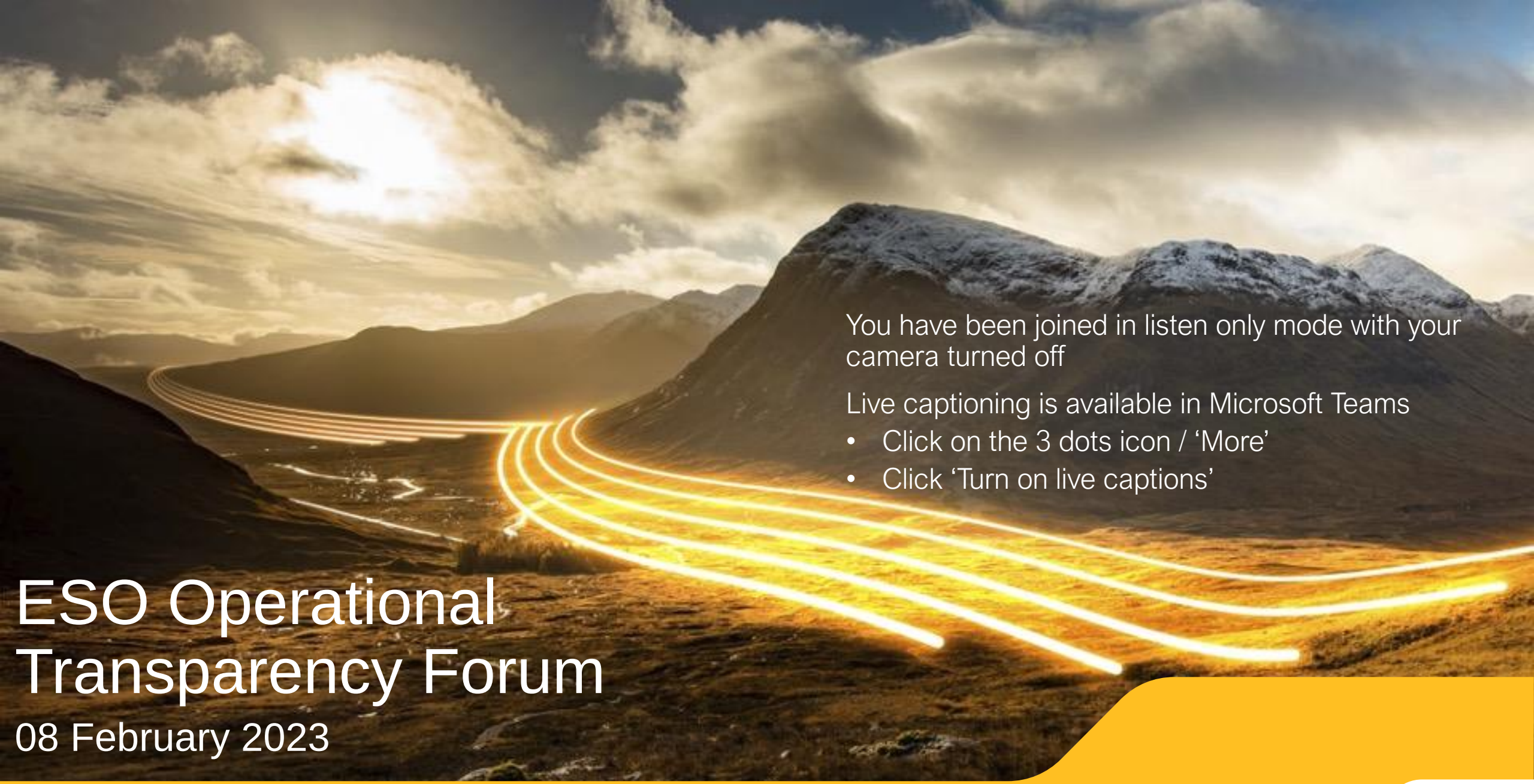

You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

# ESO Operational Transparency Forum

08 February 2023

ESO

# Introduction | Sli.do code #OTF

Please visit www.sli.do and enter the code #OTF to ask questions & provide us with post event feedback.

We will answer as many questions as possible at the end of the session. We may have to take away some questions and provide feedback from our expert colleagues in these areas during a future forum. **Ask your questions early in the session to give more opportunity to pull together the right people for responses.**

To tailor our forum and topics further we have asked for names (or organisations, or industry sector) against Sli.do questions. If you do not feel able to ask a question in this way please use the email: box.NC.Customer@nationalgrideso.com

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

Advanced question can be asked here: https://forms.office.com/r/k0AEfKnai3

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

# Future deep dive / response topics

Coming soon:

Reserve Reform update

Response markets deep dive

System Inertia

Feedback welcomed on our proposed deep dive topics

# Winter Enhanced Actions

## Service instructions (Sunday 5 February to Monday 6 February 2023)

The following BM Start-Up instructions were issued over this period:

| BMU ID | Instruction Issued | Instruction Cancelled | Notes |
|---|---|---|---|
| RATS-1 | 5/2/23 12:13 | 6/2/23 15:50 | SONAR & BMRS |
| WBUPS-1 | 6/2/23 03:20 | 6/2/23 15:50 | SONAR & BMRS |

Demand Flexibility Service Advanced Anticipated Requirements Notice were issued on 6 February for 7 February (Tuesday):

| BMU ID | Instruction Issued | Instruction Cancelled | Notes |
|---|---|---|---|
| DFS | 6/2/23 10:00 | 6/2/23 14:47 | BMRS |

**For clarity, going forward we intend to issue a BMRS message for any actions relating to the winter contingency units.**

# Network Access Planning OC2 Forum 07/03/2023

## Overview

The Network Access Planning (NAP) team within the ESO are hosting a forum for all parties who have a stake in the outage planning process. It is open to transmission owners, distribution network owners, generators, directly connected transmission customers and anyone else who has a relationship with our Outage Planning teams.

## Purpose

This will be our first face to face OC2 Forum since before the start of the pandemic and we are very much looking forward to seeing as many of you as possible. We intend to talk through a variety of topics and hear your views on them.

## Topics for discussion to include

- NGESO constraint forecasting methodologies.
- eNAMS developments
- Rationalisation of the OC2 code
- Future automation tools and technologies.
- PODE (planning and data exchange)
- Our BP2 activities

Invites and draft agenda were circulated in mid January to all NAP contacts but we have spaces available and would welcome the opportunity to host as many of you as possible. The time spent on each topic will be determined by consensus and there are voting options in the registration form.

## Details of the Event

### Date/Time

Tuesday 7th March 09:00 – 17:00

### Location

Holiday Inn,

Birmingham Airport - NEC,

Coventry Road,
BIRMINGHAM,

B26 3QW

### Register

REGISTRATION FORM

For further details please contact

box.OC2forum@Nationalgrideso.com

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# Frequency Risk and Control Report (FRCR) 2023 Consultation

