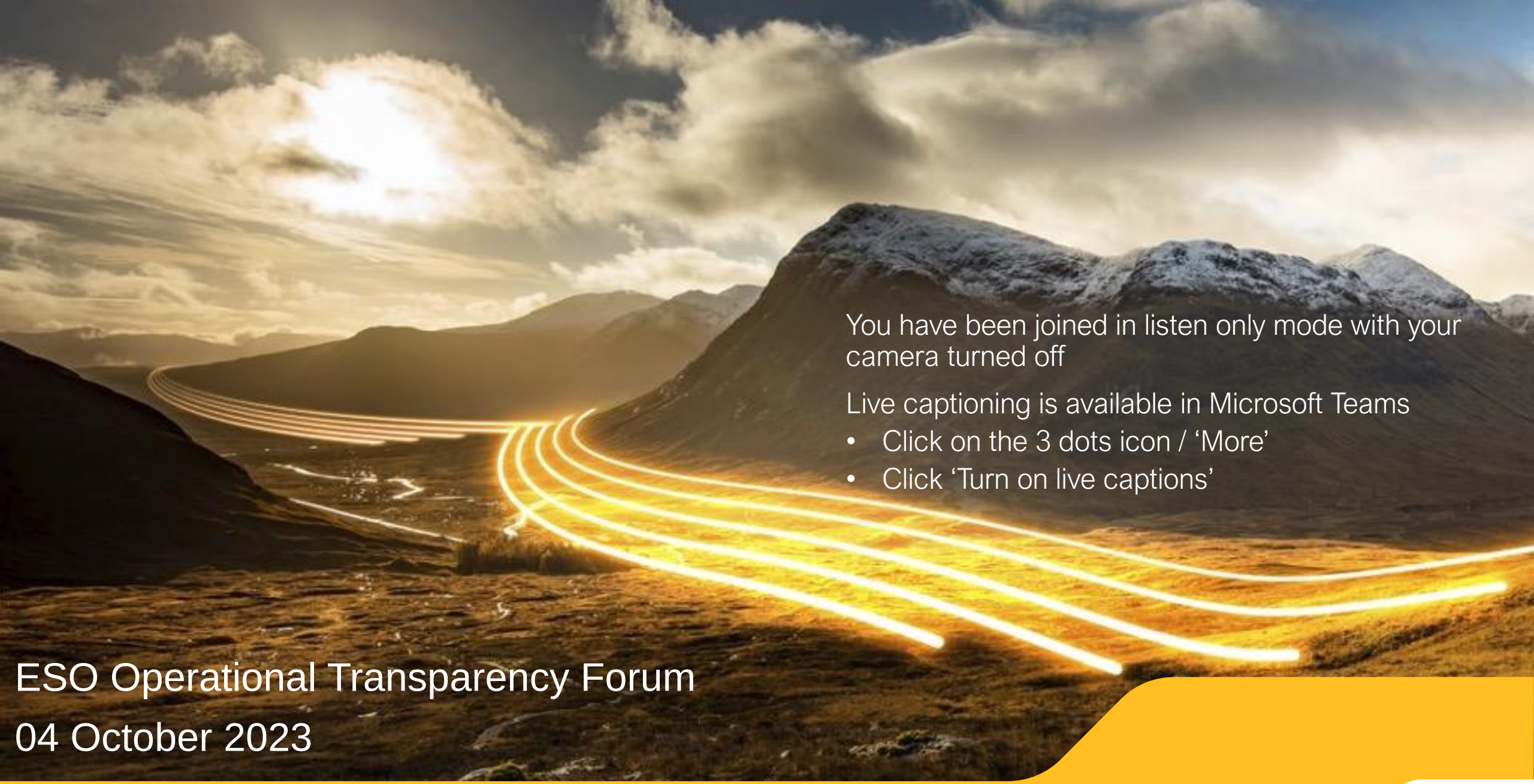


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

04 October 2023

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 next 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.

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

Future deep dive / focus topics

Today

Winter Outlook – key messages

Future

Dynamic System Modelling (project update) – 11th October

Winter Deep Dive – 18th October – potentially an extended session

Transmission Network Development – 25th October – this will cover questions not covered in the constraints deep dive

Scottish Oscillations – following conclusion of current investigative work

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

Cross Border Balancing Webinar – 19th October 2023

Following Brexit, National Grid ESO have been working with a market expert, Compass Lexecon, on the market options for Cross Border Balancing.

National Grid ESO and Compass Lexecon are inviting you to the Cross Border Balancing Webinar on **19th October 2023**.

In this webinar we will be sharing with you the results of the modelling of market options on Cross Border Balancing and you will have an opportunity to ask questions to both NGESO and Compass Lexecon.

You can register for the event here.

We look forward to welcoming you at this webinar.

Dynamic Moderation Requirement

As mentioned in the latest Frequency Response Products Market Information Report, based on a review of system conditions, we have increased DM requirements and value DM volumes in offsetting our minimum dynamic response requirements.

We are implementing this change in a phased manner. The first step, to firmly procure 100MW of DM for all EFAs started on **1st October**.

We will continue reviewing our requirements and communicate further changes via the DM requirement forecasts publication.

EBR Article 18 Consultation for Balancing Reserve

Please note that National Grid ESO have now launched an EBR Article 18 Consultation on the contractual terms for a Balancing Reserve service.

The consultation opens until **17:00 on 26 October 2023**. Balancing Reserve consultation documents can be found on our website via the link/button below, and include:

- Balancing Reserve Service Terms
- Balancing Reserve Procurement Rules
- Consultation Proforma

Other supporting documentation is also provided.

Please review the documentation and provide your responses using the Consultation Proforma. Your response should be sent to: box.futureofbalancingservices@nationalgrideso.com, and please use 'Balancing Reserve Consultation Response' in the return subject line.

View Consultation Documents

Request for feedback – Per BMU wind forecast publishing

ESO is seeking to be more transparent and publish the individual wind BMU forecasts it creates and uses, in addition to the currently published total GB forecast.
This new publication would eventually include day-ahead forecast and within-day forecasts.

Initially, ESO will publish the data with anonymised (or removed) IDs. However, in due course, we would seek to publish the forecasts alongside their recorded BMU ID and/or recognised official windfarm name.

At this time, we are seeking any feedback/concerns/comments, which we will consider before publishing the latter BMU ID forecasts.

Please leave your feedback via the link, and feel free to share this with any other interested parties.

This link will remain active for 3 weeks, until **Monday 23 October**.

ESO Winter Outlook 23/24

Sli.do code #OTF

On 28th September, we published our Winter Outlook report for this winter.

The report can be found here:

- https://www.nationalgrideso.com/document/289136/download

The supporting data workbook can be found here:

- https://www.nationalgrideso.com/document/289141/download

Sli.do code #OTF

Key Messages / Winter Outlook 2023/24

1. Margins

Margins are slightly higher than last winter under our Base Case. Under normal market conditions margins are expected to be adequate and within the Reliability Standard.

Our Base Case margin is 4.4 GW / 7.4%, which is slightly higher than last year and broadly in line with recent winters. The associated loss of load expectation (LOLE) is 0.1 hours.

We expect there to be sufficient operational surplus in our Base Case throughout winter.

There may be some days when margins are tighter and we may need to use the tools in our standard operational toolkit, including use of system notices.

2. Reciprocal support with neighbouring countries

We will continue to work closely with our neighbours in Europe, adopting a coordinated approach providing reciprocal support.

Close co-operation between European system operators through reciprocal support has played an important role in helping maintain secure supplies for customers in Great Britain and Europe.

This will continue this winter, leading to periods when imports flow from Europe when we need them, provided by the market and / or ESO trading, which is an important operational tool for us.

