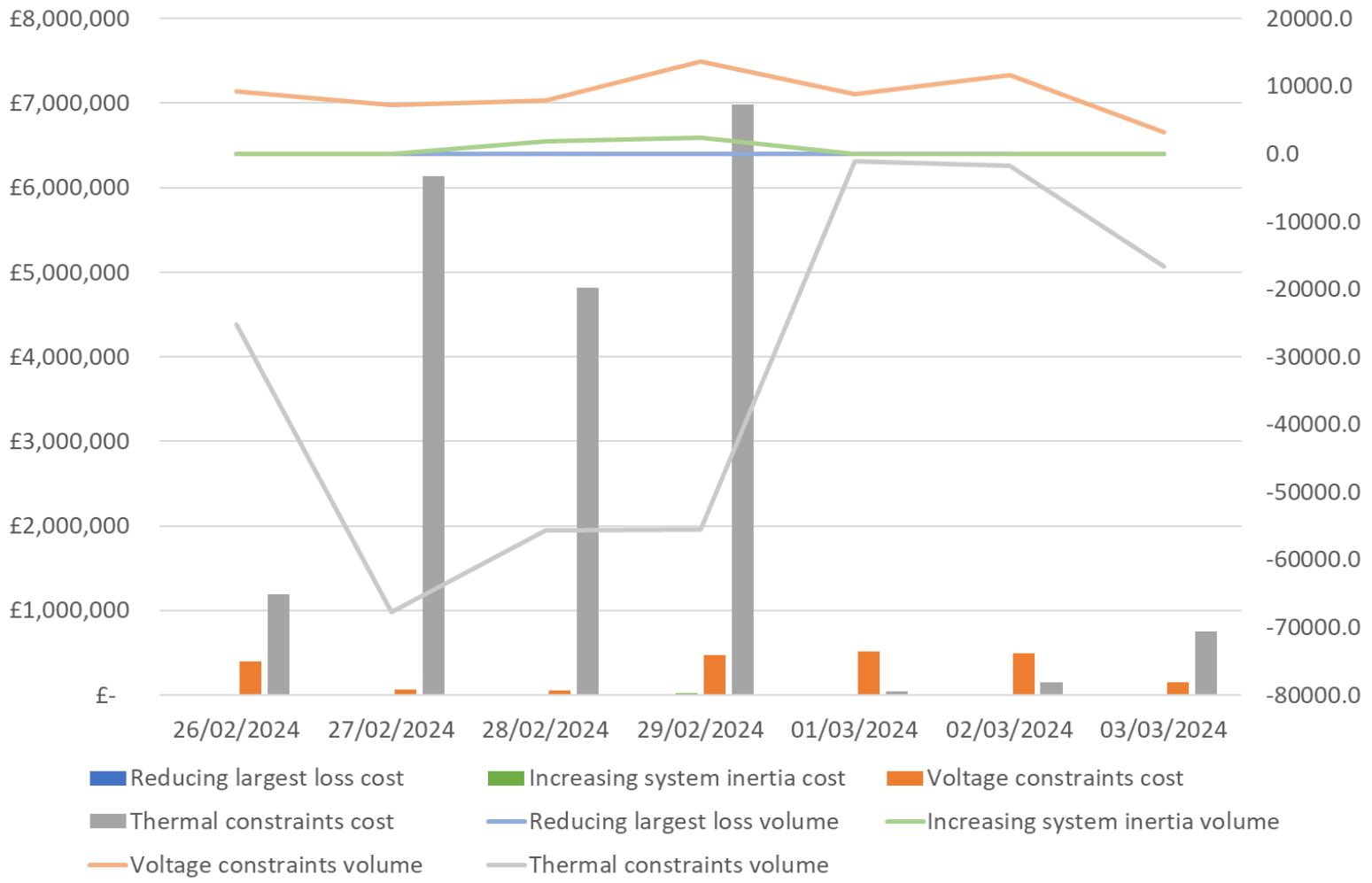


Constraints and Reserve costs were the key cost component for the week.