## 13 – 24 February 2023

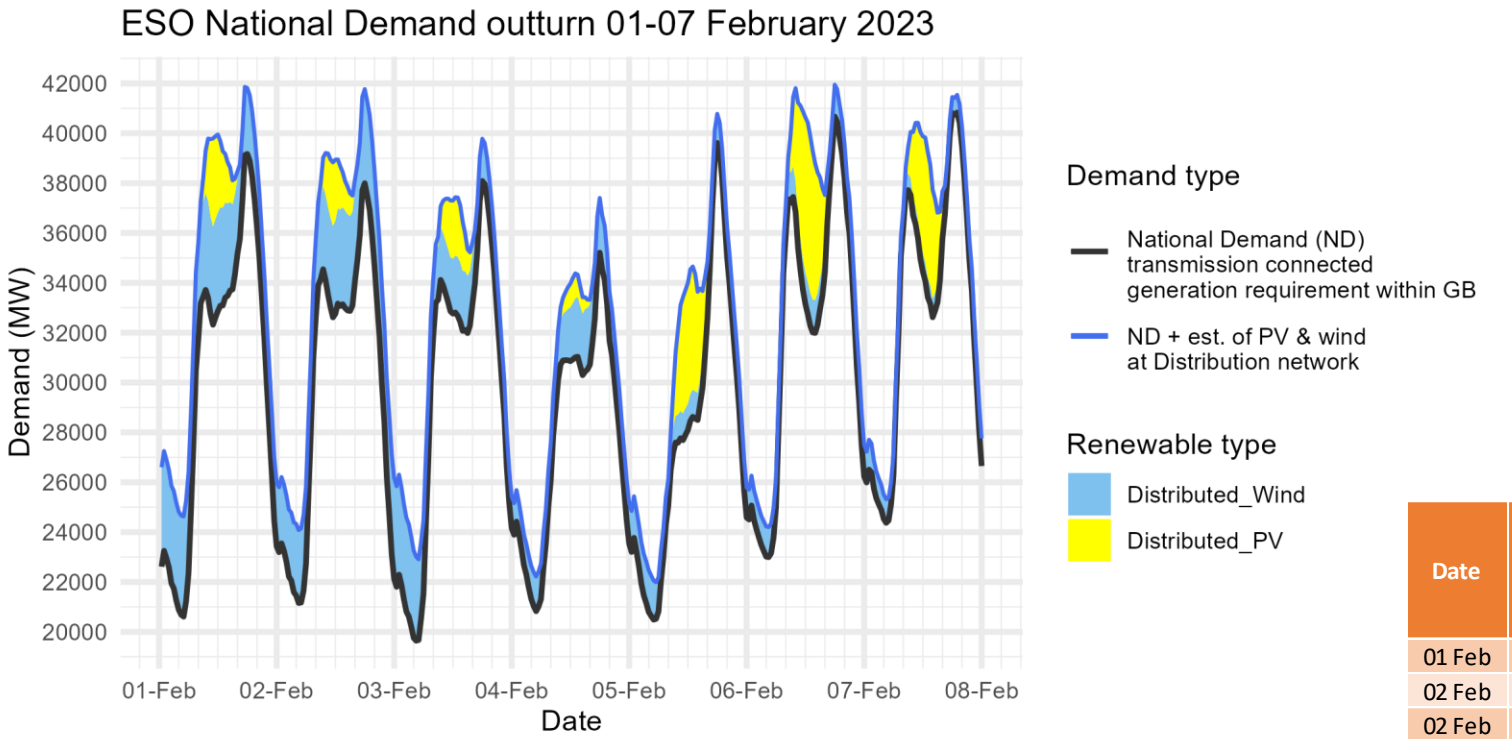
- In line with SQSS requirement, we are obliged to produce an annual Frequency Risk and Control Report (FRCR) and consult with industry on the methodology and assessment presented in the report.
- This year the focus is reviewing minimum inertia policy.
- **We will be consulting on the 2023 version of FRCR between the 13th and 24th February 2023.**
- The consultation and associated documents will be published on our website on Monday 13th February. Previous FRCR documentation can be **found here.**
- We will also be holding a webinar on **Monday 20th February 14:00-15:00**, mid-way through the consultation period to provide further insight into the proposal and take any initial feedback on the proposals ahead of the consultation period closing.

**If you would like to talk about the change please contact:**
**box.techcodes@nationalgrideso.com**
**07768 537317**

**Please send your response proforma to box.sqss@nationalgrideso.com by 5pm on Friday 24th February 2023.**

**Please join the webinar using the Teams link**
**You can add the Teams link to your calendars**

# Demand | Last week demand out-turn




| | | FORECAST (Wed 01 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) |
| 01 Feb | Evening Peak | 40.0 | 2.7 | 39.2 | 0.0 | 39.2 | 2.6 |
| 02 Feb | Overnight Min | 21.6 | 2.7 | 21.2 | n/a | n/a | 2.9 |
| 02 Feb | Evening Peak | 39.0 | 3.4 | 38.0 | 0.0 | 38.0 | 3.8 |
| 03 Feb | Overnight Min | 20.4 | 3.3 | 19.6 | n/a | n/a | 3.4 |
| 03 Feb | Evening Peak | 37.8 | 2.5 | 38.1 | 0.0 | 38.1 | 1.7 |
| 04 Feb | Overnight Min | 20.3 | 2.2 | 20.8 | n/a | n/a | 1.4 |
| 04 Feb | Evening Peak | 34.4 | 2.6 | 35.2 | 0.0 | 35.2 | 2.2 |
| 05 Feb | Overnight Min | 20.7 | 1.3 | 20.5 | n/a | n/a | 1.6 |
| 05 Feb | Evening Peak | 37.7 | 1.1 | 39.6 | 0.0 | 39.6 | 1.2 |
| 06 Feb | Overnight Min | 22.6 | 1.1 | 23.0 | n/a | n/a | 1.2 |
| 06 Feb | Evening Peak | 41.5 | 1.5 | 40.7 | 0.6 | 41.3 | 1.3 |
| 07 Feb | Overnight Min | 23.2 | 1.6 | 24.4 | n/a | n/a | 0.9 |
| 07 Feb | Evening Peak | 42.1 | 1.2 | 40.8 | 1.1 | 41.9 | 0.7 |

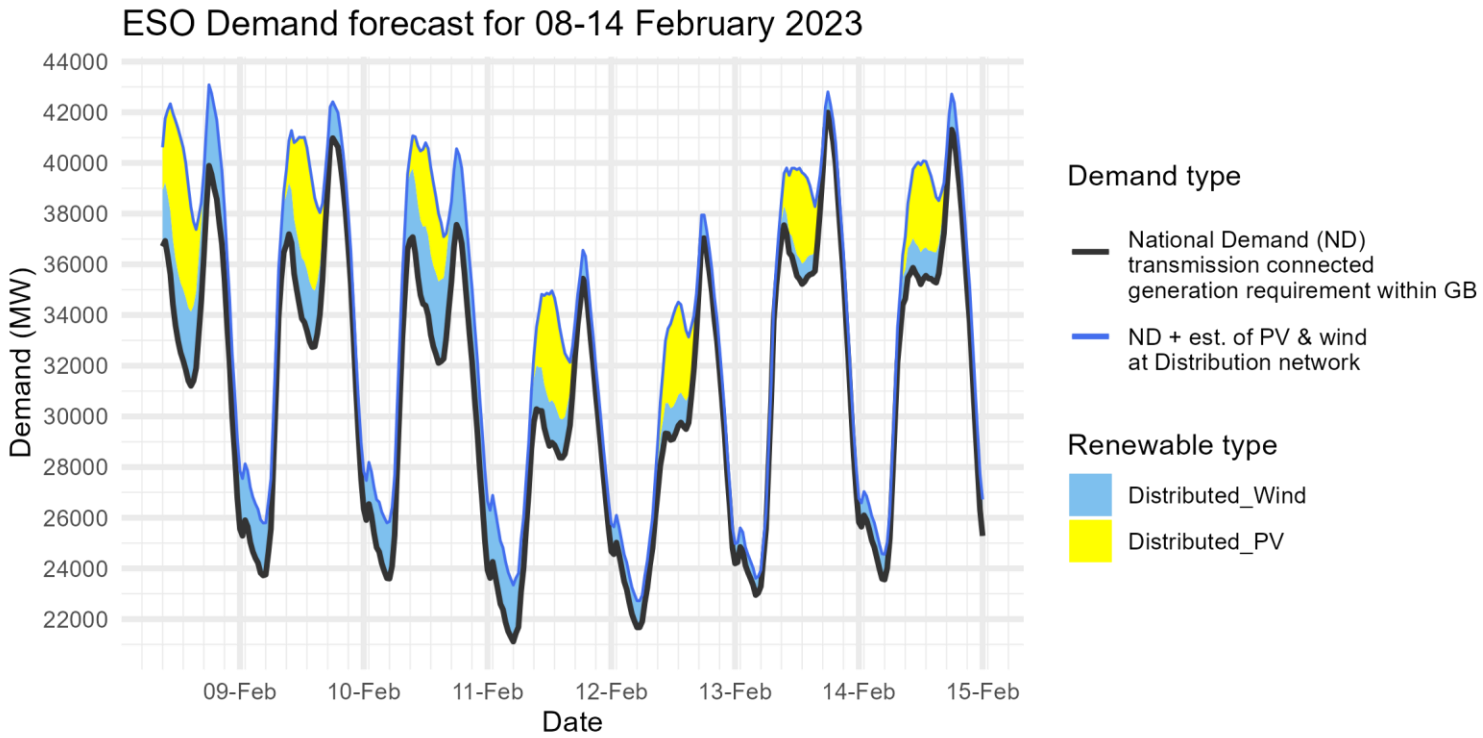
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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