Where there is sufficient market surplus, we expect there to be periods when exports flow from Great Britain to Europe, including over some peak periods.

3. Winter preparations

We have taken steps to build resilience and minimise the potential impact of further risks and uncertainties in the energy markets.

We continue to actively engage with Government, Ofgem, National Gas Transmission and industry stakeholders to ensure we understand and mitigate any emerging risks for winter and that we are well prepared.

We have also announced our intention for the return of the Demand Flexibility Service that incentivises customers to voluntarily flex the time they use energy to help us manage the system this winter.

Winter Preparations / Demand Flexibility Service

Following the production of the Winter Outlook 23/24 we have refined the service design of the Demand Flexibility Service for this winter and published an updated Market Information Report.

The ESO expect to run 12 test events between November 2023 and March 2024.

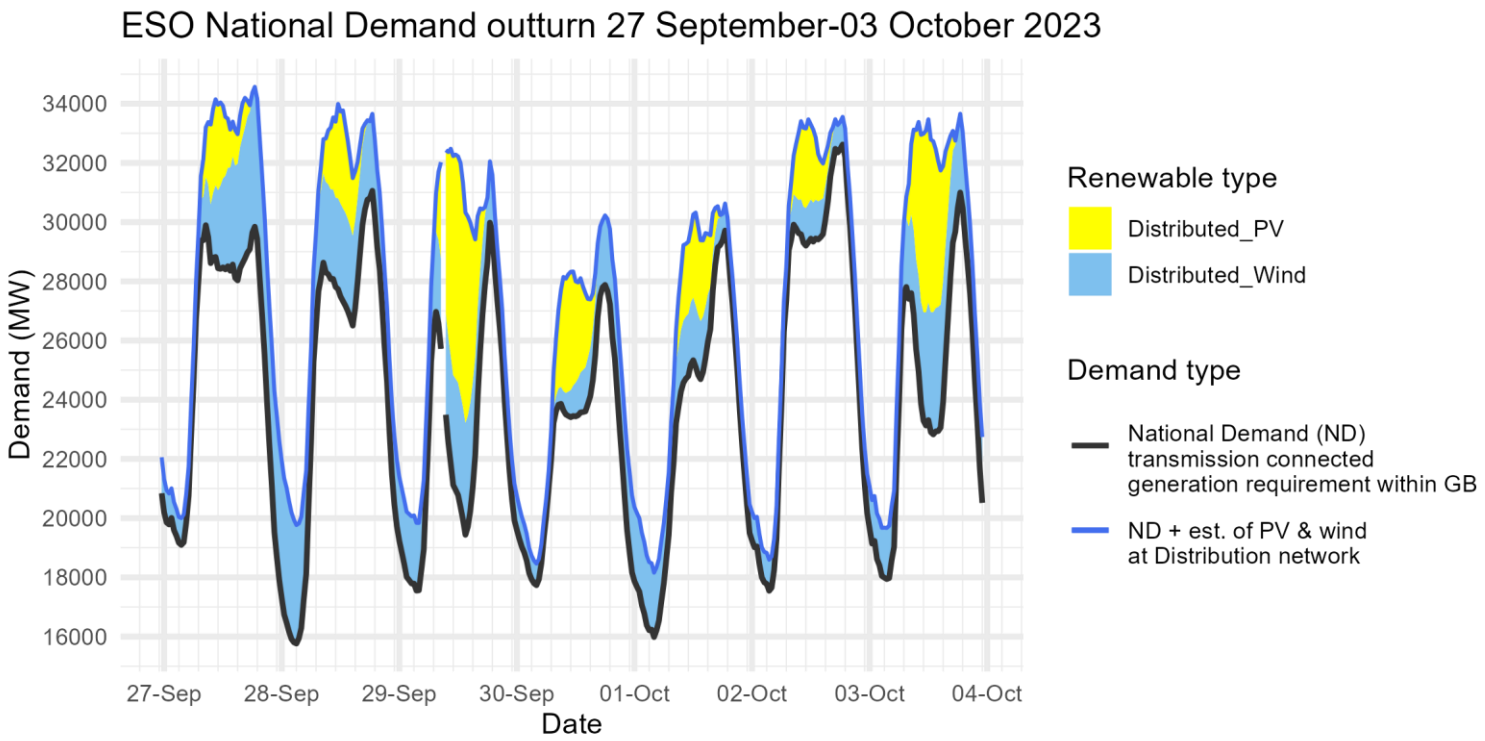
• The Guaranteed Acceptance Price (GAP) for the first 6 tests will remain at £3,000/MWh.

• DFS test events will be competitive from January 2024 onwards if total de-rated Indicative Forecast Volumes surpass a 1.25 GW threshold.

• Should the 1.25 GW threshold not be surpassed, tests will continue to be underpinned by a GAP of £3,000/MWh.

For further information please visit the DFS section of our website.

Demand | Last week demand out-turn



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

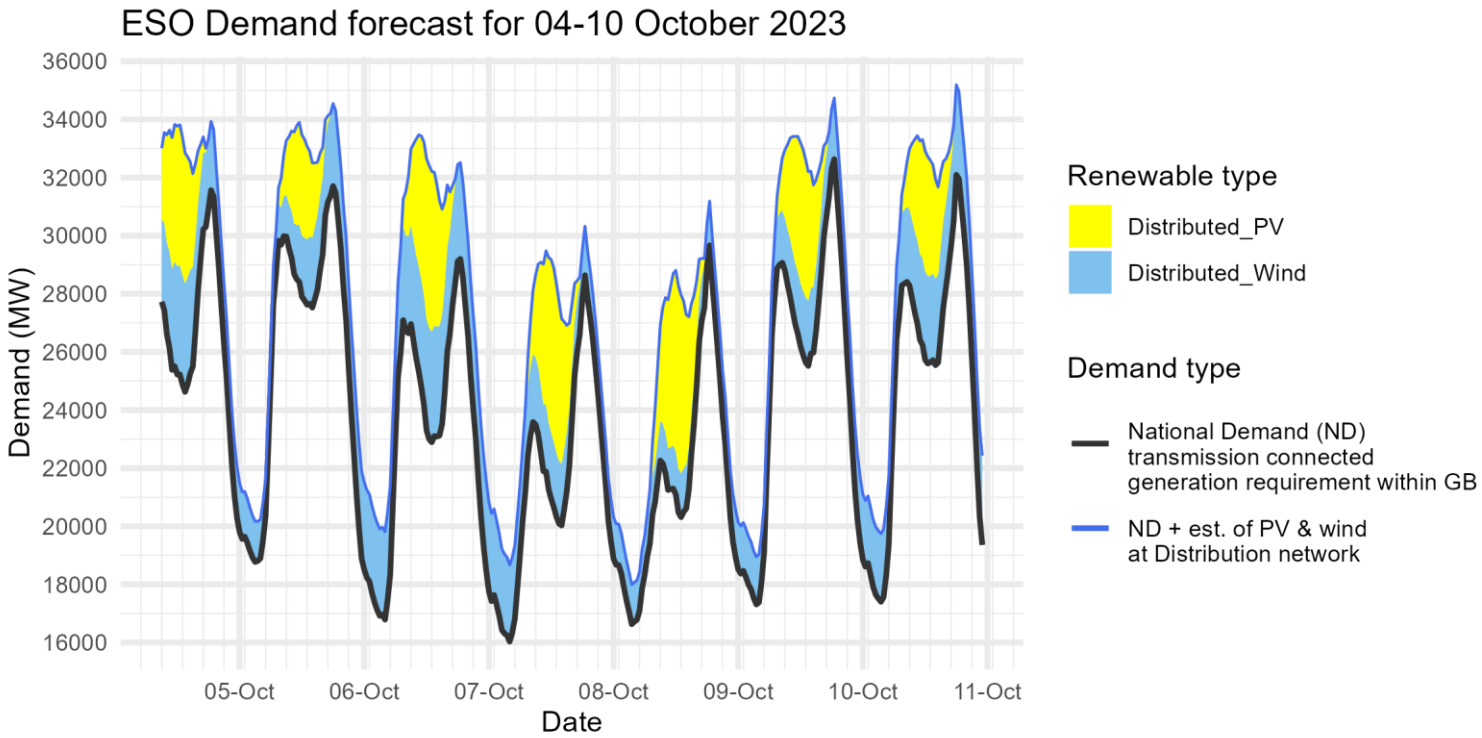
ND values **do not include** export on interconnectors or pumping or station load