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



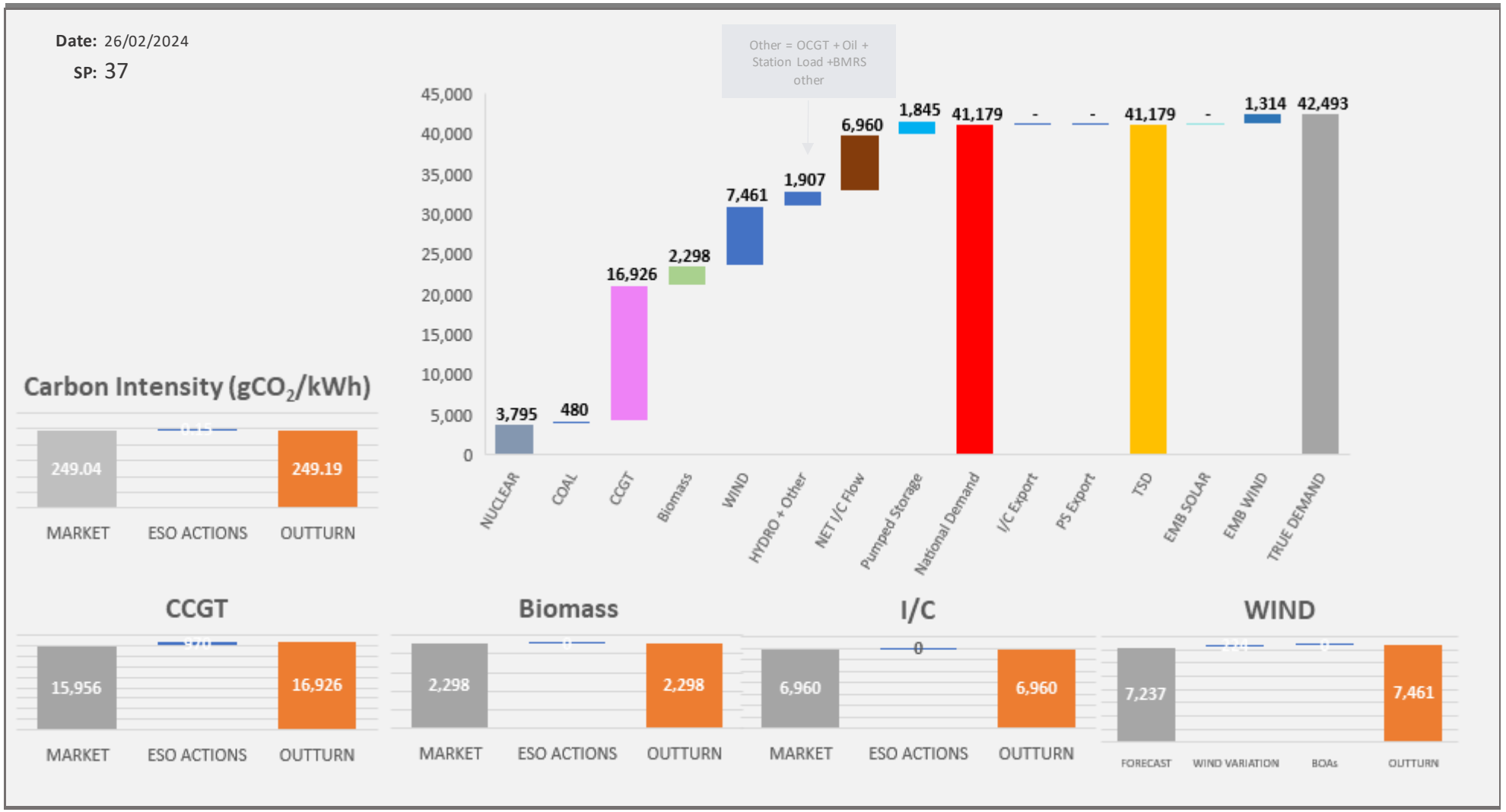
Thermal – network congestion
Actions were required to manage thermal constraints throughout the week, with the most significant costs on Tuesday and Thursday.