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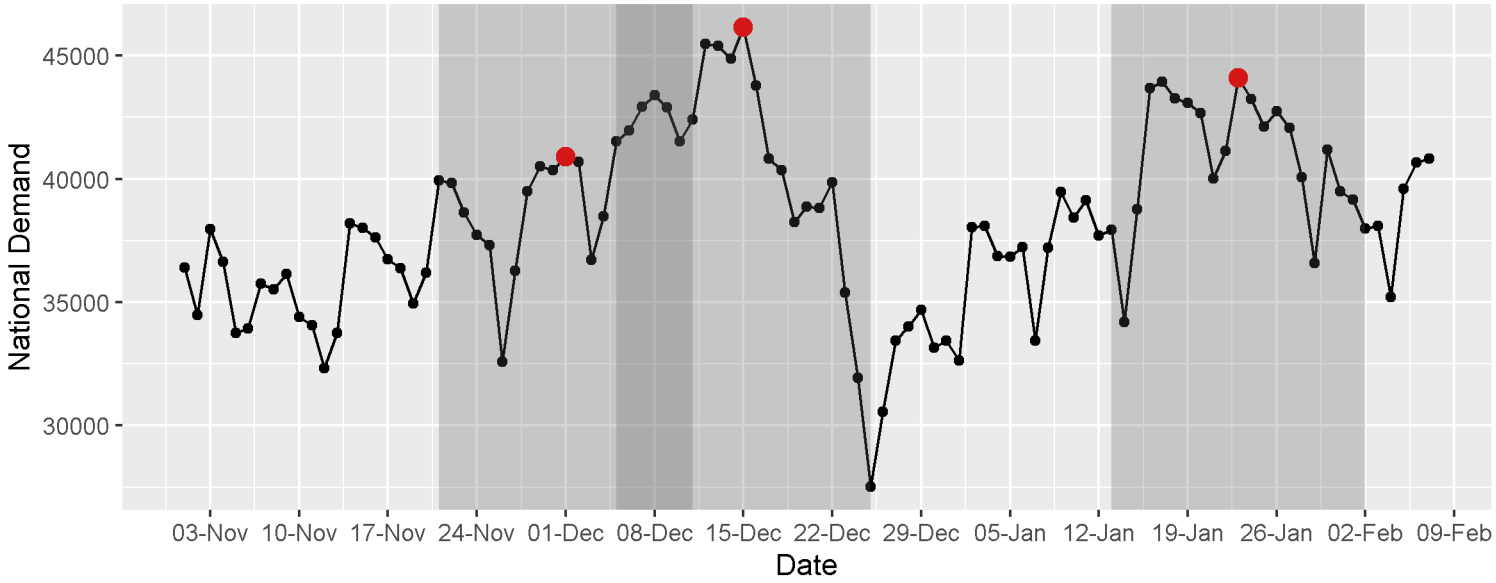
Historic out-turn data can be found on the ESO Data Portal in the following data sets: Historic Demand Data & Demand Data Update

| | | FORECAST (Wed 08 Feb) | |
|---|---|---|---|
| Date | Forecasting Point | National Demand (GW) | Dist. wind (GW) |
| 08 Feb 2023 | Evening Peak | 39.9 | 3.2 |
| 09 Feb 2023 | Overnight Min | 23.7 | 2.1 |
| 09 Feb 2023 | Evening Peak | 41.0 | 1.4 |
| 10 Feb 2023 | Overnight Min | 23.6 | 2.3 |
| 10 Feb 2023 | Evening Peak | 37.6 | 3.0 |
| 11 Feb 2023 | Overnight Min | 21.1 | 2.2 |
| 11 Feb 2023 | Evening Peak | 35.4 | 1.1 |
| 12 Feb 2023 | Overnight Min | 21.7 | 1.1 |
| 12 Feb 2023 | Evening Peak | 37.0 | 0.9 |
| 13 Feb 2023 | Overnight Min | 22.9 | 0.7 |
| 13 Feb 2023 | Evening Peak | 42.0 | 0.8 |
| 14 Feb 2023 | Overnight Min | 23.6 | 1.0 |
| 14 Feb 2023 | Evening Peak | 41.3 | 1.3 |

# Triad avoidance: indicative triad data based on operational metering




| ESO operational metering | | | |
|---|---|---|---|
| Date | Time of peak (HH ending) | National Demand (MW) | Estimated triad avoidance (HH corresponding with the time of the peak) (MW) |
| 15/12/2022 | 1730 | 46147 | 0 |
| 23/01/2023 | 1800 | 44109 | 200 |
| 01/12/2022 | 1800 | 40909 | 200 |

ESO does not include station load.

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

# 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 8 February 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.** This is based on our current assessment and is subject to change.

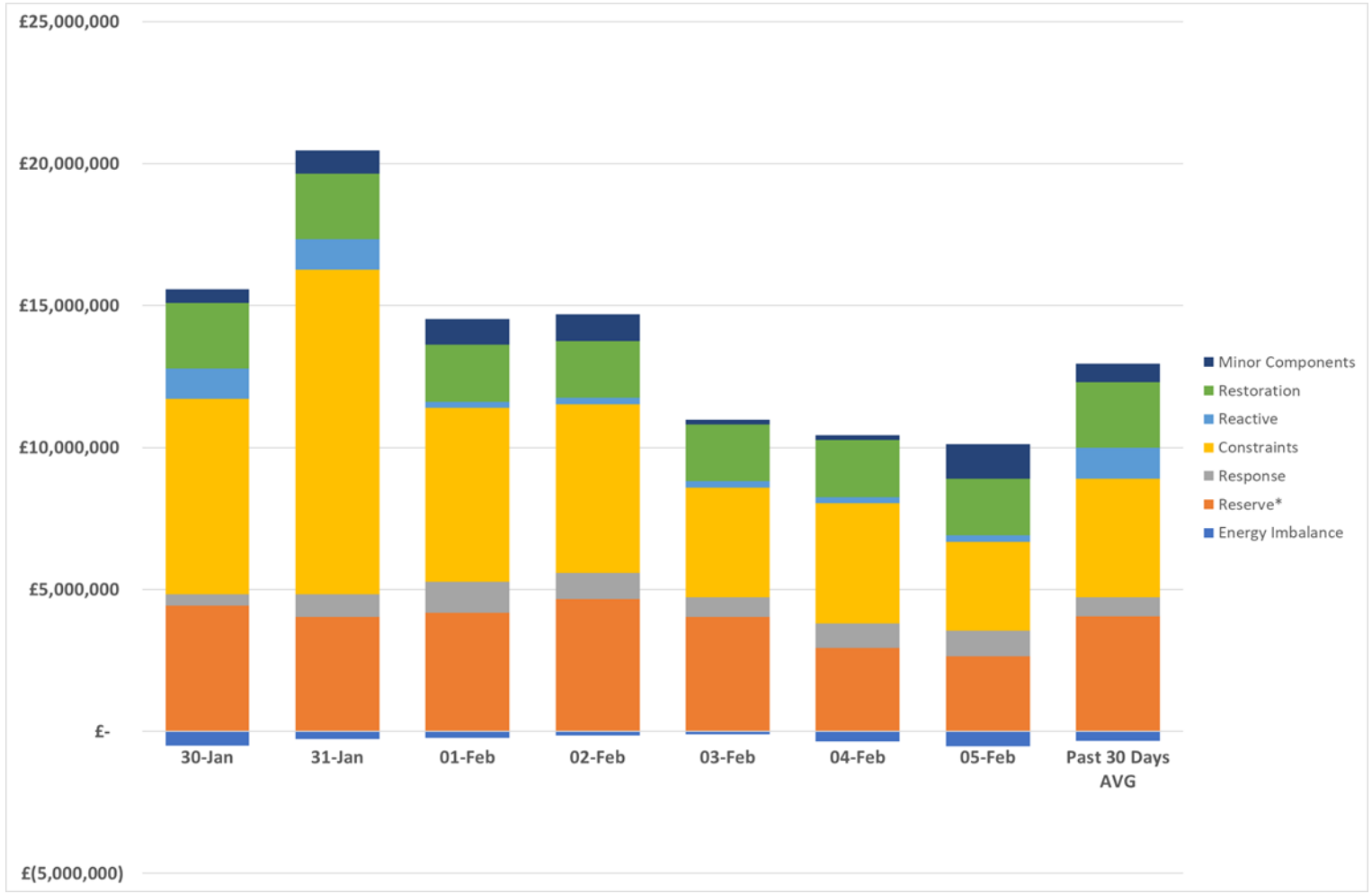
| Day | Date | Notified Generation (MW) | Wind (MW) | IC Flows* (MW) | Peak demand (MW) | Indicative surplus (MW) |
|---|---|---|---|---|---|---|
| Thu | 09/02/2023 | 40627 | 7250 | 3820 | 42100 | 5060 |
| Fri | 10/02/2023 | 40637 | 15430 | 3820 | 38510 | 15560 |
| Sat | 11/02/2023 | 39002 | 5430 | 4400 | 36130 | 8270 |
| Sun | 12/02/2023 | 40497 | 3770 | 4400 | 37560 | 6600 |
| Mon | 13/02/2023 | 40922 | 2190 | 4400 | 41030 | 1950 |
| Tue | 14/02/2023 | 41267 | 4940 | 4400 | 40070 | 5980 |
| Wed | 15/02/2023 | 40902 | 7110 | 4400 | 39960 | 7860 |

