

A landscape photograph featuring snow-capped mountains in the background and a valley in the foreground. Several bright, glowing light trails curve across the valley floor, suggesting a long-exposure shot of a road or path. The sky is filled with dramatic, golden-hued clouds, indicating a sunrise or sunset.

# ESO Operational Transparency Forum

15 February 2023

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

Live captioning is available in Microsoft Teams

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

## Introduction | Sli.do code #OTF

Please visit [www.sli.do](http://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](mailto: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:

Interconnectors and Emergency Actions focus area – 1<sup>st</sup> March

Balancing Markets Winter Costs review (November, December, January)

Reserve Reform update

Response markets deep dive

System Inertia

Feedback welcomed on our proposed deep dive topics

# Winter Enhanced Actions

## Service instructions

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

BMU ID	Instruction Issued	Instruction Cancelled	Notes

Demand Flexibility Service Advanced Anticipated Requirements Notice were issued on 12 February for 13 February (Monday):

BMU ID	Instruction Issued	Instruction Cancelled	Notes
DFS	12/02/23 09:59	N/A	BMRS – test 17:30-18:30 on 13 Feb

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

# 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 13<sup>th</sup> and 24<sup>th</sup> February 2023.**
- The consultation and associated documents will be published on our website on Monday 13<sup>th</sup> February. Previous FRCR documentation can be [found here](#).
- We will also be holding a webinar on **Monday 20<sup>th</sup> 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](mailto:box.techcodes@nationalgrideso.com)

07768 537317

Please send your response proforma to [box.sqss@nationalgrideso.com](mailto:box.sqss@nationalgrideso.com) by 5pm on Friday 24<sup>th</sup> February 2023.

Please join the webinar using the [Teams link](#)

You can add the [Teams link](#) to your calendars

# Enduring Auction Capability Webinar – 17 February 2023

The EAC is being designed to deliver **co-optimised procurement of day-ahead Response and Reserve services**.

We will be presenting the EAC Detailed Market Design on **Friday 17 February at 10am**, this includes:

- Market Design Overview
- Revenue Stacking
- Sell Order Design
- Market Clearing Rules

Following the webinar, we will be hosting virtual **breakout sessions** on Revenue Stacking, Sell Order Design, and Market Clearing Rules. These sessions are to allow market participants an opportunity to **engage directly with the EAC team** in an interactive format.

## Friday 17 February 2023

- **Webinar: 10:00 – 11:00**
- **Breakout sessions (1-3): 11:05 -11:30**
- **Breakout sessions (4-6): 11:35 -12:00**

**Scan the QR code  
to register:**



# Relevant Balancing Services (RBS) Guidelines Official Consultation

We welcome industry's views on the proposed changes within our consultation.

We are consulting on proposed changes to the RBS guidelines.

NGESO welcomes industry views on the proposed changes to the RBS guidelines, and **responses are required by close of play on 2 March.**

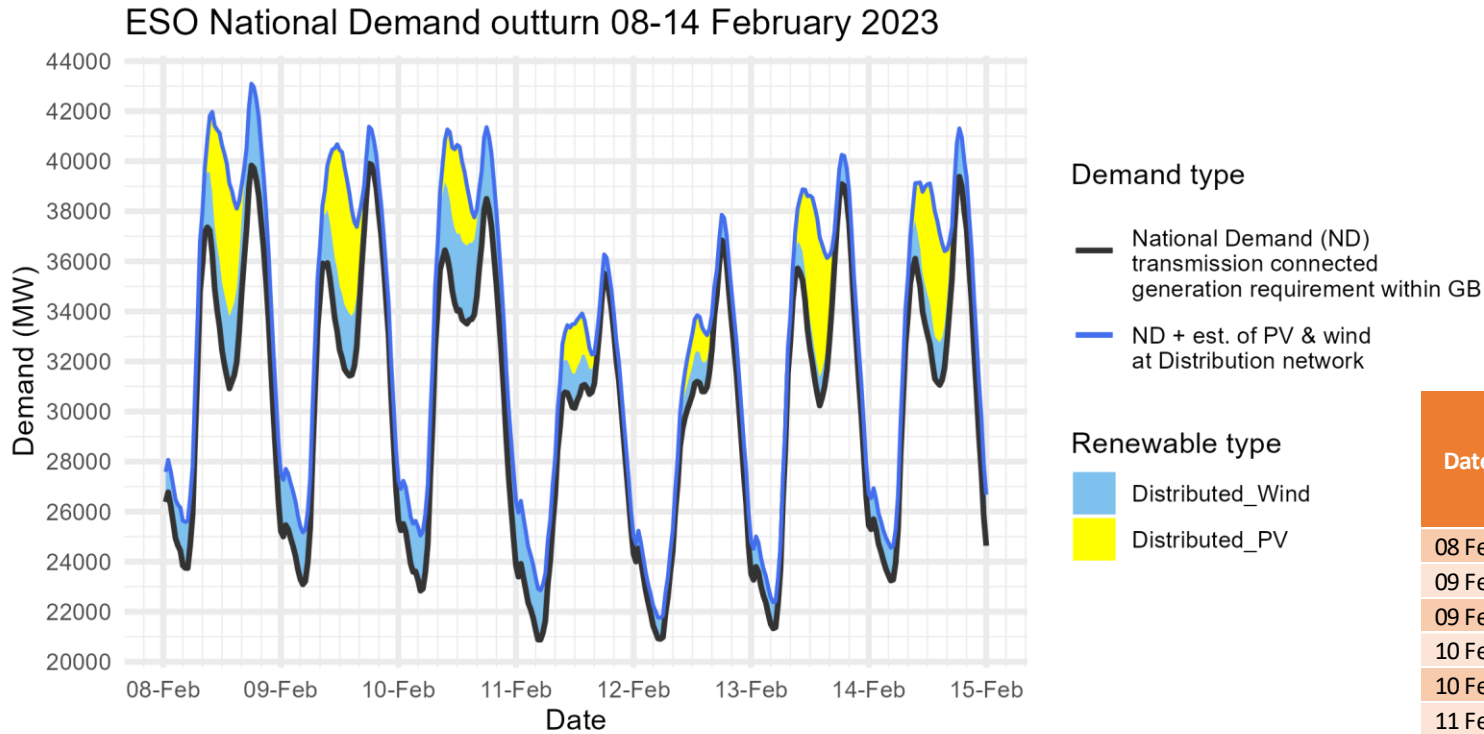
After industry responses are submitted, NGENSO will produce a report summarising the final recommended changes to be sent to Ofgem for review. A decision is anticipated by 6 April, with RBS guidelines expected to be updated by or before 13 April.