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

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

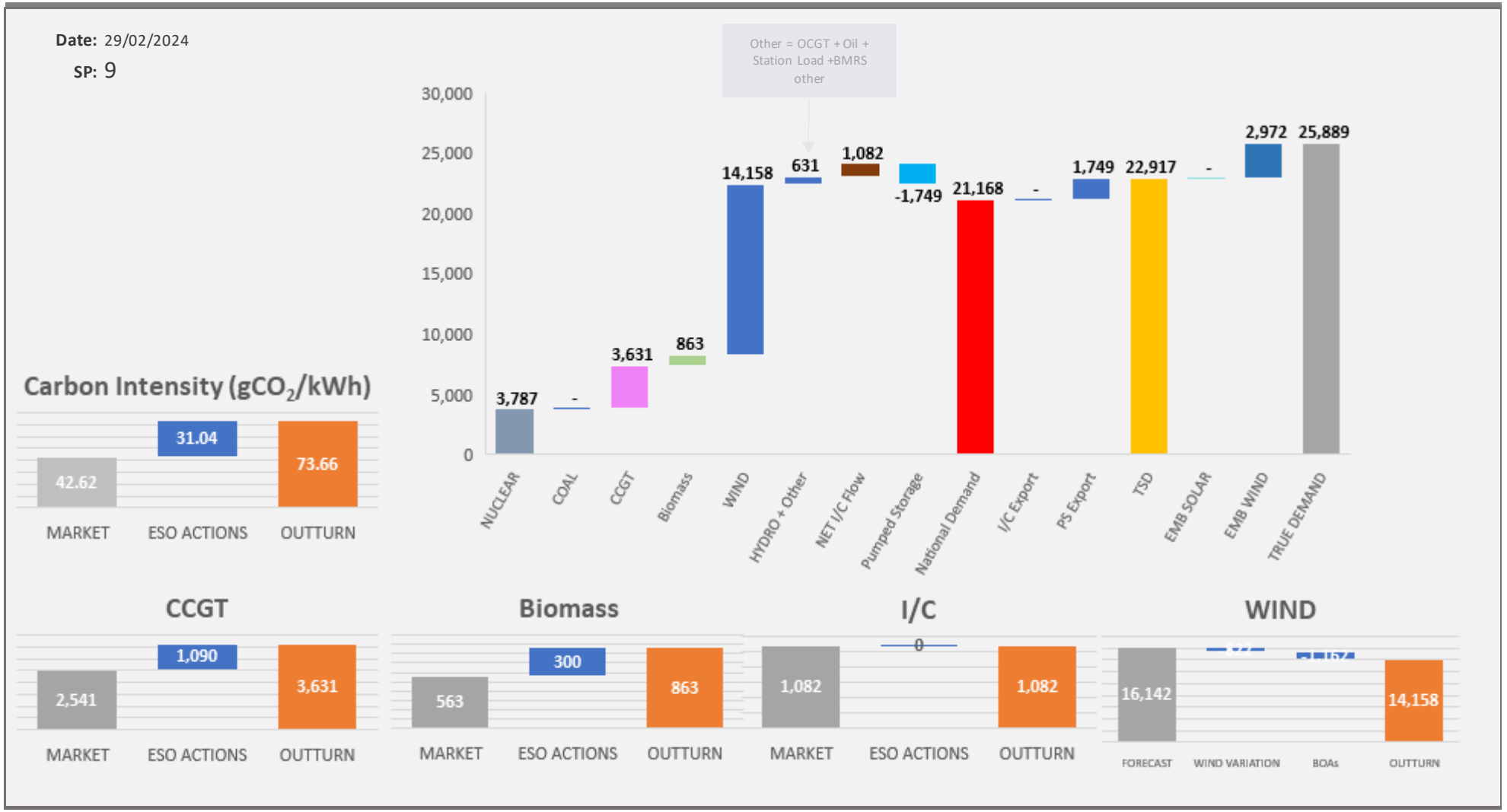
Increasing inertia
Intervention was required to manage System Inertia on Wednesday and Thursday.

ESO Actions | Monday 26 February – Peak Demand – SP spend ~£20k



Carbon Intensity data on data portal: https://www.nationalgrideso.com/data-portal/carbon-intensity-balancing-actions#:~:text=The%20carbon%20intensity%20of%20balancing,profile%20with%20balancing%20actions%20applied.

ESO Actions | Thursday 29 February – Minimum Demand – SP Spend ~£232k



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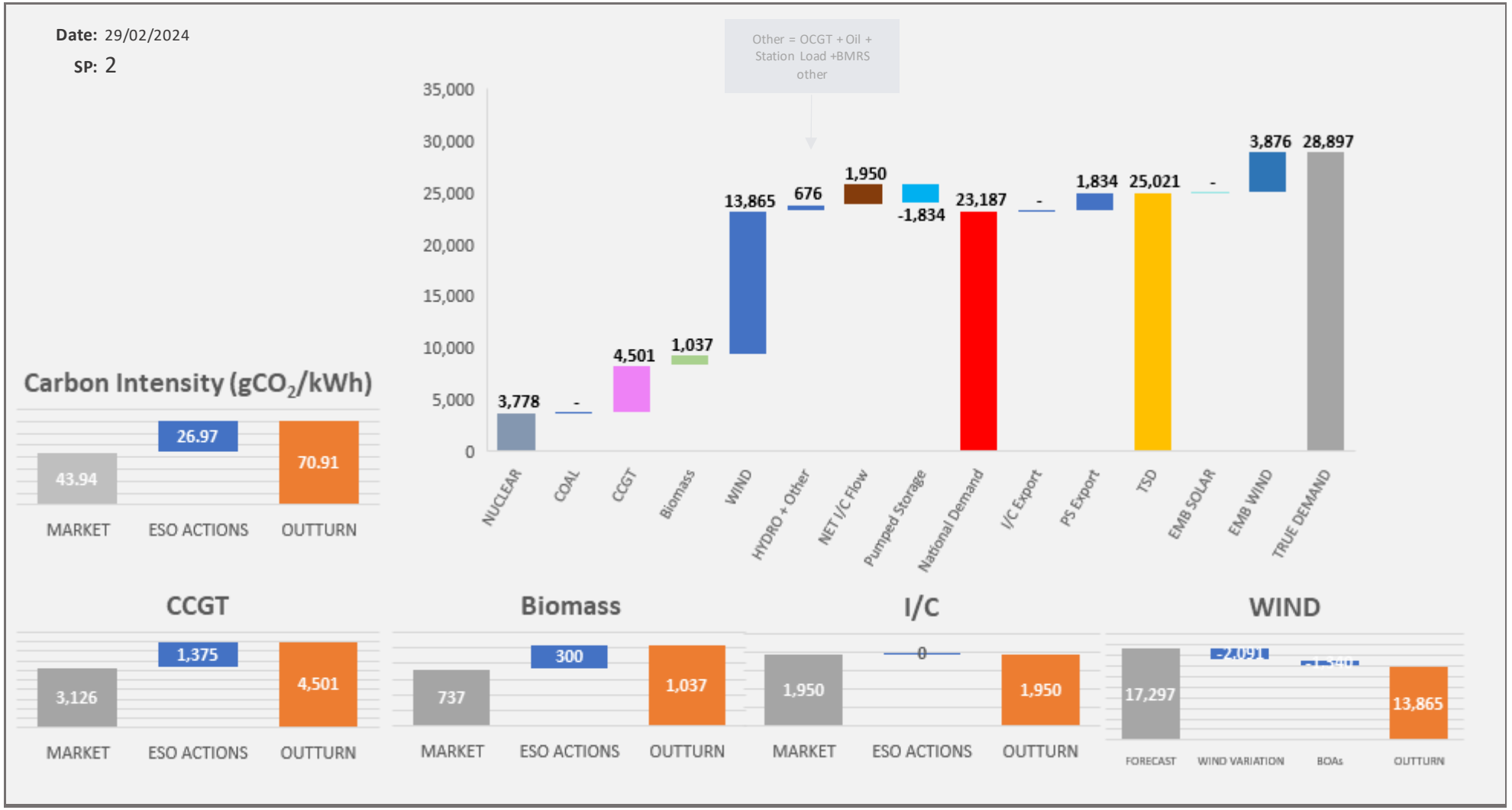
ESO Actions | Thursday 29 February – Highest SP Spend ~£297k