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

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

Adequate when Indicative Surplus >= 1000 MW

# ESO Actions | Category costs breakdown for the last week



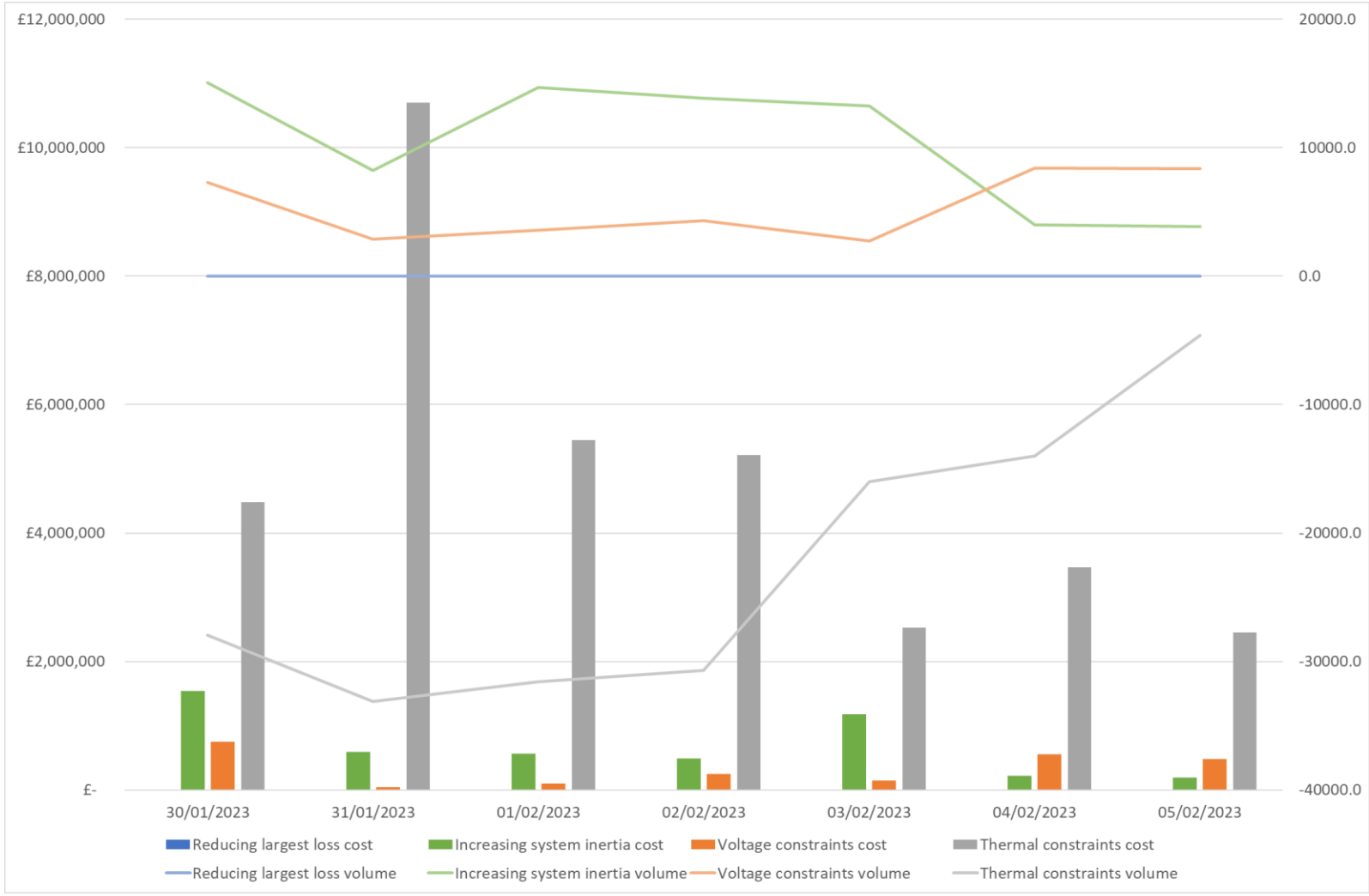

| Date | Total (£m) |
|---|---|
| 30/01/2023 | 15.1 |
| 31/01/2023 | 20.2 |
| 01/02/2023 | 14.3 |
| 02/02/2023 | 14.5 |
| 03/02/2023 | 10.9 |
| 04/02/2023 | 10.1 |
| 05/02/2023 | 9.6 |
| Weekly Total | 94.7 |

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

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

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



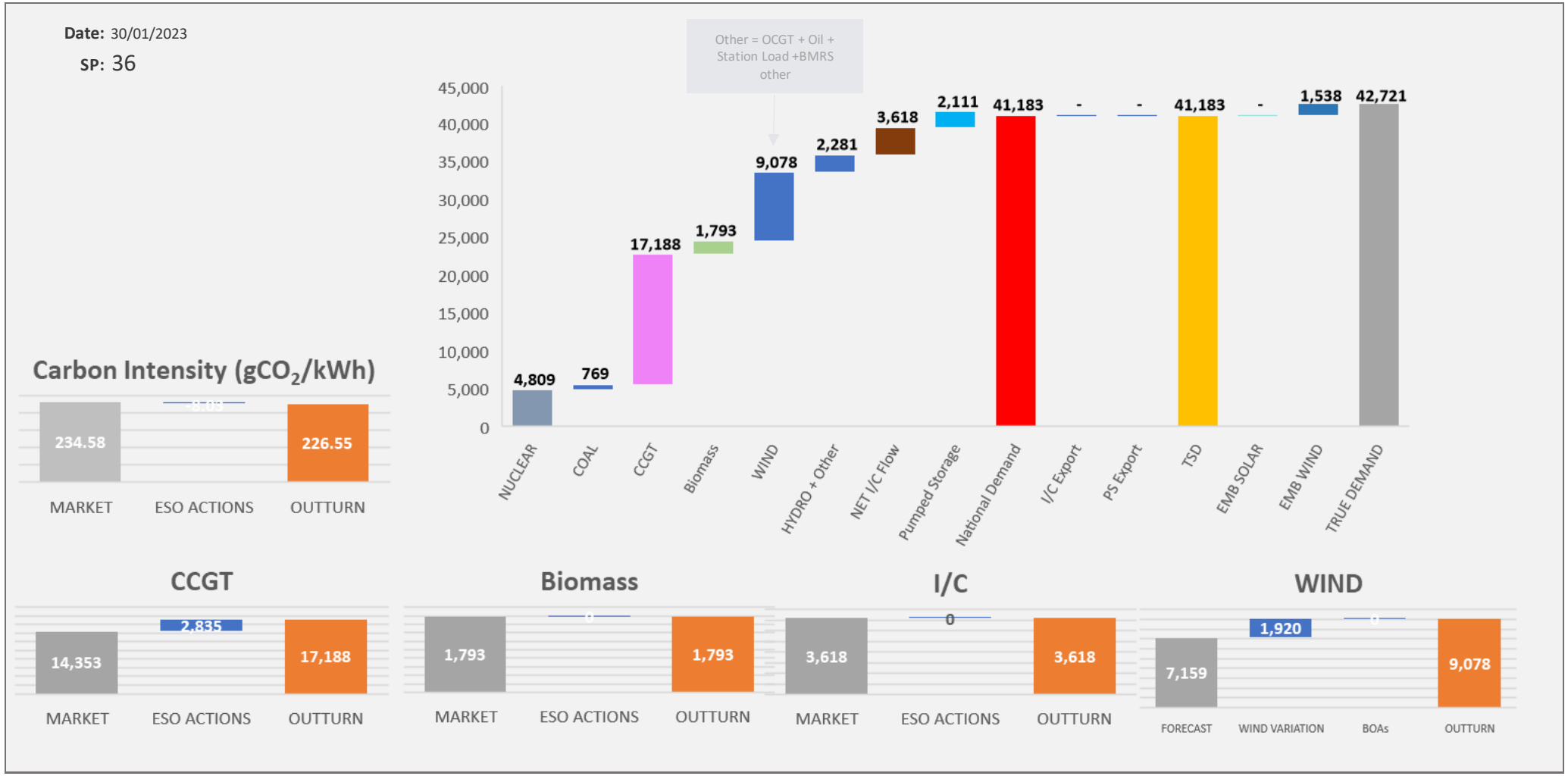

**Thermal – network congestion**
Actions required to manage Thermal Constraints throughout the week with highest costs on Tuesday.