All 'Official' consultation material can be found on the EMR Website, under Capacity Market Guidance; Consultation documents [here](#)

[Sign up](#) for notifications on RBS publications and updates

Any questions, please contact [balancingservices@nationalgrideso.com](mailto:balancingservices@nationalgrideso.com)

# 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

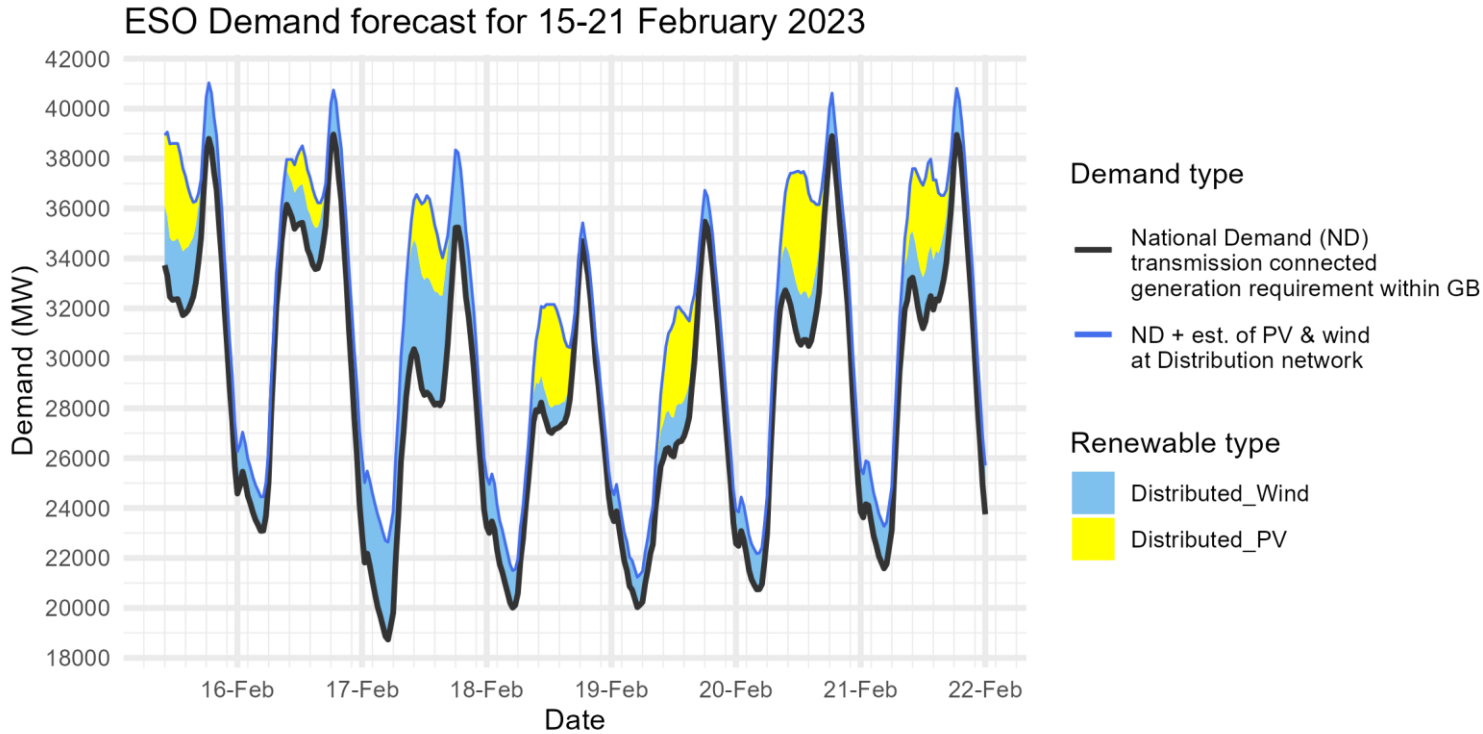
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it **does not include** demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

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

Date	Forecasting Point	FORECAST (Wed 08 Feb)		OUTTURN			
		National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Triad Avoidance est. (GW)	N. Demand adjusted for TA (GW)	Dist. wind (GW)
08 Feb	Evening Peak	39.9	3.2	39.8	0.0	39.8	3.3
09 Feb	Overnight Min	23.7	2.1	23.1	n/a	n/a	2.1
09 Feb	Evening Peak	41.0	1.4	39.9	0.3	40.2	1.5
10 Feb	Overnight Min	23.6	2.3	22.8	n/a	n/a	2.2
10 Feb	Evening Peak	37.6	3.0	38.5	0.0	38.5	2.9
11 Feb	Overnight Min	21.1	2.2	20.9	n/a	n/a	2.0
11 Feb	Evening Peak	35.4	1.1	35.5	0.0	35.5	0.8
12 Feb	Overnight Min	21.7	1.1	20.9	n/a	n/a	0.8
12 Feb	Evening Peak	37.0	0.9	36.8	0.0	36.8	1.0
13 Feb	Overnight Min	22.9	0.7	21.3	n/a	n/a	1.1
13 Feb	Evening Peak	42.0	0.8	39.1	0.0	39.1	1.2
14 Feb	Overnight Min	23.6	1.0	23.2	n/a	n/a	1.3
14 Feb	Evening Peak	41.3	1.3	39.4	0.0	39.4	1.9