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

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

		FORECAST (Wed 27 Sep)		OUTTURN	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Dist. wind (GW)
27 Sep	Evening Peak	30.2	4.7	29.8	4.7
28 Sep	Overnight Min	16.1	4.0	15.8	4.0
28 Sep	Evening Peak	30.2	3.5	31.1	2.6
29 Sep	Overnight Min	18.0	2.3	17.6	2.3
29 Sep	Evening Peak	30.9	1.3	30.0	2.1
30 Sep	Overnight Min	18.6	0.6	17.7	0.7
30 Sep	Evening Peak	27.9	2.4	27.9	2.3
01 Oct	Overnight Min	15.4	2.8	16.0	2.2
01 Oct	Evening Peak	28.7	2.3	29.7	0.9
02 Oct	Overnight Min	16.8	2.2	17.5	1.0
02 Oct	Evening Peak	32.3	2.2	32.6	0.9
03 Oct	Overnight Min	17.9	1.9	17.9	1.7
03 Oct	Evening Peak	33.4	1.2	31.0	2.7

Demand | Week Ahead



		FORECAST (Wed 04 Oct)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
04 Oct 2023	Evening Peak	31.6	2.4
05 Oct 2023	Overnight Min	18.8	1.4
05 Oct 2023	Evening Peak	31.7	2.8
06 Oct 2023	Overnight Min	16.8	3.0
06 Oct 2023	Evening Peak	29.2	3.3
07 Oct 2023	Overnight Min	16.0	2.6
07 Oct 2023	Evening Peak	28.6	1.7
08 Oct 2023	Overnight Min	16.6	1.4
08 Oct 2023	Evening Peak	29.7	1.5
09 Oct 2023	Overnight Min	17.3	1.6
09 Oct 2023	Evening Peak	32.6	2.1
10 Oct 2023	Overnight Min	17.4	2.3
10 Oct 2023	Evening Peak	32.1	2.9

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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.

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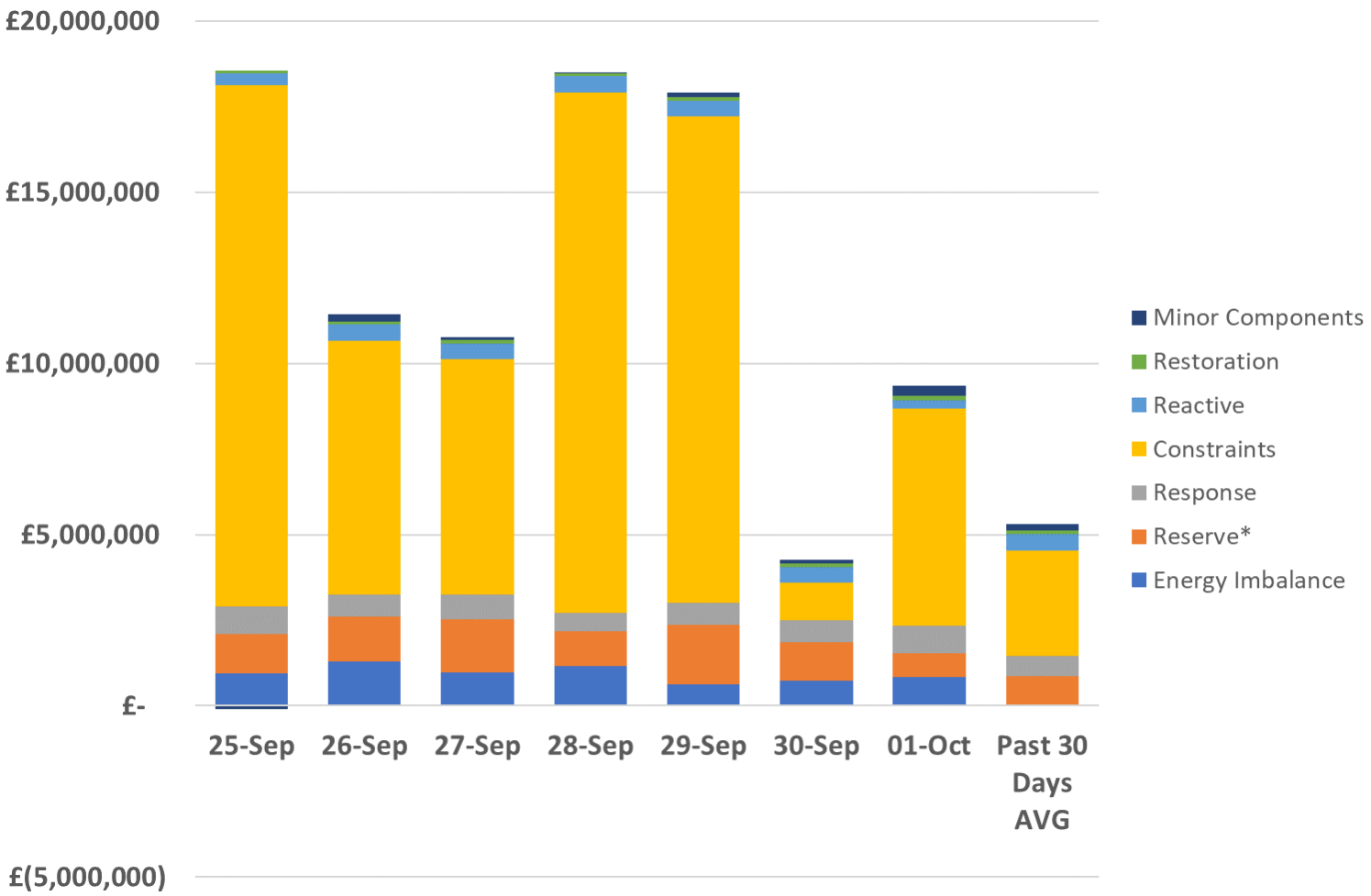
ESO Actions | Category costs breakdown for the last week