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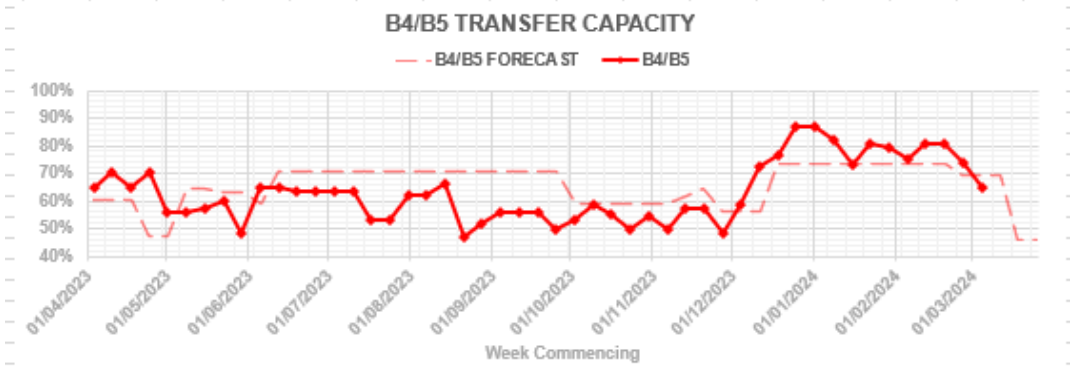
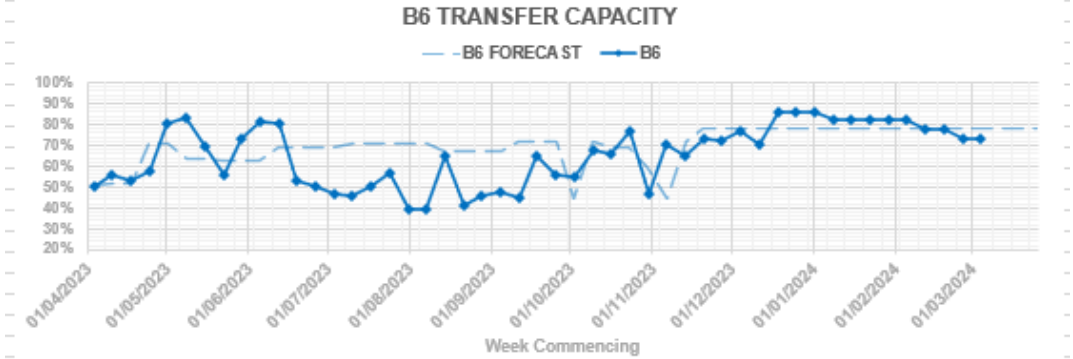
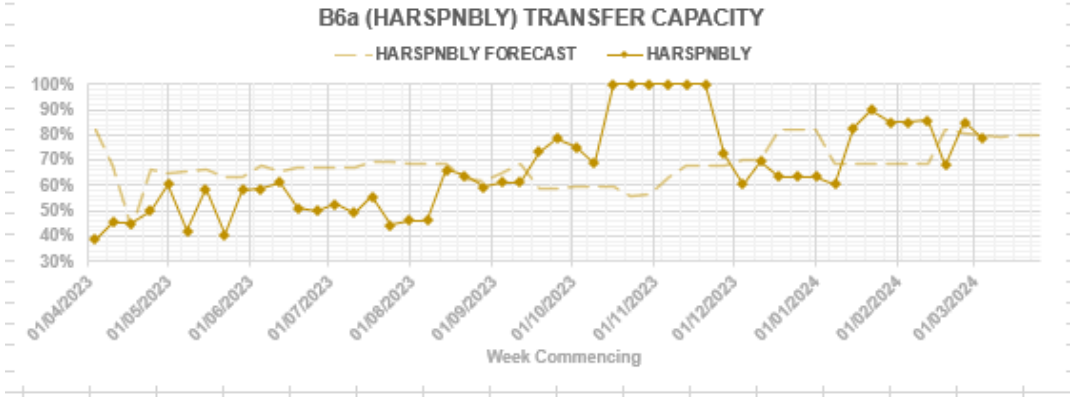
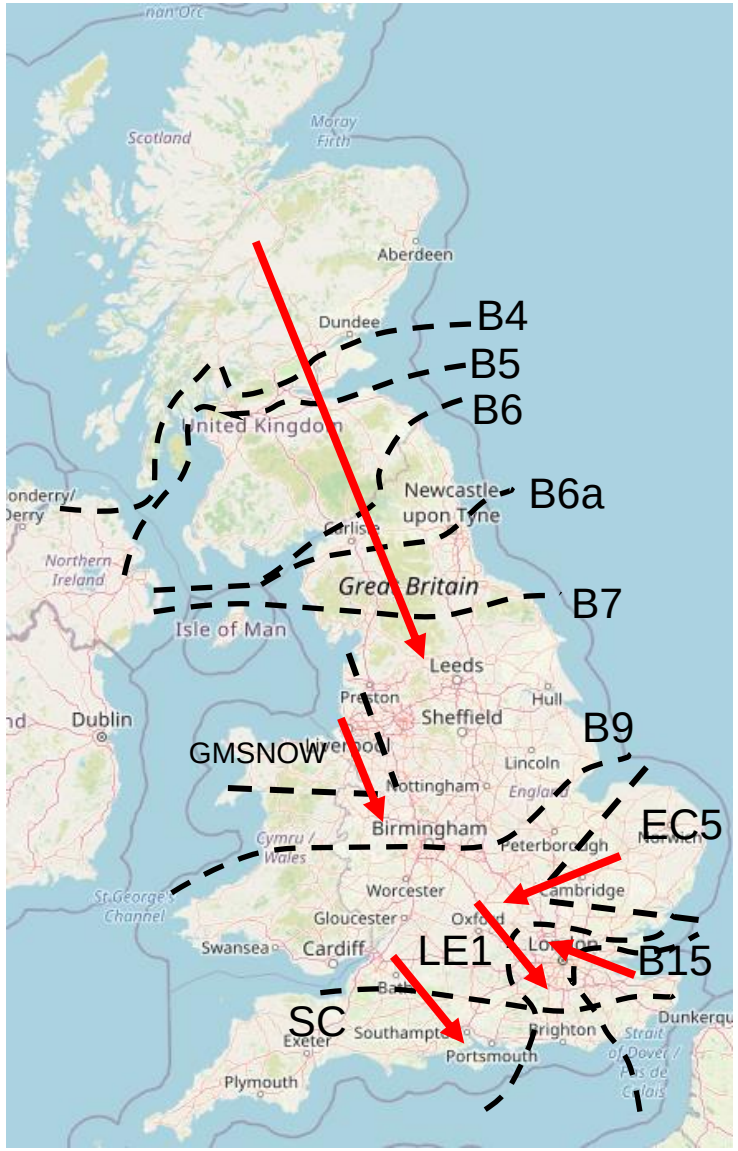
Transparency | Network Congestion