# Demand | Week Ahead



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

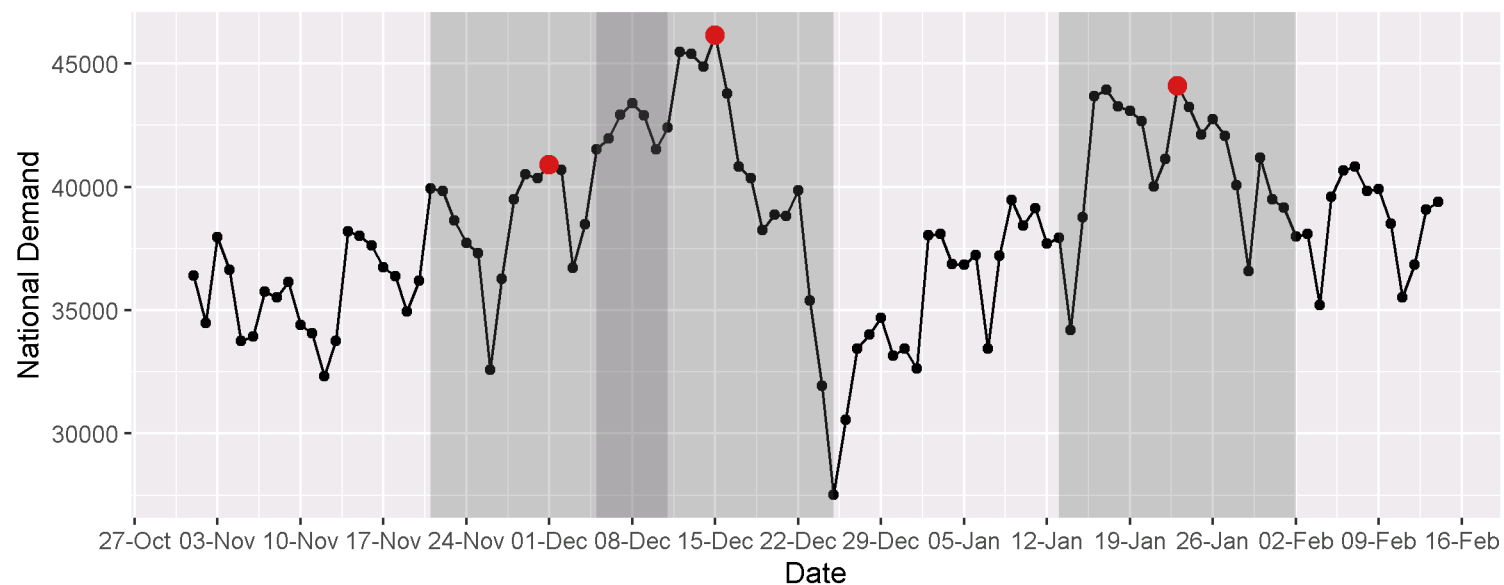
ND values **do not include** export on interconnectors or pumping or station load

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 15 Feb)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
15 Feb 2023	Evening Peak	38.8	2.2
16 Feb 2023	Overnight Min	23.1	1.4
16 Feb 2023	Evening Peak	39.0	1.8
17 Feb 2023	Overnight Min	18.7	3.9
17 Feb 2023	Evening Peak	35.2	3.0
18 Feb 2023	Overnight Min	20.0	1.5
18 Feb 2023	Evening Peak	34.7	0.7
19 Feb 2023	Overnight Min	20.0	1.2
19 Feb 2023	Evening Peak	35.5	1.3
20 Feb 2023	Overnight Min	20.7	1.4
20 Feb 2023	Evening Peak	38.9	1.7
21 Feb 2023	Overnight Min	21.6	1.7
21 Feb 2023	Evening Peak	39.0	1.8

# 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 15 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.

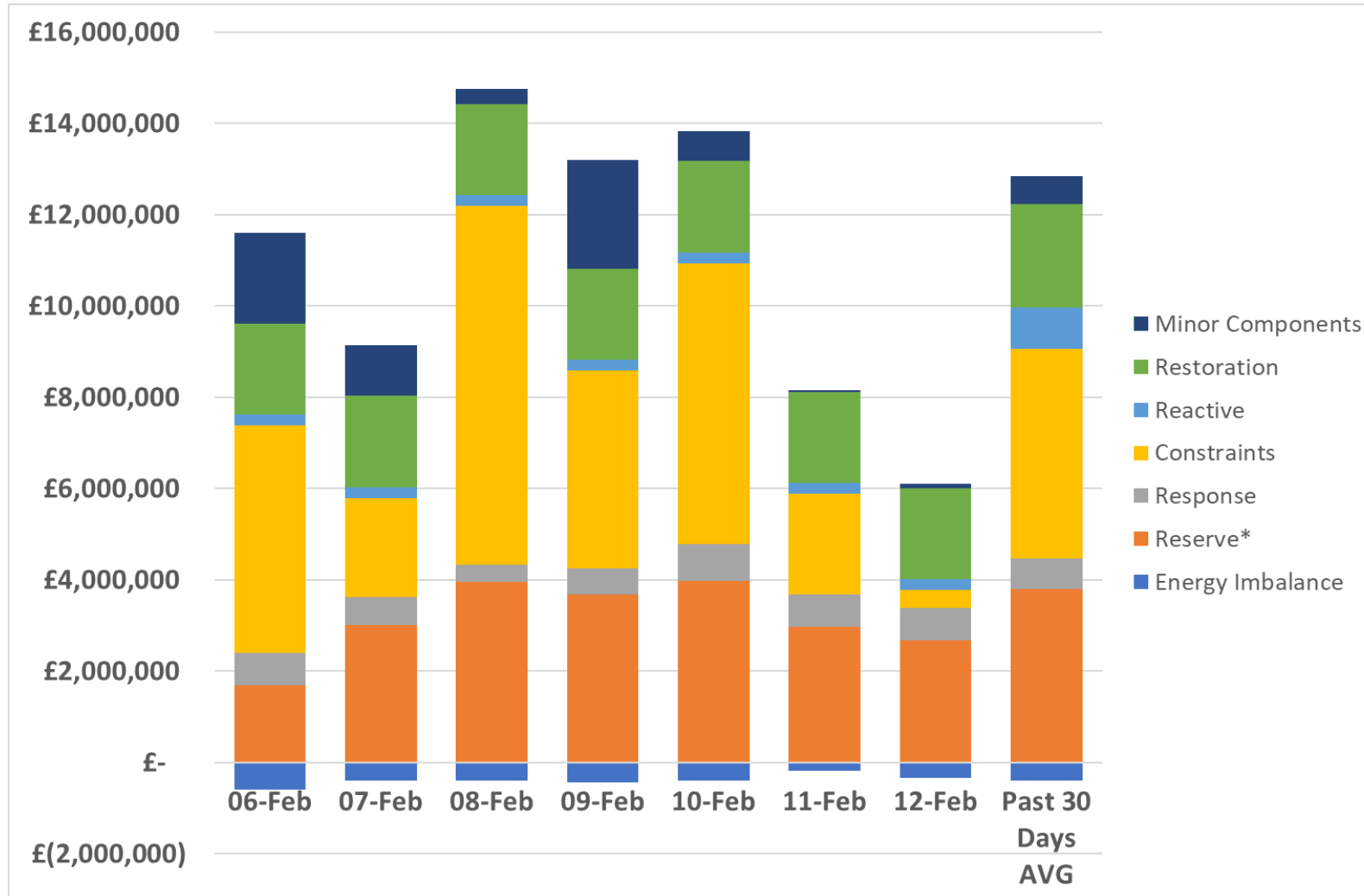
Day	Date	Notified Generation (MW)	Wind (MW)	IC Flows* (MW)	Peak demand (MW)	Indicative surplus (MW)
Thu	16/02/2023	38430	9660	4400	38940	9030
Fri	17/02/2023	39187	15970	4400	35790	17990
Sat	18/02/2023	39197	1820	4400	34140	6990
Sun	19/02/2023	39190	5530	4400	35910	8710
Mon	20/02/2023	39049	8380	4400	39700	7530
Tue	21/02/2023	40044	8550	4400	39550	8820
Wed	22/02/2023	39880	11920	4400	40190	11270