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

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

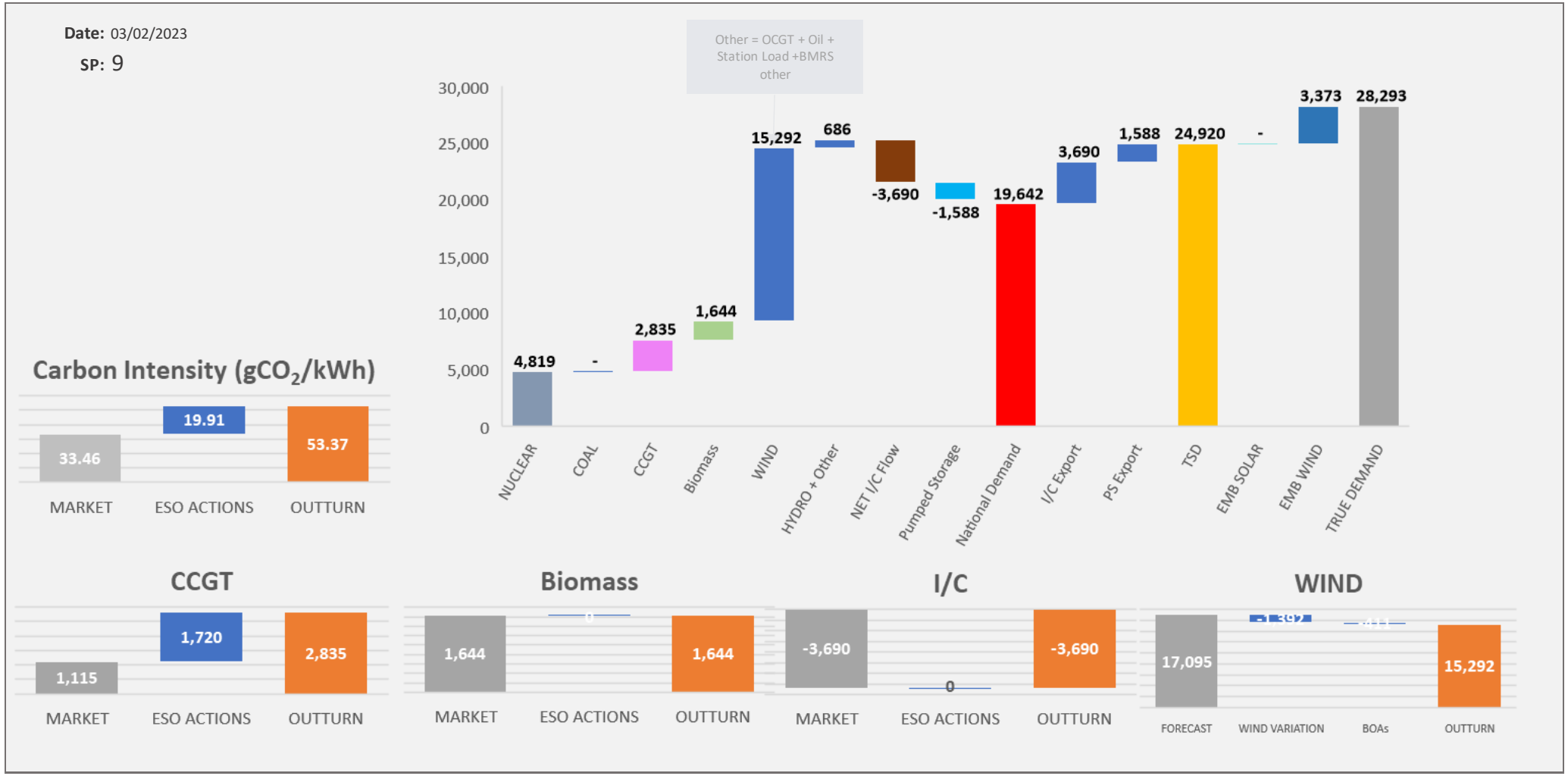
**Increasing inertia**
Intervention was required to manage system inertia throughout the week.

# ESO Actions | Monday 30 January – Peak Demand – SP spend ~£185k



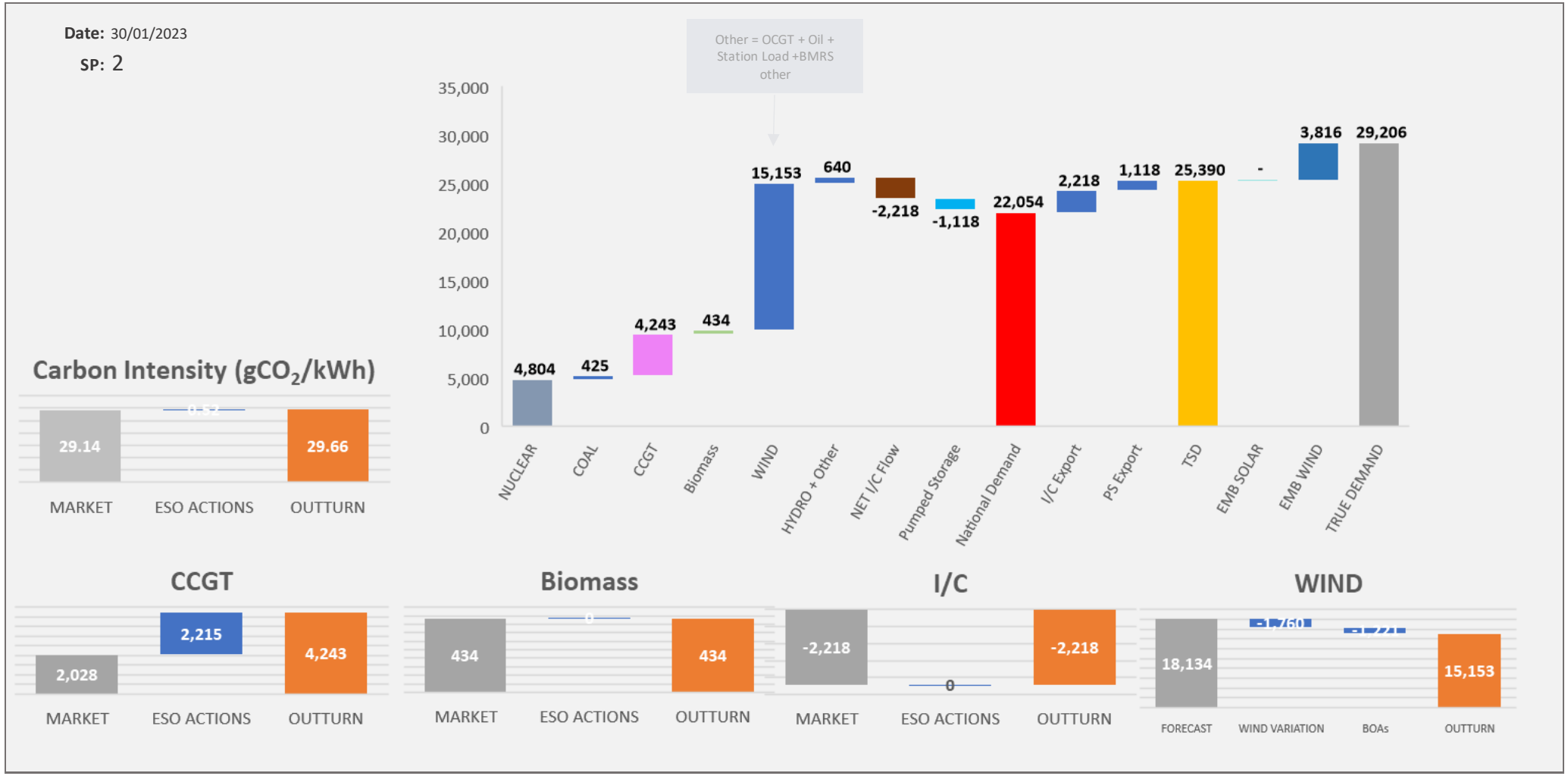

Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

# ESO Actions | Friday 3 February – Minimum Demand – SP Spend ~£213k



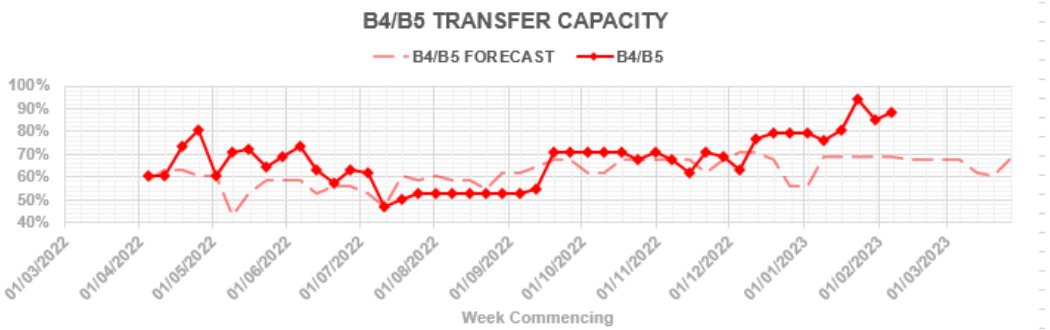

Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

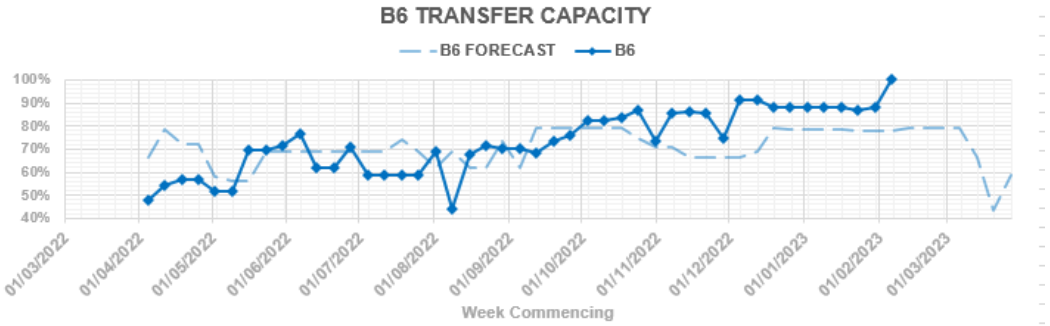
# ESO Actions | Monday 30 January – Highest SP Spend ~£480k