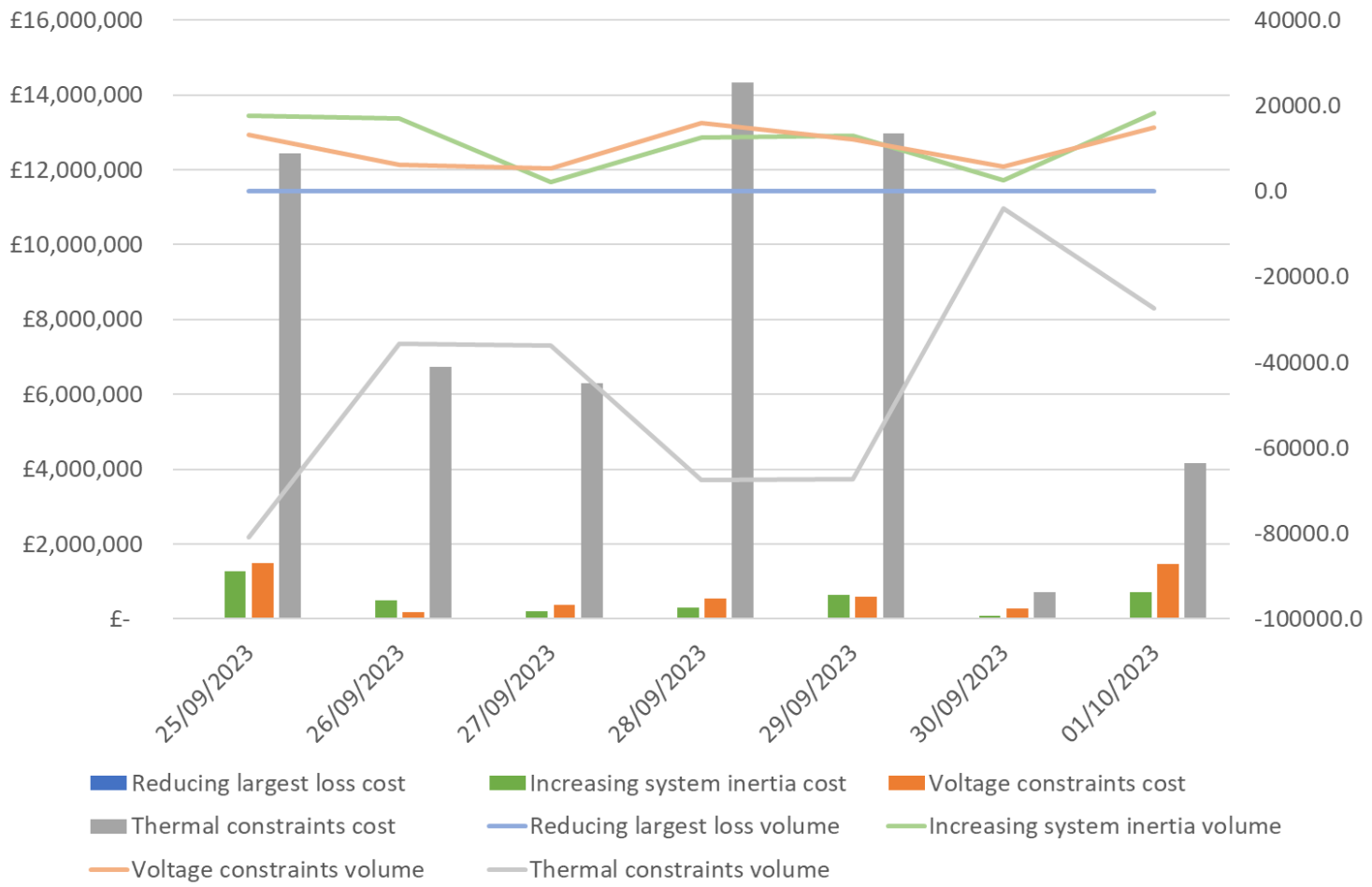
Date	Total (£m)
25/09/2023	18.5
26/09/2023	11.4
27/09/2023	10.8
28/09/2023	18.5
29/09/2023	17.9
30/09/2023	4.3
01/10/2023	9.3
Weekly Total	90.7
Previous Week	40.1

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



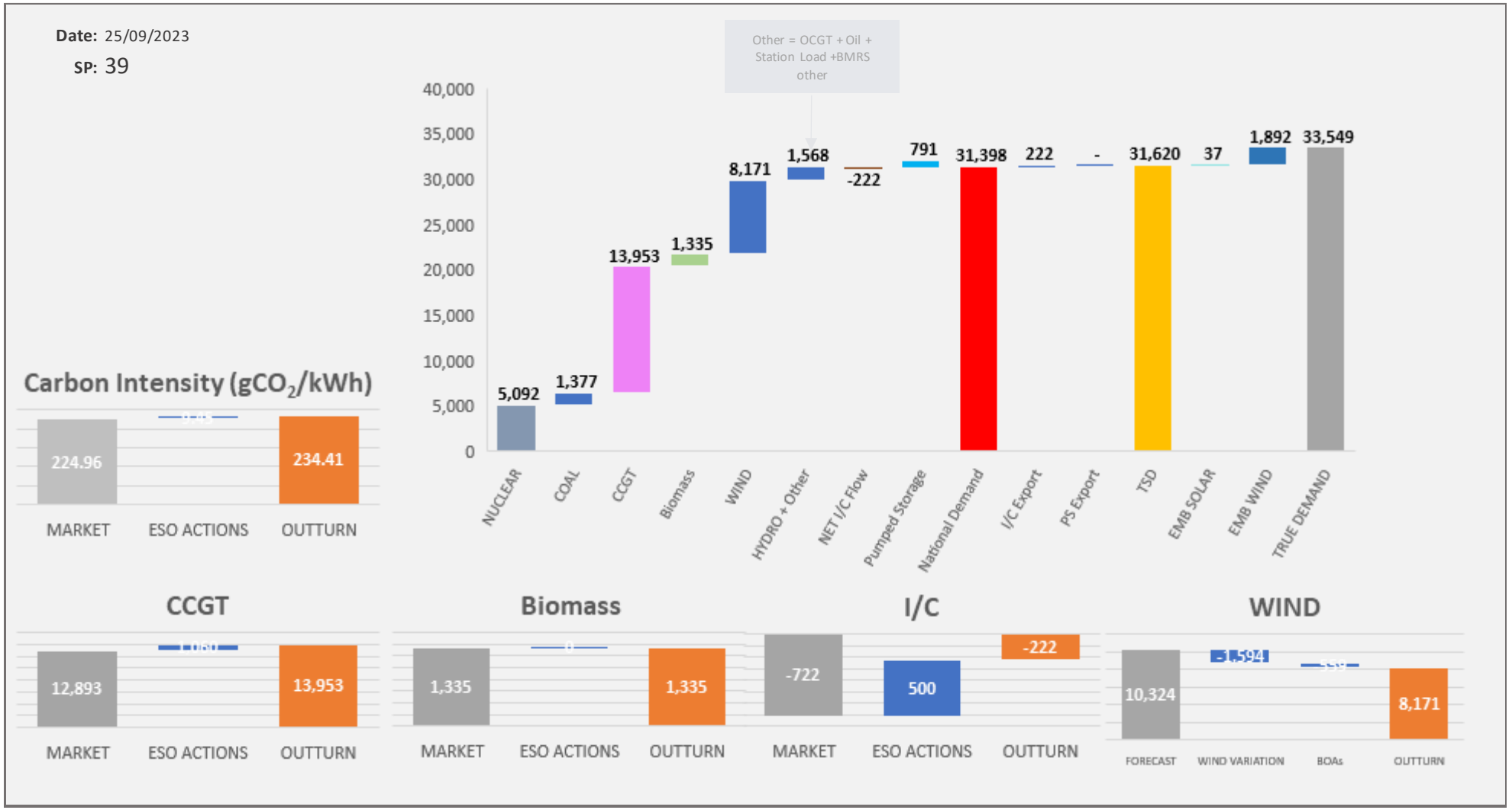
Thermal – network congestion
Actions were required to manage thermal constraints throughout the week with the most significant costs on Monday, Thursday, and Friday.