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

Margins do not include NGENSO enhanced or emergency actions (Outlined here: [download \(nationalgrideso.com\)](https://nationalgrideso.com))

Adequate when Indicative Surplus  $\geq$  1000 MW

# ESO Actions | Category costs breakdown for the last week



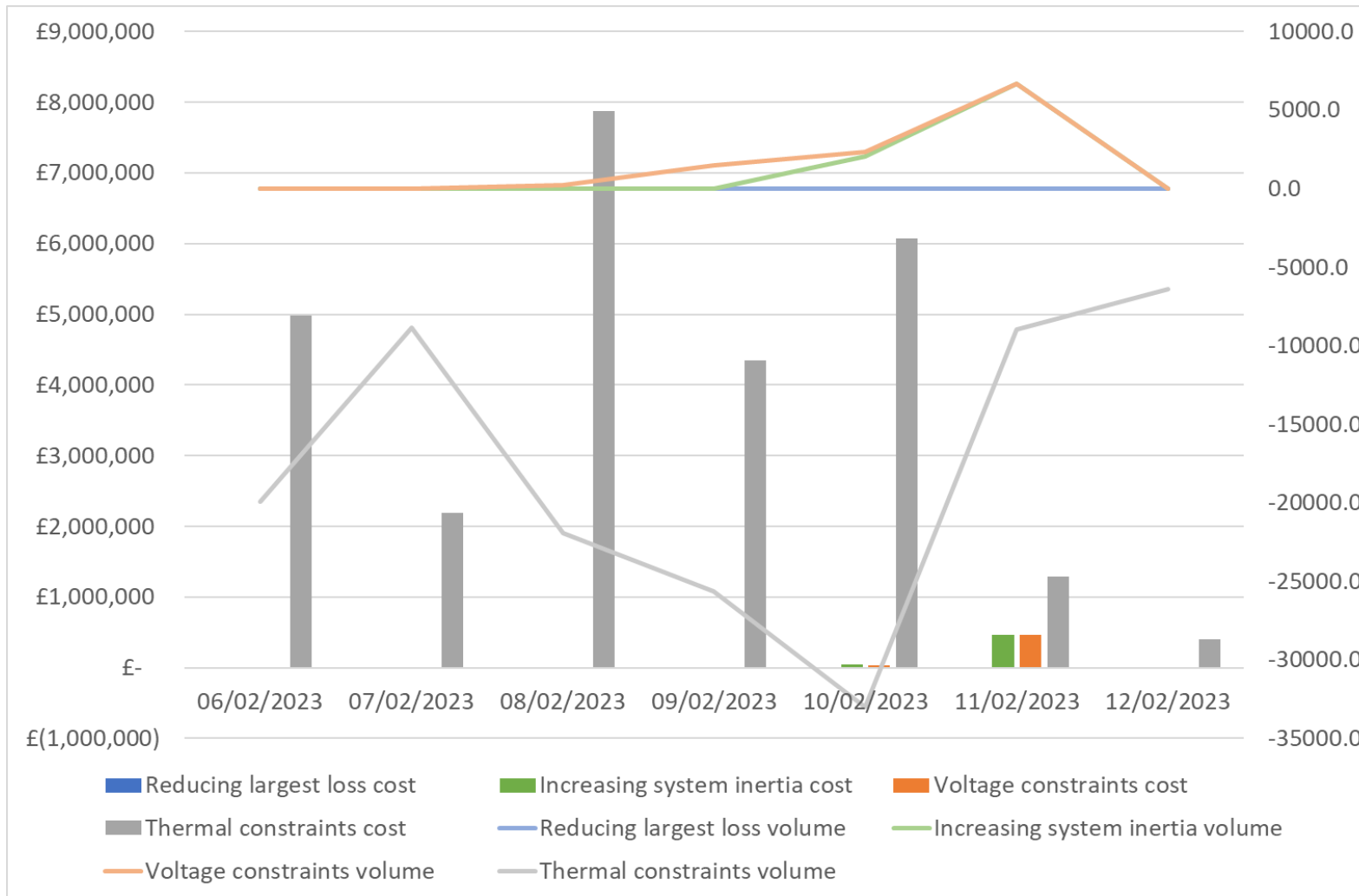
Date	Total (£m)
06/02/2023	11.0
07/02/2023	8.8
08/02/2023	14.4
09/02/2023	12.7
10/02/2023	13.4
11/02/2023	8.0
12/02/2023	5.8
<b>Weekly Total</b>	<b>74.0</b>