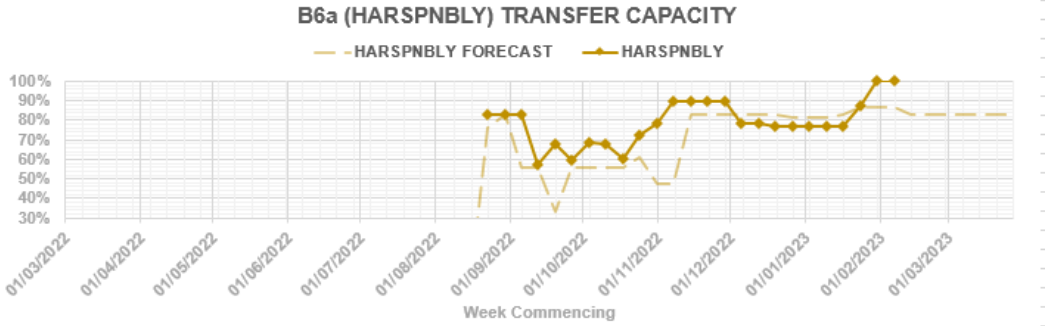



Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

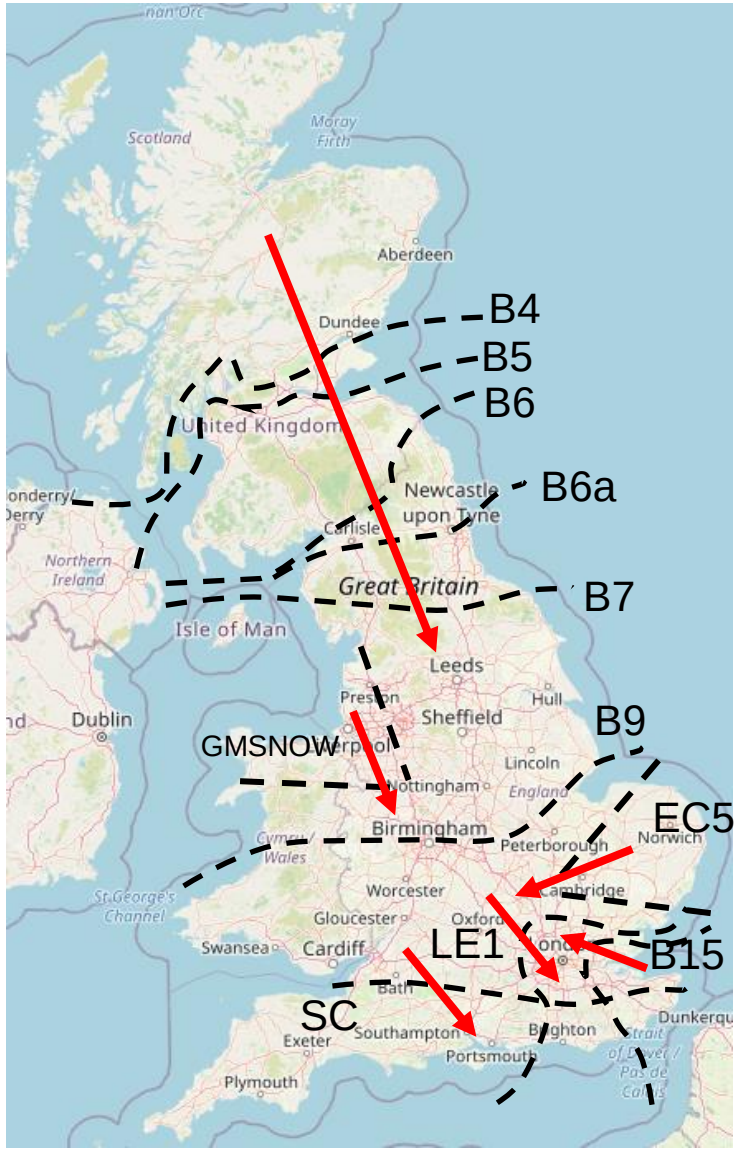
# Transparency | Network Congestion



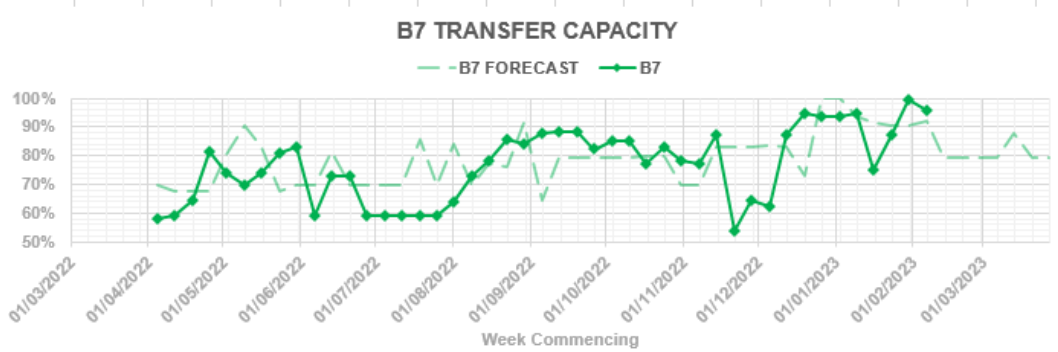



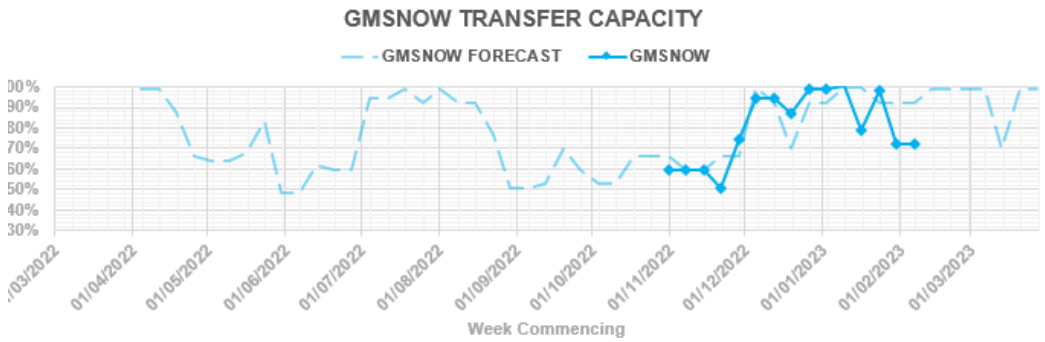

| Boundary | Max. Capacity (MW) |
|---|---|
| B4/B5 | 3200 |
| B6 | 6800 |
| B6a | 7000 |
| B7 | 9300 |
| GMSNOW | 4550 |
| B9 | 11000 |
| EC5 | 5000 |
| LE1 | 8500 |
| B15 | 7500 |
| SC | 7300 |