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

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

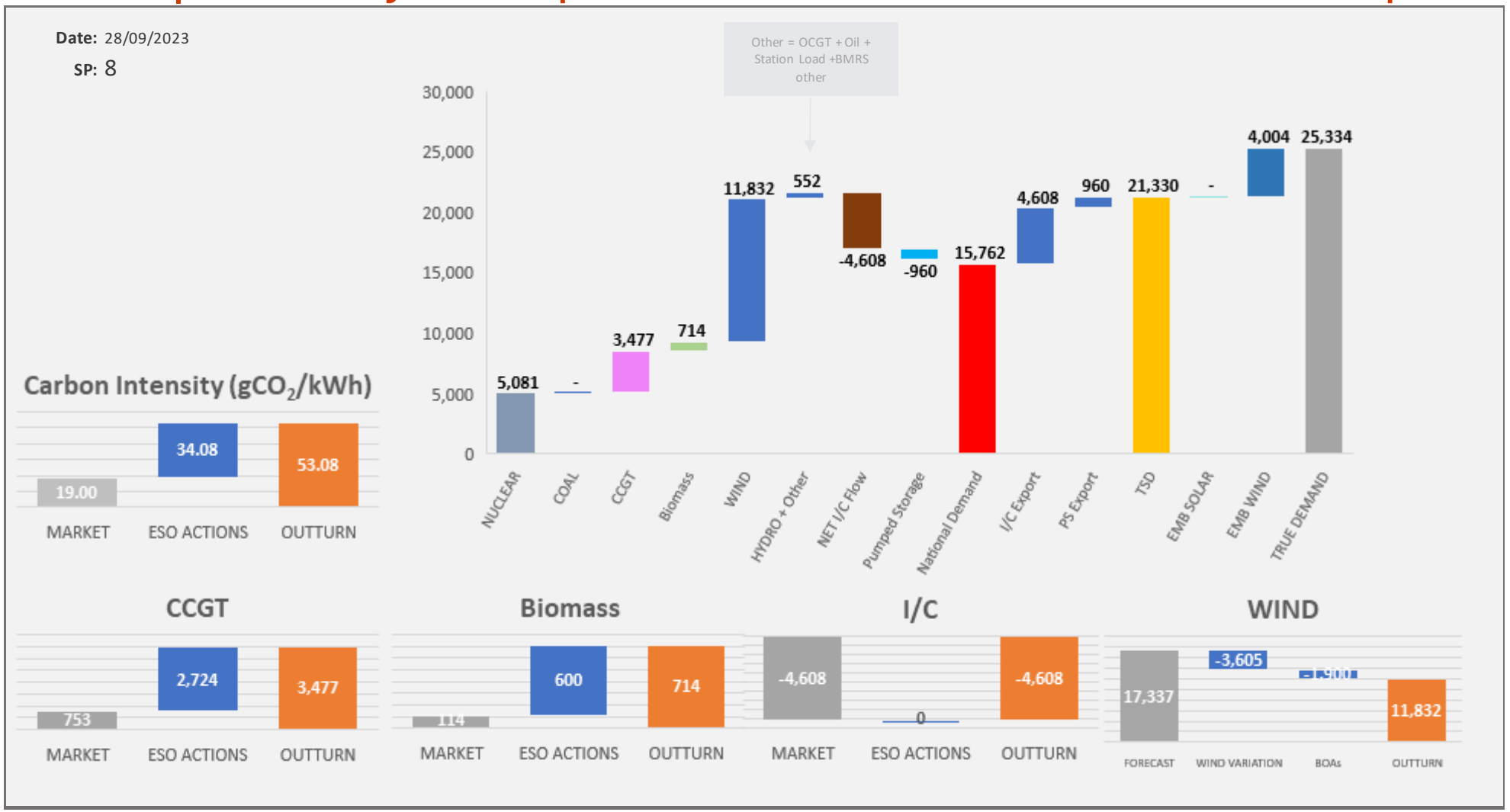
Increasing inertia
Intervention was required to manage System Inertia throughout the week.

ESO Actions | Monday 25 September – Peak Demand – SP spend ~£200k



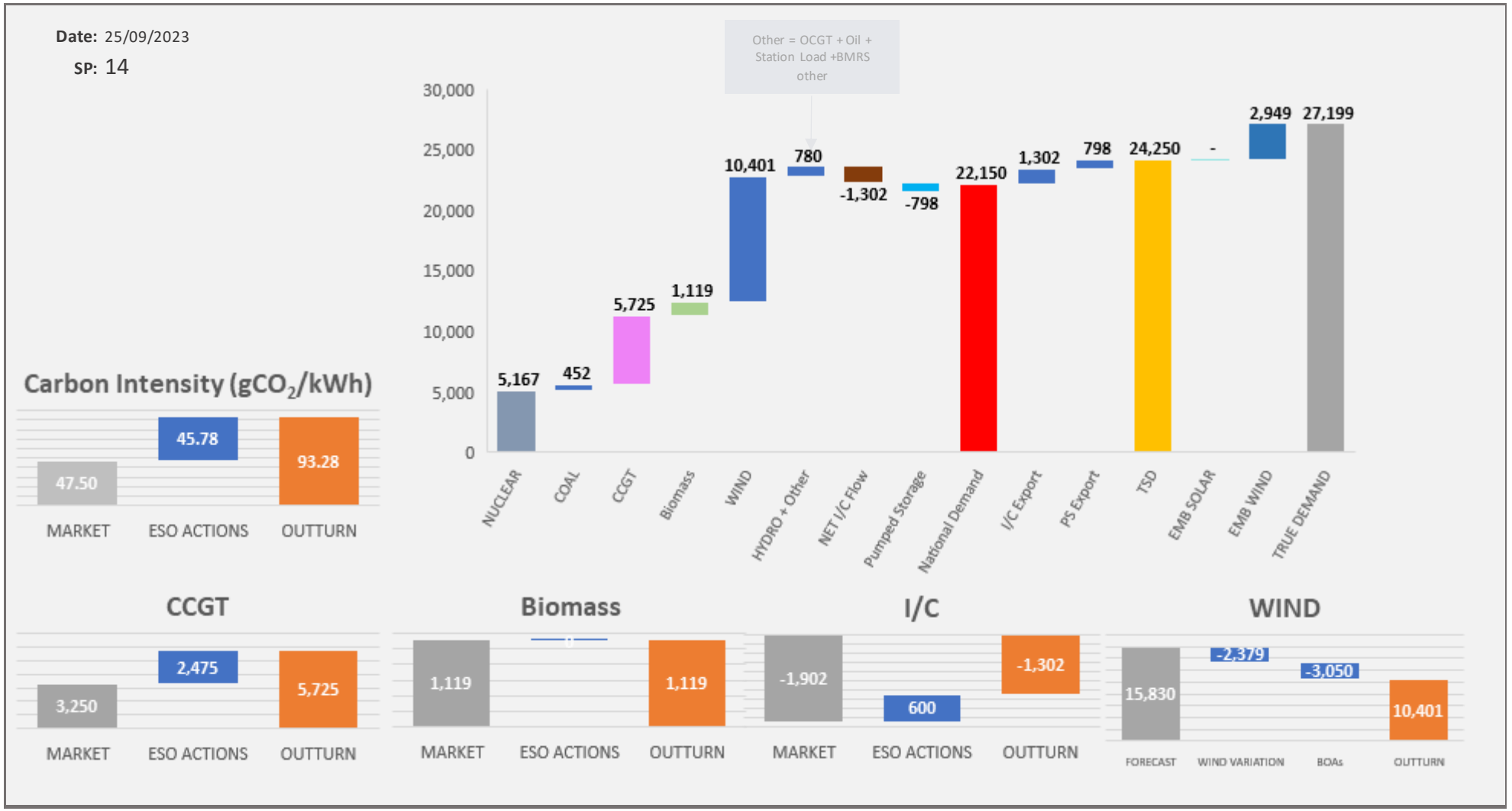
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Thursday 28 September – Minimum Demand – SP Spend ~£425k