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



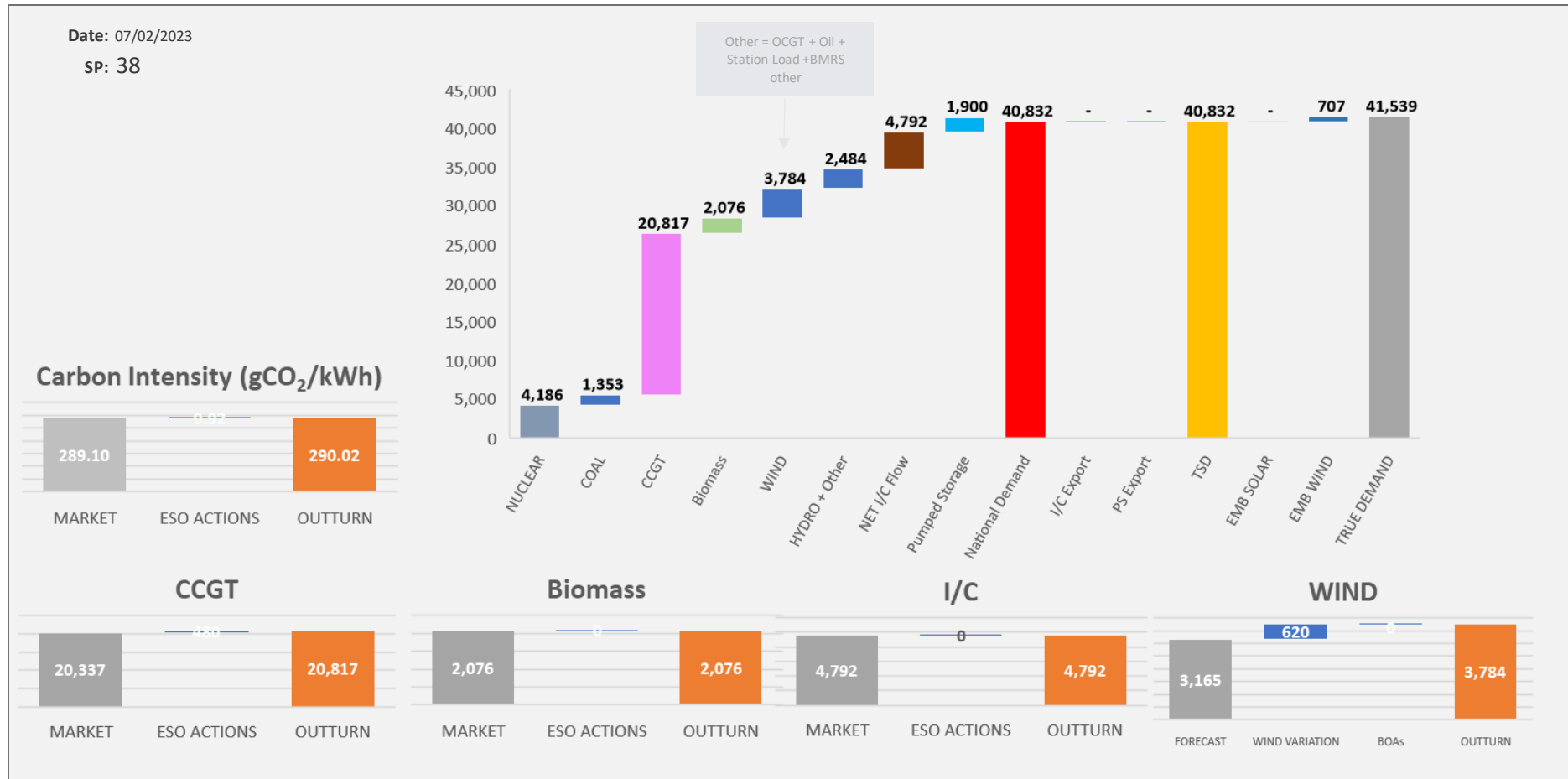
**Thermal – network congestion**  
 Actions required to manage Thermal Constraints throughout the week with highest costs on Wednesday.

**Voltage**  
 Intervention was required to manage voltage levels on Friday and Saturday.

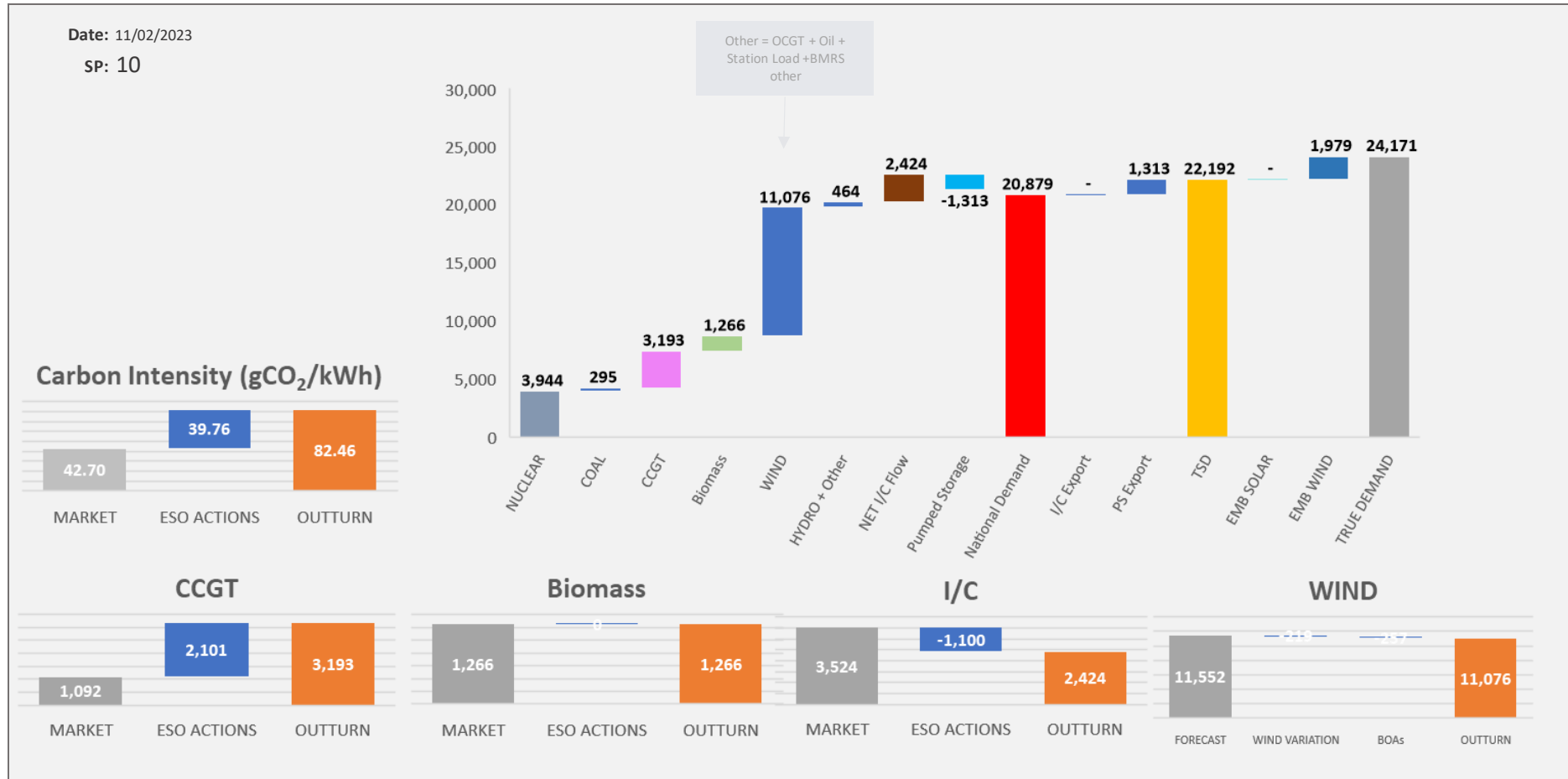
**Managing largest loss for RoCoF**  
 No intervention was required to manage largest loss.