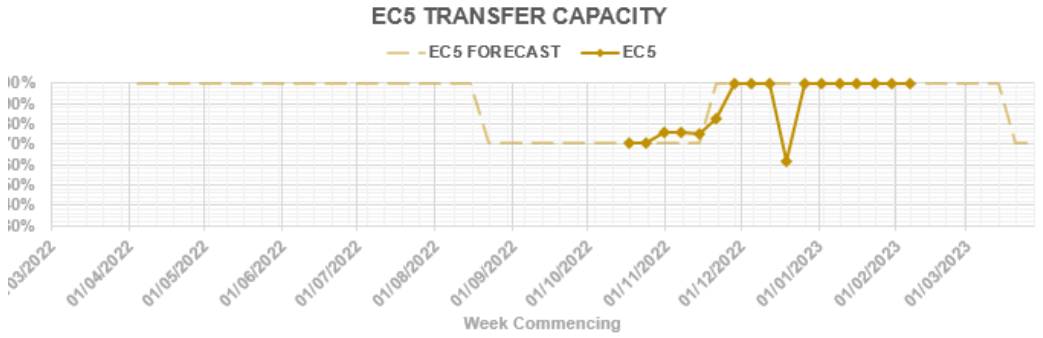



Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

# Transparency | Network Congestion

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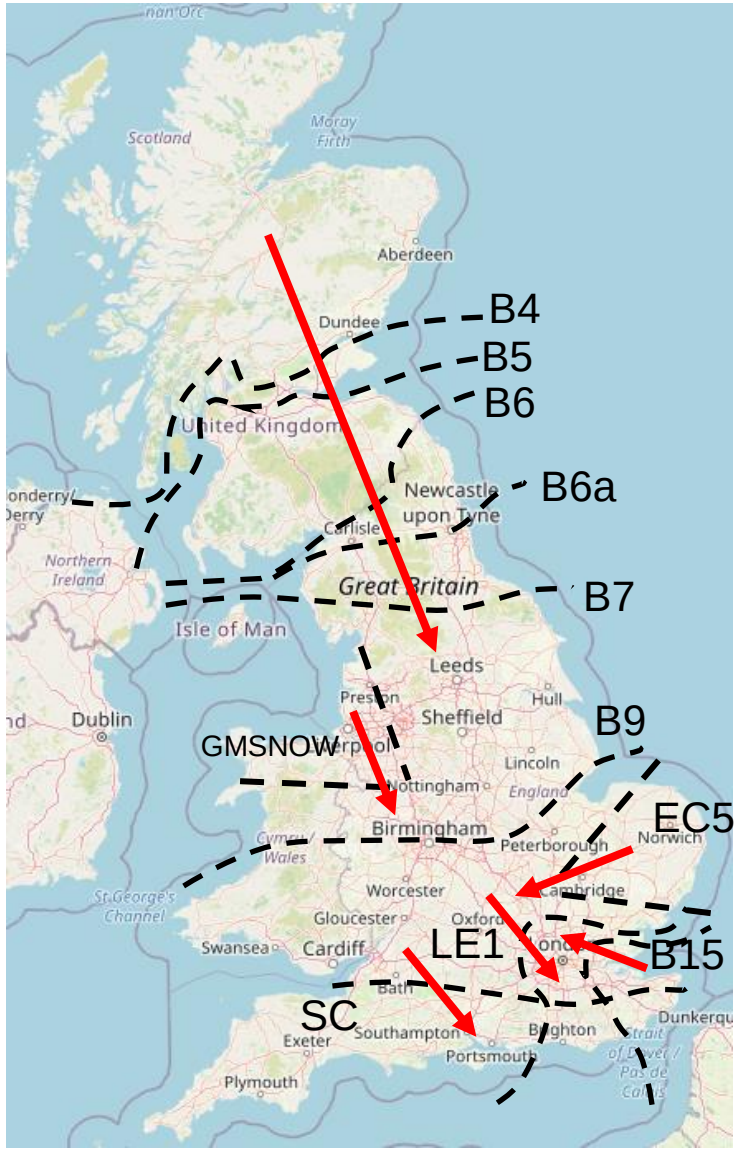
| SC | 7300 |

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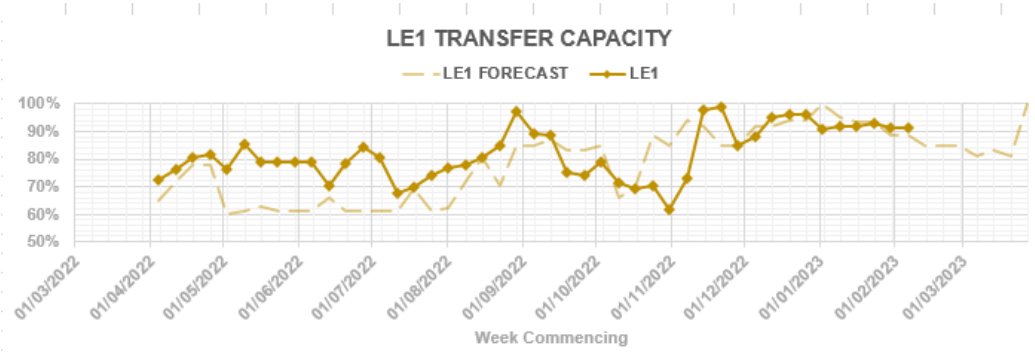
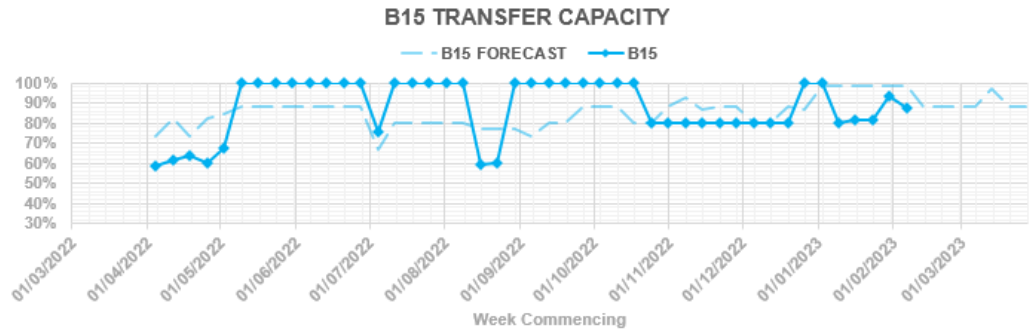
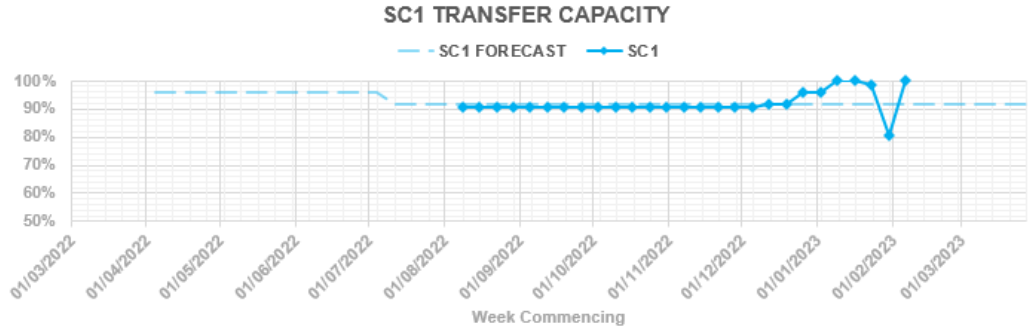
https://data.nationalgrideso.com/data-groups/constraint-management

# Transparency | Network Congestion

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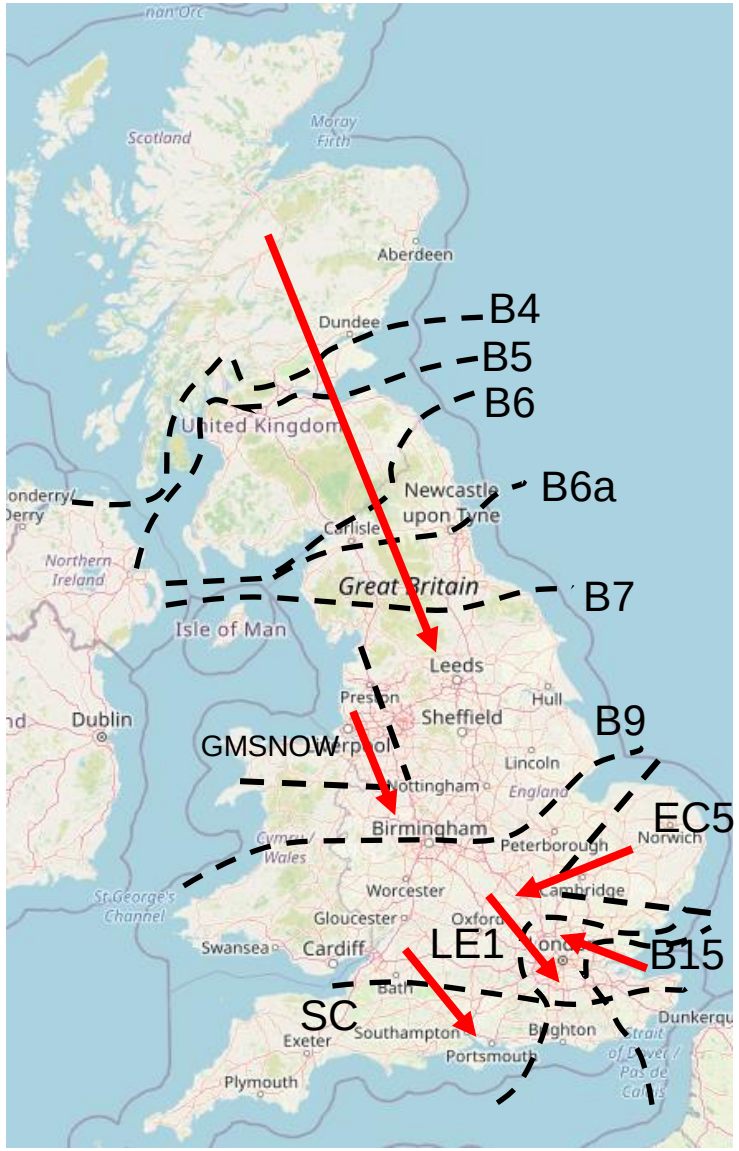
| LE1 | 8500 |
| B15 | 7500 |
| SC | 7300 |




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

# Previously asked questions

Q: Is there an initial estimate of the cost of the Emergency Assistance?

A: Any costs associated with these actions will feed into BSAD/Cashout as per the normal processes.

Q: What % proportion of the total coal contract warming cost last week was paid by GB user?