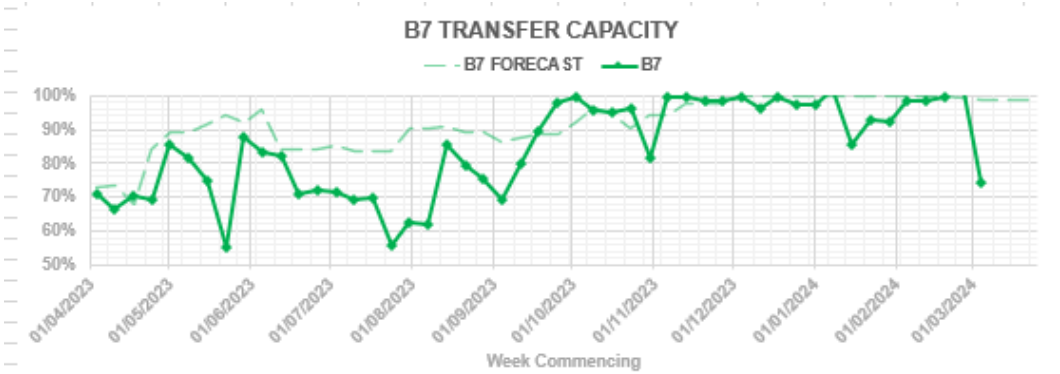


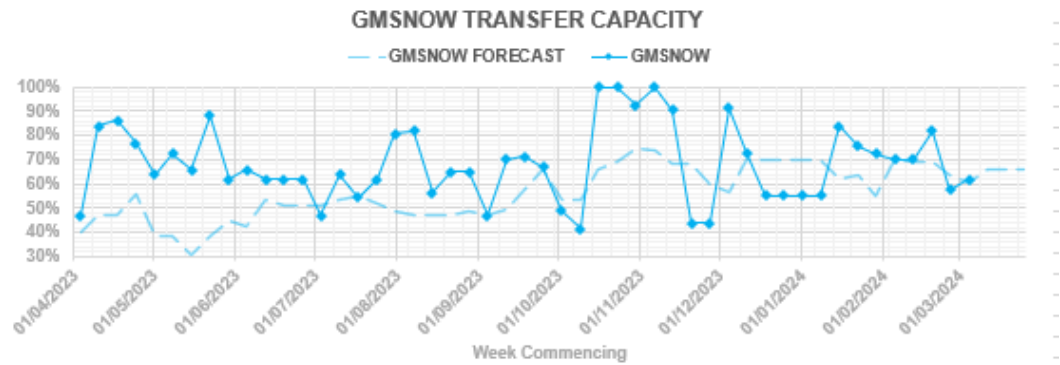
Boundary	Max. Capacity (MW)	Current Capacity (%)
B4/B5	3400	65%
B6	6800	74%
B6a	8000	79%
B7	8325	74%
GMSNOW	4700	62%
EC5	5000	84%
LE1	8500	78%
B15	7500	100%
SC	7300	100%

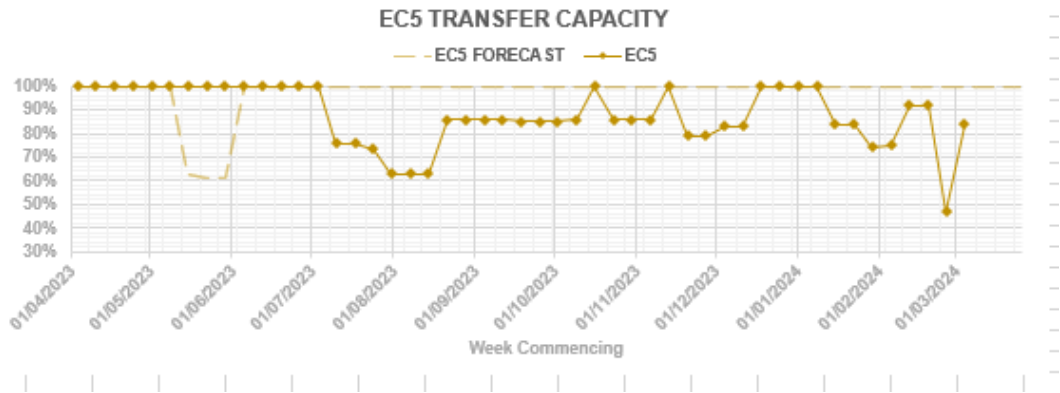


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
[Constraints Management]

Transparency | Network Congestion







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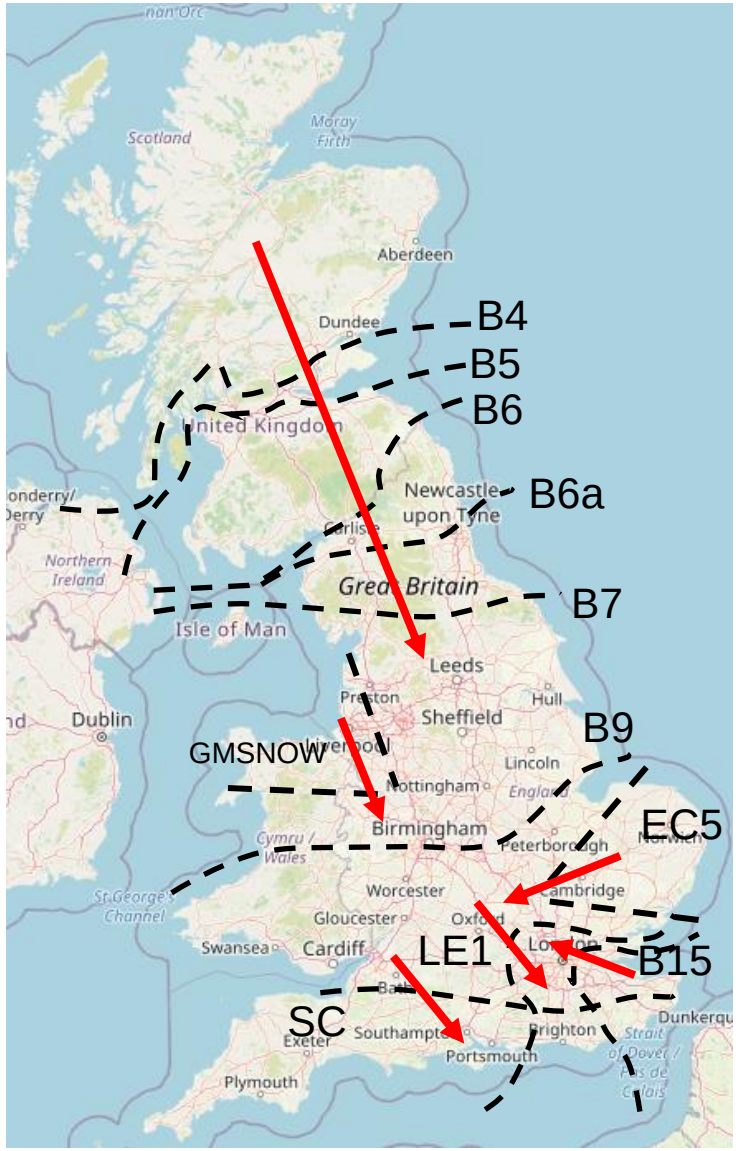
EC5	5000	84%
LE1	8500	78%
B15	7500	100%
SC	7300	100%