**Increasing inertia**  
 Intervention was required to manage system inertia on Friday and Saturday.

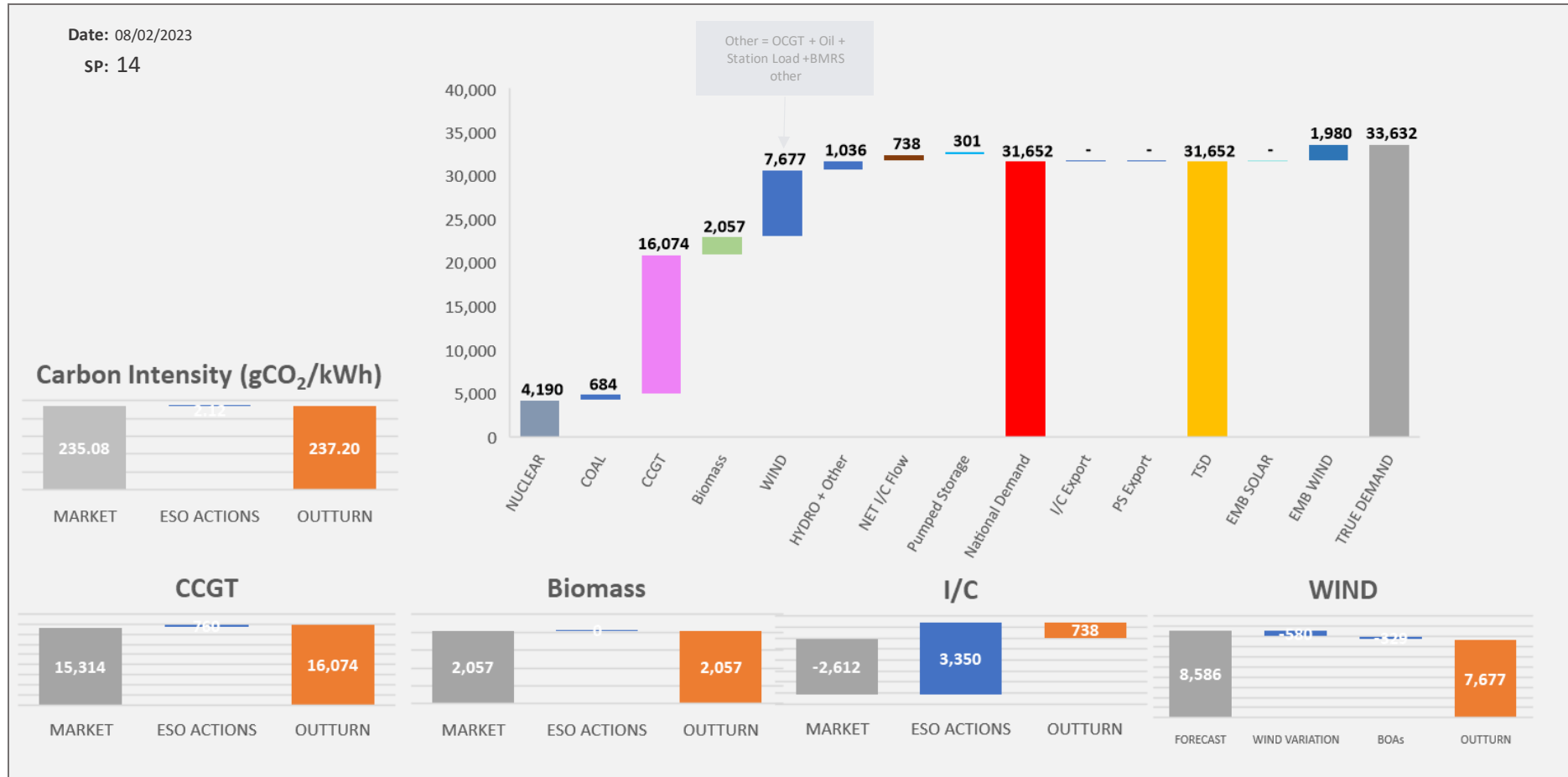
# ESO Actions | Tuesday 7 February – Peak Demand – SP spend ~£134k