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

ESO Actions | Monday 25 September – Highest SP Spend ~£645k



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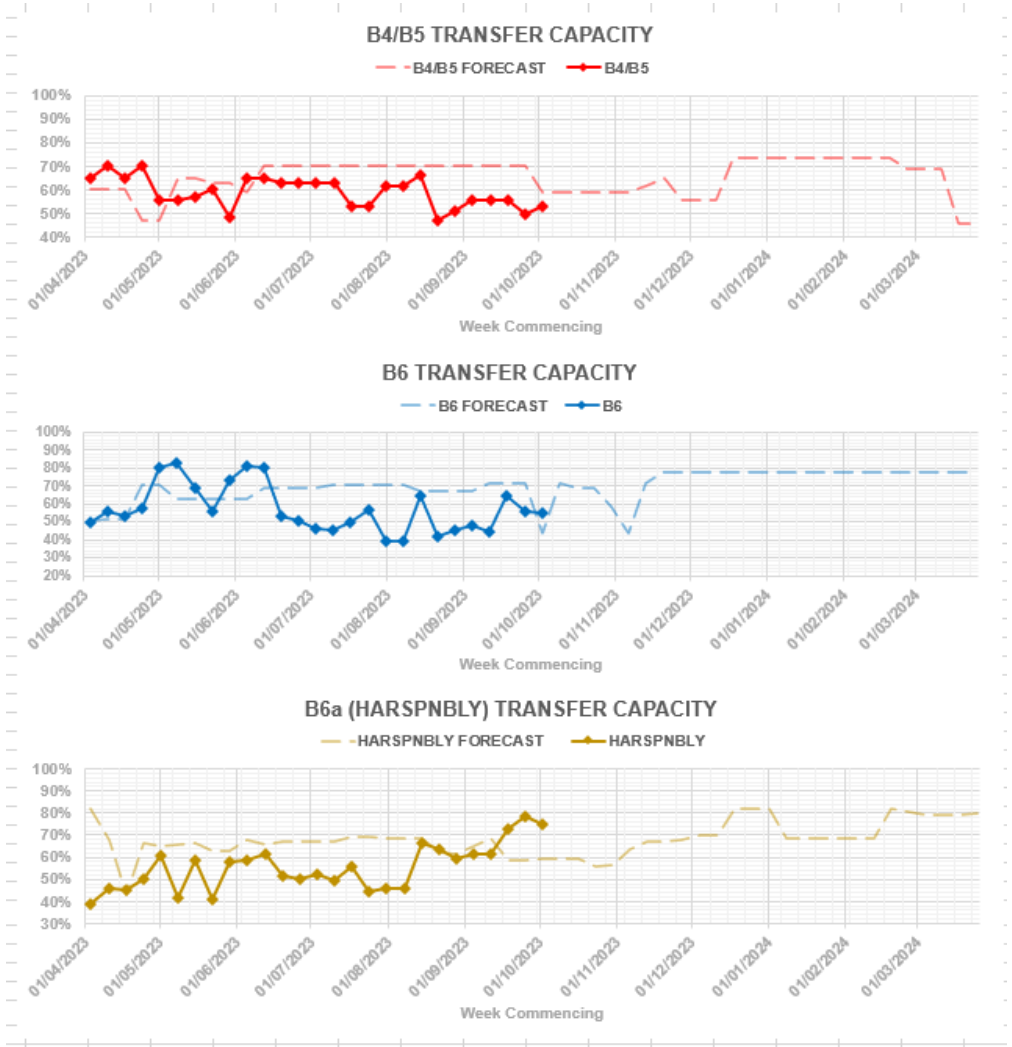
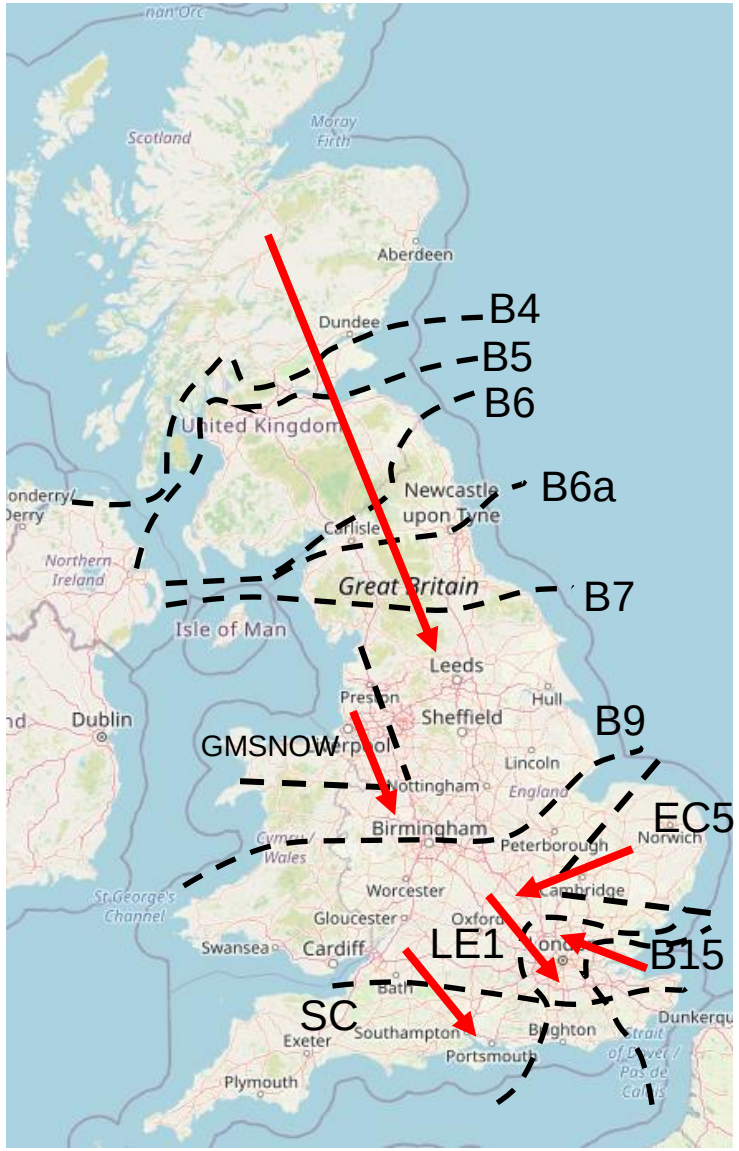
Transparency | Network Congestion

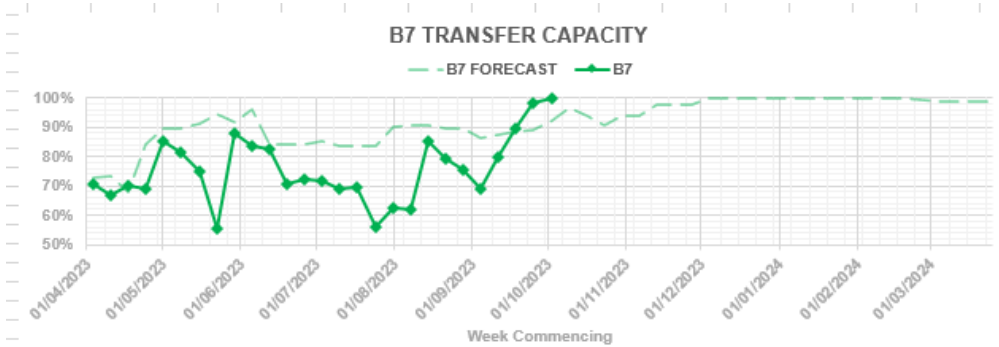


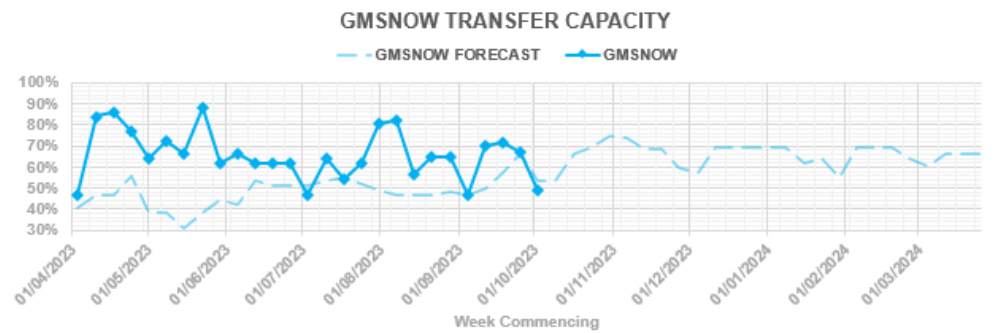
Boundary	Max. Capacity (MW)
B4/B5	3400
B6	6800
B6a	8000
B7	8325
GMSNOW	4700
B9	10600
EC5	5000
LE1	8500
B15	7500
SC	7300