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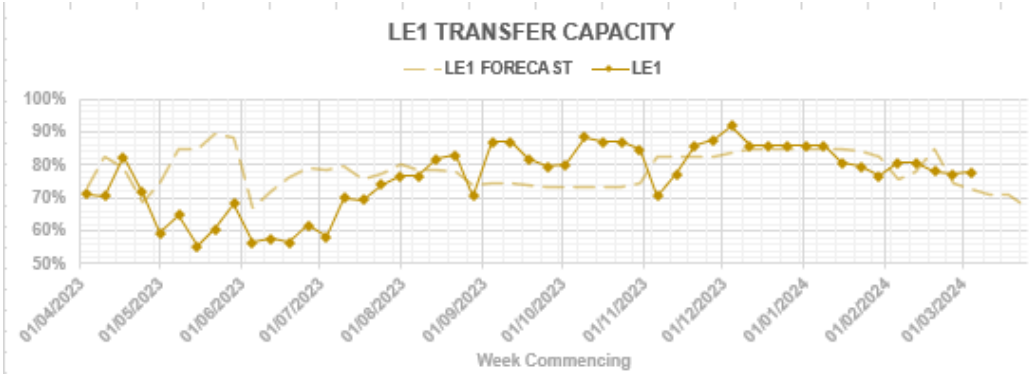
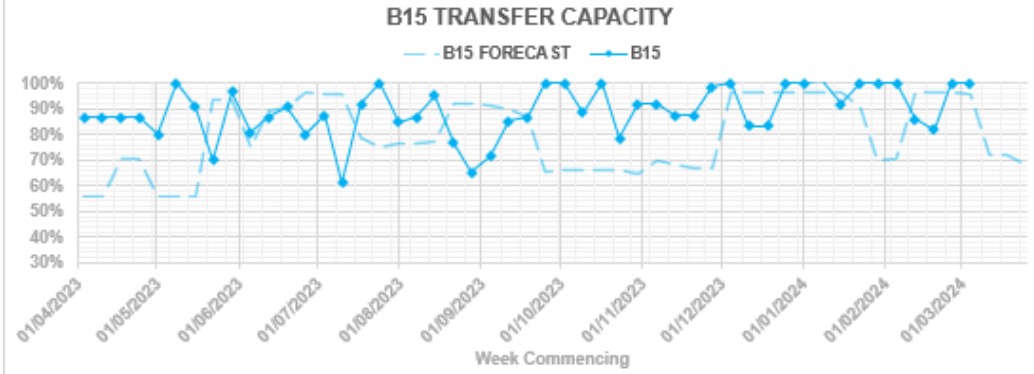
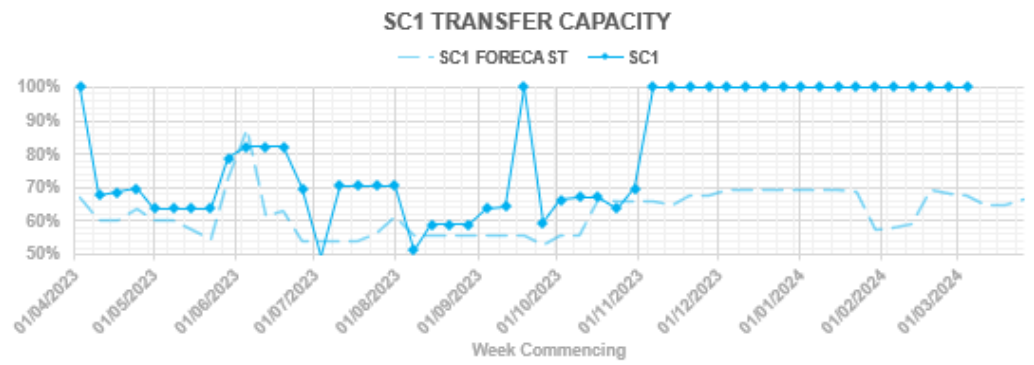
Sli.do code #OTF