# ESO Actions | Saturday 11 February – Minimum Demand – SP Spend ~£172k

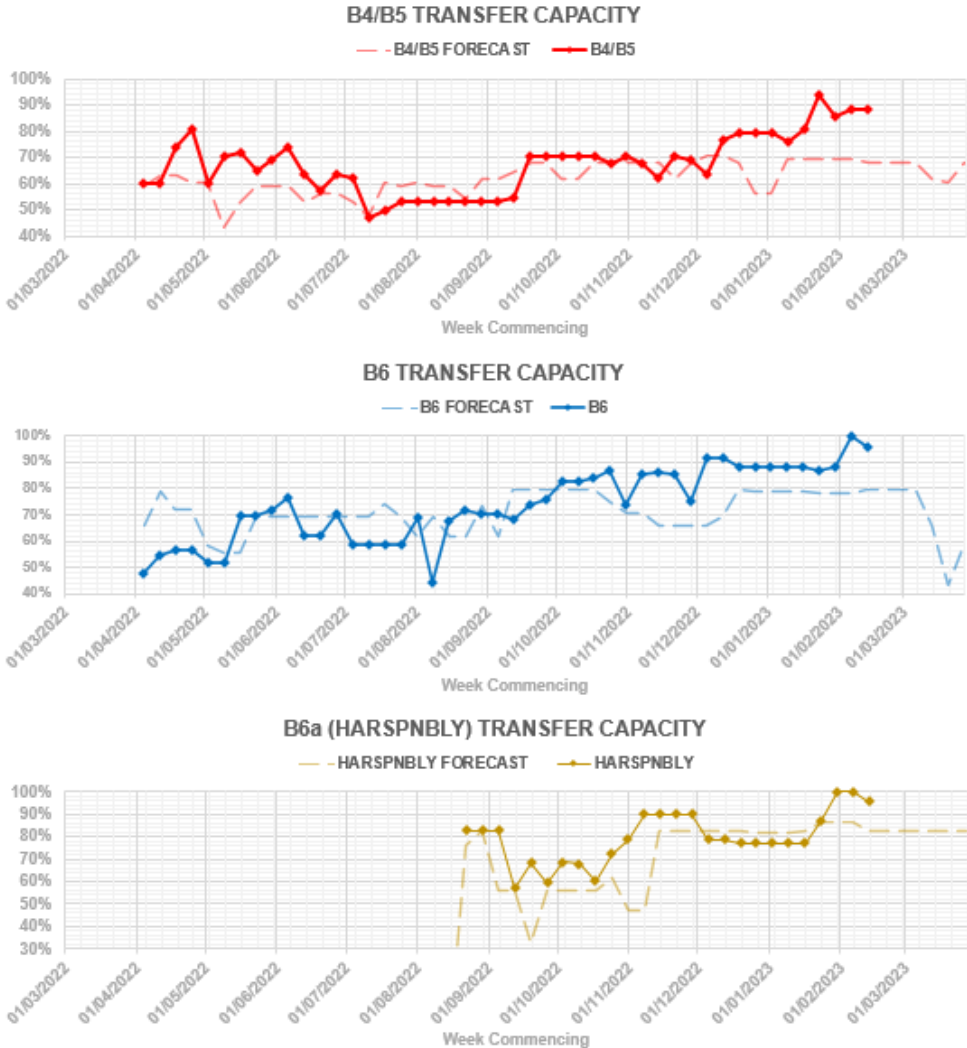


# ESO Actions | Wednesday 8 February – Highest SP Spend ~£498k

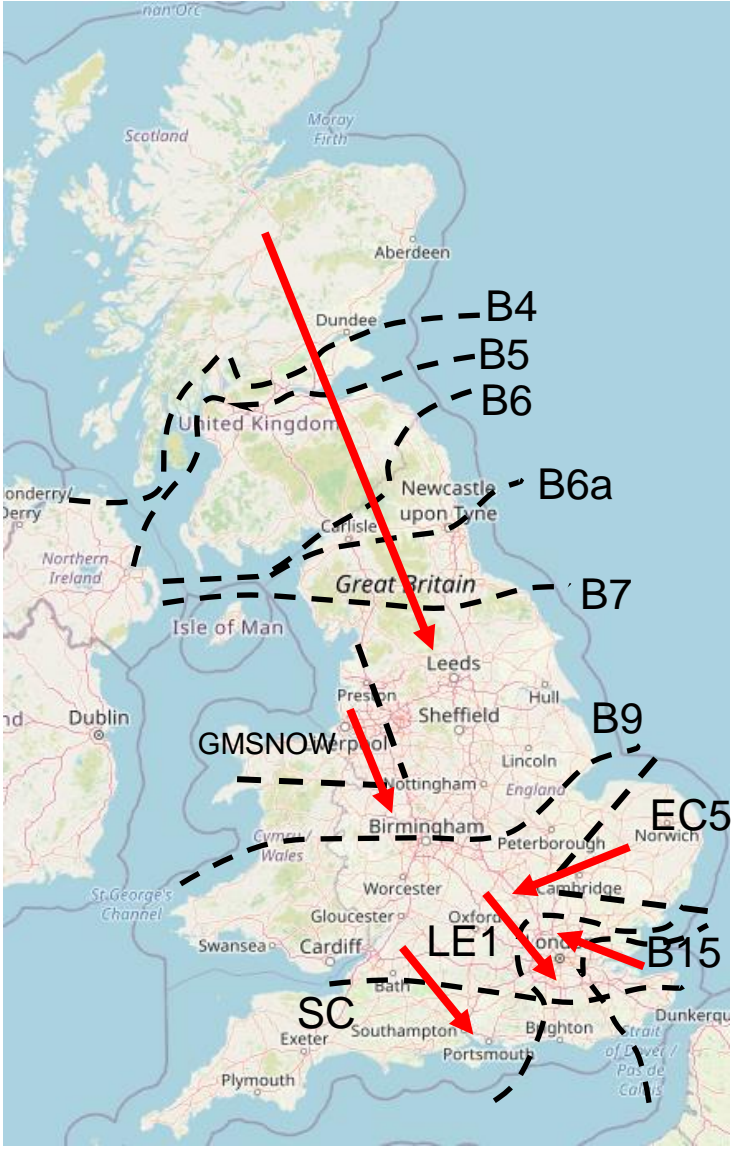




# Transparency | Network Congestion

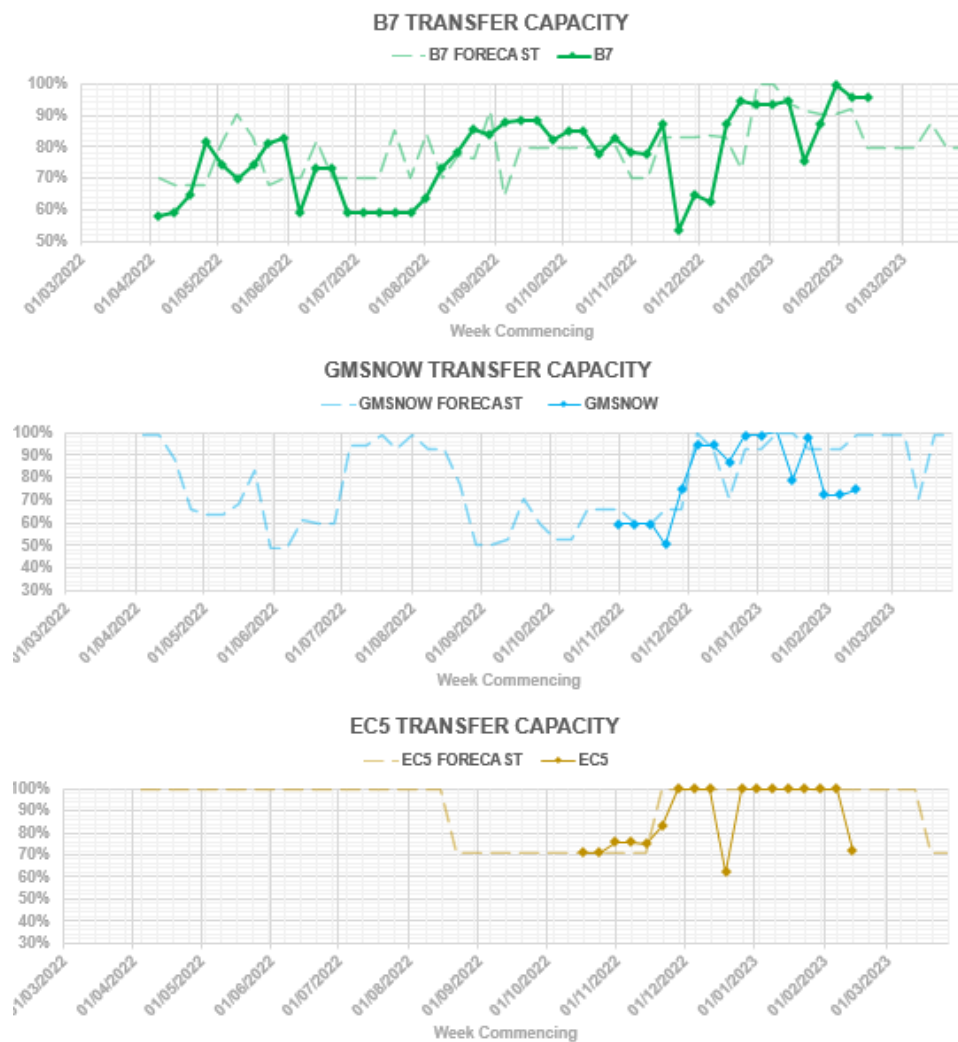


Boundary	Max. Capacity (MW)
B4/B5	3200
B6	6800
B6a	7000
B7	9300
GMSNOW	4550
B9	11000
EC5	5000
LE1	8500
B15	7500
SC	7300