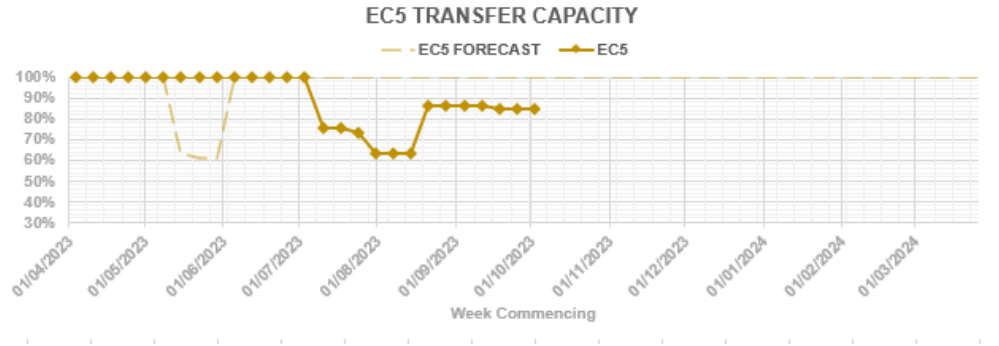


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Transparency | Network Congestion







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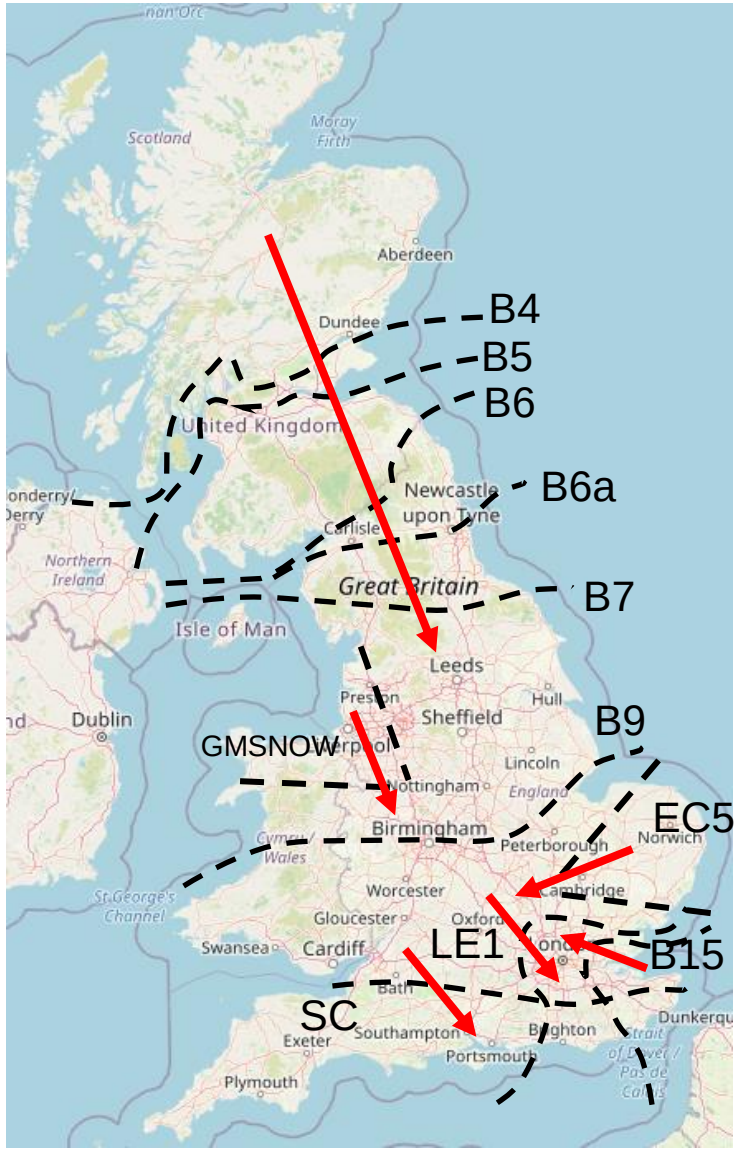

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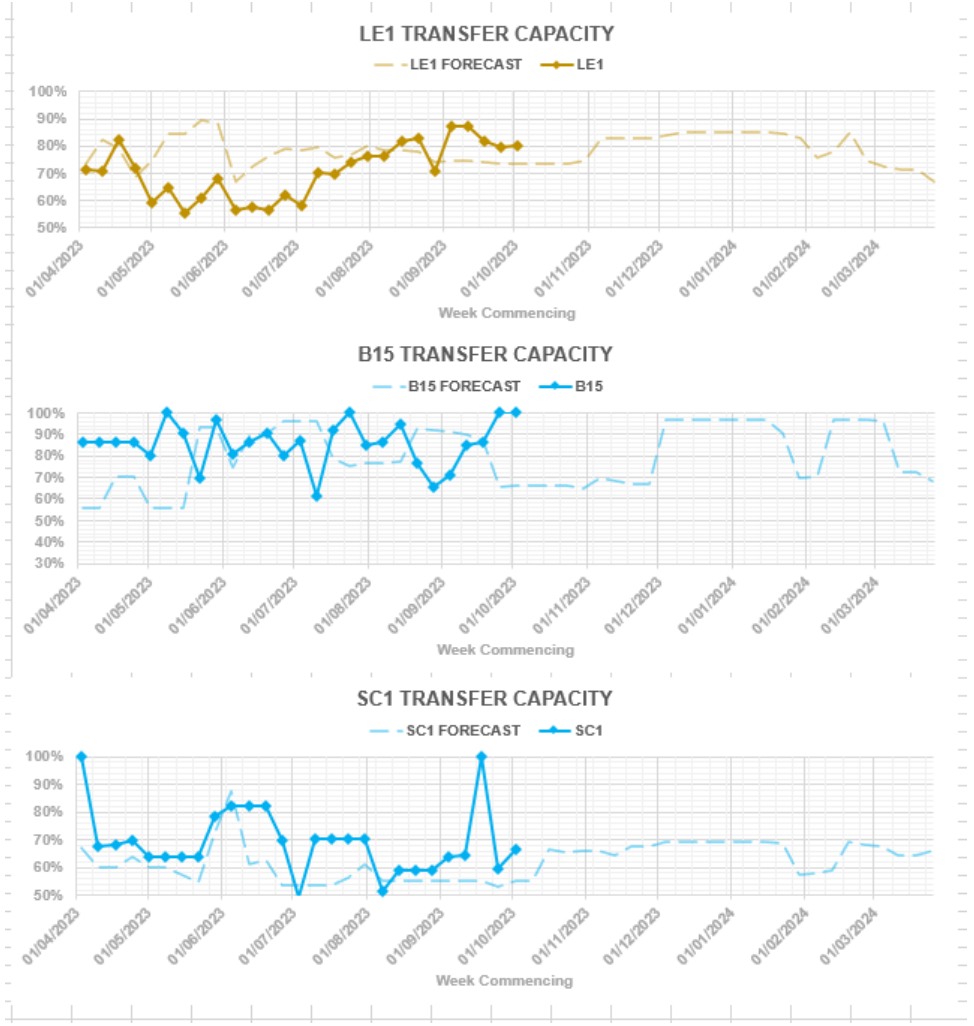