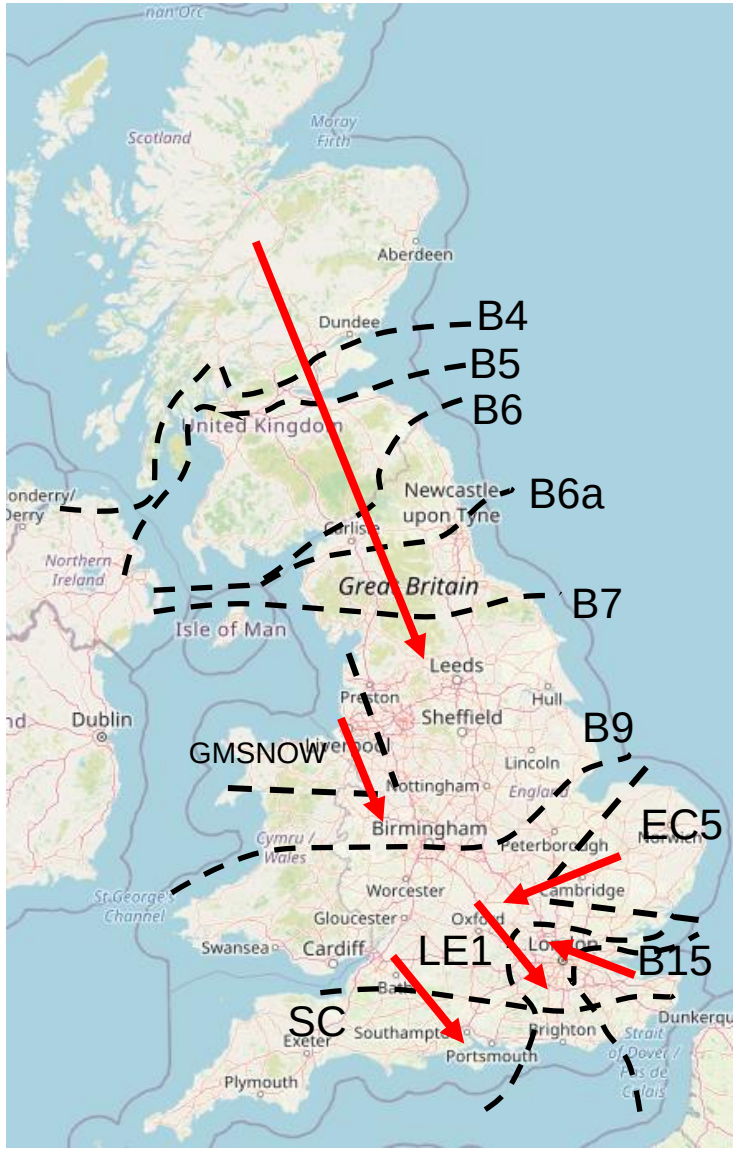
Transparency | Network Congestion







Boundary	Max. Capacity (MW)	Current Capacity (%)
B4/B5	3400	65%
B6	6800	74%
B6a	8000	79%
B7	8325	74%
GMSNOW	4700	62%
EC5	5000	84%
LE1	8500	78%
B15	7500	100%
SC	7300	100%



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

Previously asked questions

Q: In the Local Constraints Market, ESO is looking Day Ahead Bids which are cost-effective compared to the BM Bid prices. Looking the Bid acceptances from Wind farms in the Scottish region, post 11 December (date when LCM became an operational tool in the control room), the average prices range from £95-£105/MWh. But ESO has been rejecting generation turn down bids in the LCM in the range of £90/MWh. Why is this the case if cost effectiveness is important? Is the ESO expectation of bid prices (based on the price points shared in October 2023) in the LCM unreasonably low?

Q: Since the Local Constraints Market has been live, the ESO has been rejecting bids in the LCM in the range of £85-£90/MWh at Day Ahead but accepting bids from generators in the BM at £95-105/MWh. Why is this the case?

A: LCM is accepted day ahead based upon the best available information at the point of decision making, but this is before the final price of equivalent real time volumes are confirmed.

Pre gate closure information available to the Control Room is used as a day ahead guide to cost effective day ahead actions and the potential volume of constraint actions required under an internal commercial policy which includes a small premium for the uncertainty of committing to an action in advance of the requirement.

It is not possible to forecast wind with precision at day ahead stage nor to predict all real time network limitations. This means there is uncertainty on the actions which will need to be taken on the day in addition to the uncertainty on the forward price of the BM alternative.

Therefore, it would not be reasonable to price LCM at the most expensive transactions that could out-turn in any settlement period. Consequently, some BM actions may turn out to be more expensive than the LCM alternative price and all instances of this will not be possible to eliminate.

Advance Questions

Q: When do you plan to publish the FRCR of 2024? Things have changed dramatically since last report (Feb 2023). Feb 2023 report doesn't mention DM/DR, OBP, etc ?

A: We are engaging with Ofgem and SQSS panel to agree the completion / submission date. We are hoping to communicate our plan soon including consultation and webinar dates via the OTF.

Outstanding Questions

Q: A large amount of large BMUs were instructed on to cover the evening peak on 20th Feb, however a number of assets were skipped in the process by a fairly large margin. 2 units failed to start early, but weren't replaced. Was the large amount taken in order to cover for some of them failing?

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