A: Costs of winter contingency contracts are all recovered through BSUoS.

Q: Why has the BSUoS tariff been published at P50 when the mod was approved at P77?

A: The intent of the mod was always to set the tariff at the P50 forecast number with the ESO WCF (Working Capital Fund) (and in some cases the BSUoS fund) providing the additional support to cover the desired P level stated for each WACM (Workgroup Alternative CUSC Modification). More detailed information/explanation on this has been provided in our Fixed tariff webinar of the 7th February, recordings and Q&A document f this to be published by the end of this week for anyone unable to attend yesterday.

# Previously asked questions

Q: Does the Stability Pathfinder phase 1 procured inertia feature in the Market Provided Inertia, or Outturn Inertia, on the ESO Data Portal?

A: Stability pathfinder phase 1 units are treated in the same way as the other generators in the inertia estimates- with the exception that they can provide inertia with a MEL < 15 MW.

The outturn inertia estimate is based on summing the inertia across all generators which are providing >15 MW or have generation below 15 MW but operating specifically to provide inertia. This will include pathfinder units where applicable.

The market provided inertia is calculated in the same way, but with the MW values of the generators adjusted to the position pre-NGESO actions. These actions do not have to be specifically related to inertia.

# Advance questions

Q: Regarding notification below, could you please confirm my understating is correct? RTE (France) offer at 684/MWh for period between 5am and 7pm. NGESO (GB) bid at 205/MWh under offer, therefore at 479/MWh. Assume issue of notification by NGESO implies transaction is accepted.

2023-01-30 15:24:00

NATIONAL GRID NOTIFICATION of excess energy prices used for settlement outside of BALIT for SO-to-SO Transactions over the National Grid/RTE Interconnector. Prices cover 23:00Hrs Today to 05:00Hrs Tomorrow (UK local time) and are in Euro/MWh. From RTE: Offer 350.00; Bid 0.00 From NGC: Offer 684.00; Bid -205.00 Prices cover 05:00Hrs Tomorrow to 19:00Hrs Tomorrow (UK local time) and are in Euro/MWh. From RTE: Offer 350.00; Bid 0.00 From NGC: Offer 1141.00; Bid 0.00 Prices cover 19:00Hrs Tomorrow to 23:00Hrs Tomorrow (UK local time) and are in Euro/MWh. From RTE: Offer 350.00; Bid 0.00 From NGC: Offer 1141.00; Bid 0.00

A: These notifications show the prices made available by RTE (France) & NGESO (GB) for the Excess Energy System Operator to System Operator (SO-SO) Trading service. These are the prices that would be paid if the service were requested by either SO. If NGESO is the requestor, they will pay the prices provided by RTE and vice versa.

For the example in the question, if NGESO were to request the service from RTE, NGESO would pay €350/MWh to increase the flow to GB or, €0/MWh to reduce the flow to GB.

Similarly, if RTE were to request the service from NGESO, RTE would pay €1141/MWh to increase the flow to France or, €0/MWh to reduce the flow to FR.

# Advance questions

Q: Both Drax and West Burton A have had significant volumes of coal railed in to their sites since September to provide stocks that can be burnt when issued with instructions by the ESO to run under Winter Contingency Contracts (Catalyst Commodities estimate circa 175,000 tonnes and circa 100,000 tonnes respectively). Given the very limited utilization of these units so far and with only 2 months of winter remaining it seems highly probable that most of this coal will remain unburnt at the end of this winter. Can the ESO confirm what will happen to this coal?

Will it:

a) be removed from Drax and West Burton A without being burnt; or

b) is the ESO going to provide instructions to West Burton A and Drax (e.g. via the Balancing Mechanism) to burn off this coal; or

c) is it going to be temporarily left on site as there is an option to renew the winter contingency contracts for W-23.

If b) is the preferred option will the burn off happen in March or after the end of the winter contingency contracts (e.g. in April).

A: The stations will only be instructed by ESO to generate under the winter contingency contracts in response to system conditions. We are not fully through winter yet, however any remaining coal on site at the end of the contracts will be sold back to the market.

On next winter, we continue to work closely with BEIS and Ofgem to understand any requirement for additional non-gas generation beyond the end of these winter contingency contracts.

# Advance questions

Q: In accordance with Article 40 ('Information Exchange') paragraph (2), and in particular sub-paragraphs (d) and (e), together with paragraph (4), of the ERNC (link below) the ESO has, since 18th December 2017, been obligated (and, as it remains applicable GB law, continues to be so obligated) to provide in due time information; to System Defence Providers, Significant Grid Users and NEMOs (for onward communication to market participants) and others; during an 'emergency state' (as is continuously determined by the ESO in accordance its SOGL obligations, which is also retained GB law).

The ESO has recently stated, at the OTF in December, that the GB NETS was at one point in an emergency state; however, it has not been possible for us to source where, when and to whom did the ESO discharge its Article 40 (2) (d) and (e) or (4) obligations.

Therefore, can the ESO please confirm that on each and every recent occasion that the ESO determined that the GB NETS was in an emergency state (according to the ESO obligations for so determining, continuously, as set out in SOGL) it has, in due time:

(i) notified all System Defence Providers, Significant Grid Users and NEMOs of this;

(ii) when exactly (date and time of day) this was done by the ESO; and

(iii) where other stakeholders can find this information.

For the avoidance of doubt, please list this information for each and every occasion where the ESO continuously determining (according to SOGL) that the GB NETS was in an emergency state in the last 12 months, ending 31st December 2022.

In answering the initial question, the ESO mentioned, at the December OTF, the GEMA decision, of 17th February 2022, on modification GC0133. However, as GC0133 relates to the publication of all five system states not just 'emergency' (or 'blackout' or 'restoration') and as, in legal terms, such an Authority decision cannot override a statutory duty (in this case upon the ESO, as per Article 40 (2) (d) and (e) or (4)) it follows that that ESO response did not answer the question posed – hence why it is being re-submitted here for completeness and transparency.

A: NGESO uses System Warnings published via Elexon's BMRS to publish communications equating to the emergency, blackout and restoration states, should they be required. GC0133 would have catered for the publication of system states but this was rejected by Ofgem as part of their decision on GC0133. Two Alternative Proposals for GC0148 have been prepared both of which include publication of changes to system state including Emergency, Blackout and Restoration States. Ofgem have sent back GC0148 to the Grid Code Review Panel (GCRP). This was discussed at the January GCRP and Panel requested further legal clarification from Ofgem.

# Questions we are still working on

Q: With the approval by Ofgem in December of the roll out of Project CLASS to all DNOs going forward, what active steps is the ESO now taking to ensure it can / will verify, ex-post, what demand reduction is actually delivered by each contracted party where the demand reduction, applied to the same customer's site, is being provided by multiple parties.

Decision on the Regulatory treatment of CLASS as a balancing service in RIIO-ED2 network price control | Ofgem

Thus where Project CLASS is utilised in one (or more) DNO area then if, in that area(s), DFS is also used either (i) concurrently or (ii) consecutively [Q1] how will the ESO verify that the correct level of demand is correctly apportioned to the correct parties if (i) or (ii) occurs?

A simplified, illustrative, example: DNO area has, in a period of time, 1,000MW of demand expected. ESO (via STOR?) calls, say, equivalent of 5% voltage control (from DNO) and achieves 50MW reduction (spread across all relevant customers in the DNO area – including, but not limited to, DFS customers) and concurrently calls DFS (from one or more parties) of 30MW (which is just those signed up to the service) – so demand in the DNO area, in the period, should be 920MW (or 921.5MW?).

[Q2] Assuming 920MW (or 921.5MW?) is achieved, then as VC will see the DFS customer demand of 30MW fall, 'naturally', from VC, by 1.5MW, is this demand reduction (1.5MW) achieved by the contracted DNO action or the DFS customers action? Therefore, to whom is this 1.5MW volume and associated revenue attributed – the DNO or DFS parties?

[Q3] What happens if the demand reduction is not 920MW, as contracted, (or 921.5MW?) but is either (a) higher (say, 905MW) or (b) lower (say, 935MW): then how will the ESO treat the 15MW surplus with (a) or shortfall with (b) and to whom will the respective revenue or non-delivery be applied: DNO or DFS parties?

[Q4] If the demand reduction is applied consecutively then what is the baseline to which the demand applies: for example, DNO VC called by ESO for first period of time, so demand goes from 1,000MW to 950MW. ESO then calls, in next period of time, for DFS: does that 30MW reduction start either at (x) 950MW (so to go to 920MW) or at (y) 1,000MW (so to go to 970MW)?

NOTE: Ofgem decision noted that, if fully taken up, Project CLASS could provide approximately 3GW of demand reduction – so this volume, when combined with the volume growth expected for DFS demand reduction, could see the possible 'cross-over' of demand reduction highlighted in the four questions above being an increasing issue: therefore it is important that this is addressed sooner rather than later.

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# 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