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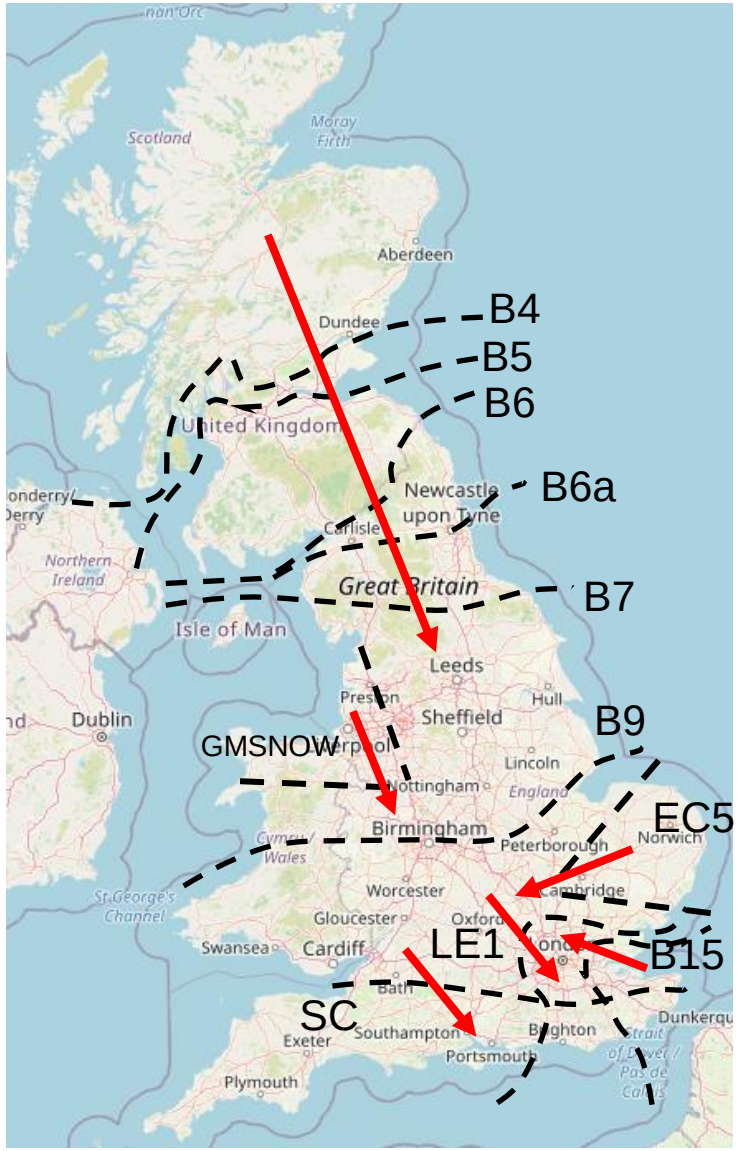

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Previously Asked Questions

Q: Why was the STOR shortfall listed as 1600 MW on the SOP last Wednesday even though the STOR auction results indicated that 1200 MW of STOR had been accepted.

A: Thank you for your question. Short Term Operating Reserve or STOR requirements is set to be 1600MW, which we procure via our daily auction and we also have long-term contracted STOR. We only procure firm STOR capacity daily during contracted windows, which is morning & evening window. Outside the firm window, we secure our STOR requirements using BM (therefore, SOP may indicate shortfall from the auction but we always secure the STOR requirements using Balancing Mechanism). Please see further information about STOR firm windows here: https://www.nationalgrideso.com/document/274711/download

Q: When are we going to get real demand by Distribution System Operator or DNO so we can see things like changes in demand shape due to say EVs, or location of active DFS delivery rates, etc.?

Can you please respond to Lisa's DNO-level metering question at a future forum? It's a question of significant industry interest. That question should be added to the outstanding questions list (edited)

A: This data is not available to or owned by the ESO and requests for publication should be directed to the relevant DNO.

Previously Asked Questions

Q: How are network upgrades planned alongside increasing buildout of renewables and retirements of existing synchronous plant? Is the shift to more overall wind/ solar generation going to have costly impacts on constraints if we don't reinforce enough?

A: The responsibility for these decisions lies with Ofgem and the Department for Energy Security and Net Zero (previously BEIS). Network reinforcement work is then carried out by the Transmission network Operator. Increasing generation above the capacity of the network will result in additional constraint costs.

Q: If you didn't curtail generation to manage the loss of a single or double circuit fault on the SCOTEX boundary, what is the expected failure rate in terms of blackout hours per year and how would the costs of this compare to the costs over a year of curtailment? Is there a better trade off?

A: We do not trade of demand security against network development. To provide slightly more details, our licence requires us to operate within Security & Quality of Supply obligations at all times and there is no trade off with blackouts for a demand group the size of Scotland. There is also no guarantee that the blackout would not extend to England and Wales. However, for reference, the BSC Value of Lost Load (VOLL) is £6000MWh which is a nominal number that can be used for comparison purposes. There is also the risk of damage to Transmission Owner's equipment.

Previously Asked Questions

Q: What proportion of total constraints costs tends to be spent on thermal limit constraints vs system voltage constraints? Where tends to be the most costly areas of the country in terms of voltage constraints?

A: Since 1st April 2023, 69% of total constraint costs have been thermal constraints with 21% for voltage/inertia constraints. Most voltage costs are incurred in England and Wales – a full breakdown can be found here: https://data.nationalgrideso.com/constraint-management/outturn-voltage-costs

Q: Re. constraint costs you missed another factor/ layer of cost which is not just related to MWs constraint but Volts +inertia constraints. i.e there might not be constraint in Scot but u might still need to curtail wind to bring on Sync. plant for volts and inertia. Can we have this cost split please?

A: Thank you for highlighting this complexity. The data currently available doesn't support this level of analysis.

Q: The Balancing Mechanism Reform Roadmap event is oversubscribed for in person attendance and there a number of individuals I am aware of that would like to attend. Is there a possibility of providing an online option please? There is no current online option available.

A: We have had huge interest for our event which led us to close our registration very quickly due to the demand. We are unable to offer a livestream/online version of this event however we will be sharing the slides, content and FAQs following the event so no-one misses out and there will be ample opportunity to provide feedback and further input following the event.

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Previously Asked Questions

Q: Is the launch date of the Enduring Auction Capability (EAC) platform expected to shift?

A: The EAC is planned to go-live as previously communicated on the following dates:

Platform will be live to market participants for bid submission on 16th October.

First auction on the EAC platform will take place on 30th October.

Outstanding questions

Q: £1m per hour constraint costs when Scottish wind reaches 90 Load Factor (LF), and beginning to bite from a 50 LF is a worrisome situation. Further wind grown exceeds extra boundary capability in future. When and where might this peak? What can be done now?

Q: Is it worth providing further context on constraint costs? Recent rise in gas prices has inflated the turn on costs to ~2/3rds of total. Those turn on costs also have to be incurred under any feasible dispatch so do you agree they shouldn't really be considered an additional system running cost?

A: Can you please provide clarification regarding this question and what context you are looking for exactly?

These question will be covered in the Transmission Network Development deep dive

Q: I appreciate its a fine balancing act between manging reactive constraint costs (due to the existing composition of the network) versus more proactive expenditure to increase the headroom capacity of the network. Do the ESO provide analysis looking at this dilemma? If so, can you share a link to it.

Q: Thanks for the constraints update, it seems there is 6x the amount of generation in Scotland over demand + export so is it efficient to let/pay so much generation to run when you just have to switch/ pay it off and then pay more to bring on Generation where its needed to meet demand in the south?

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