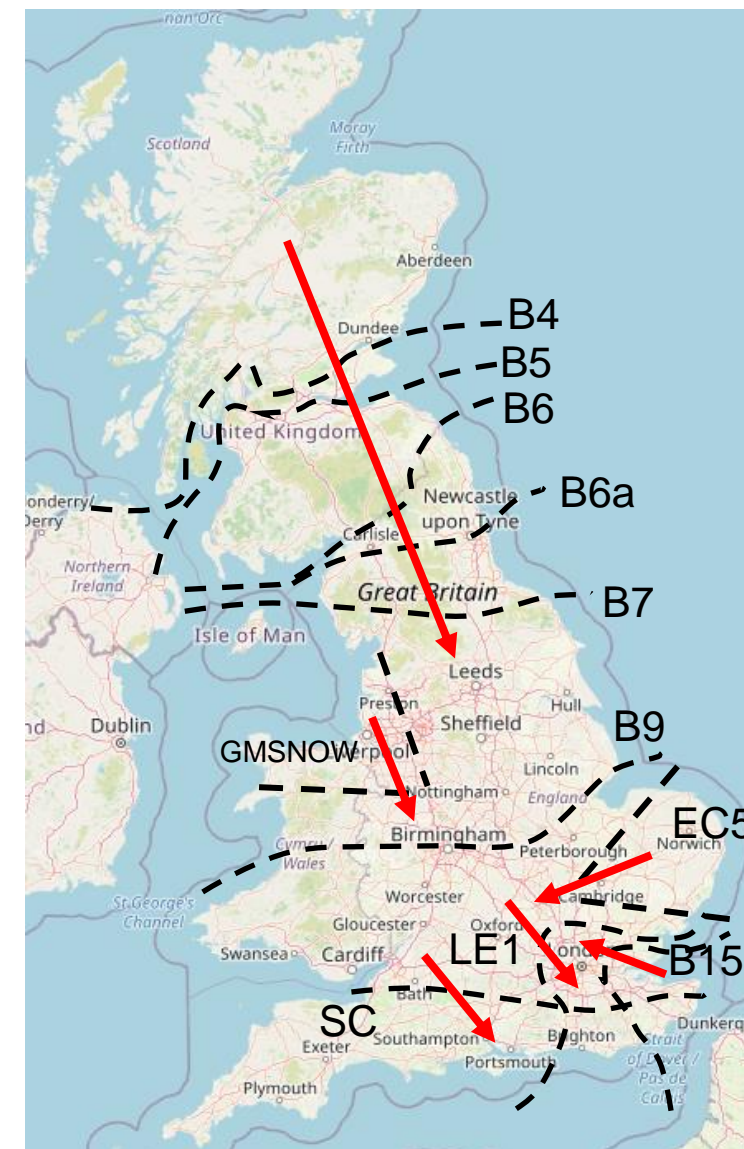


Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

# Transparency | Network Congestion

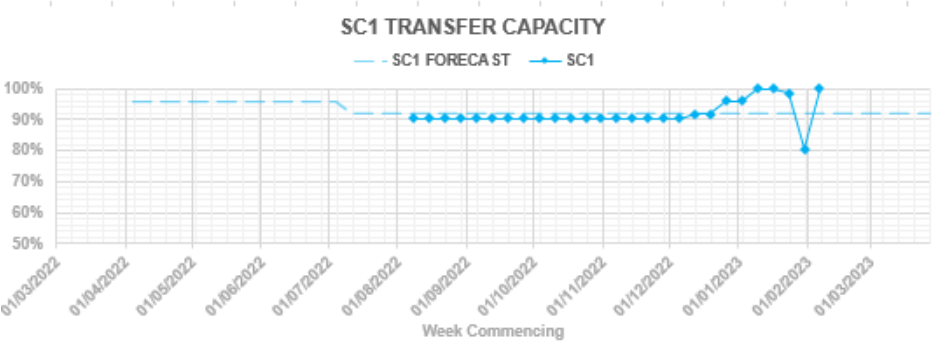
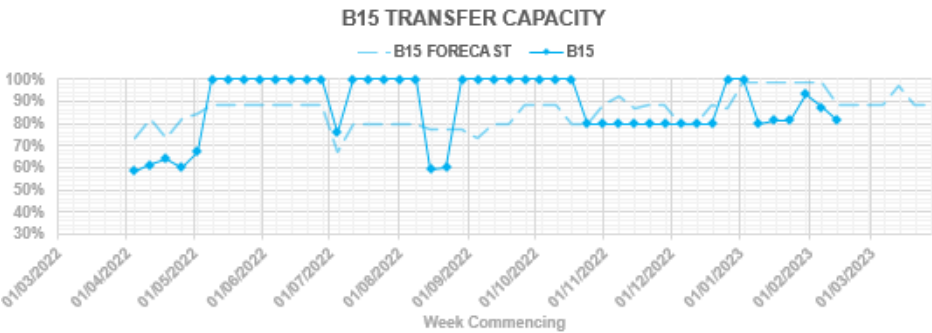
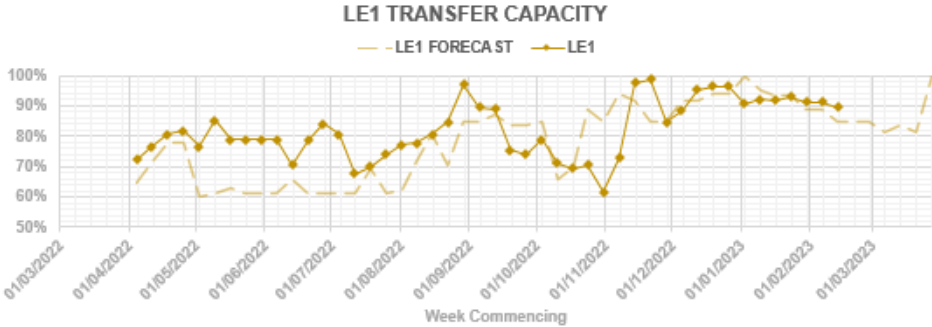


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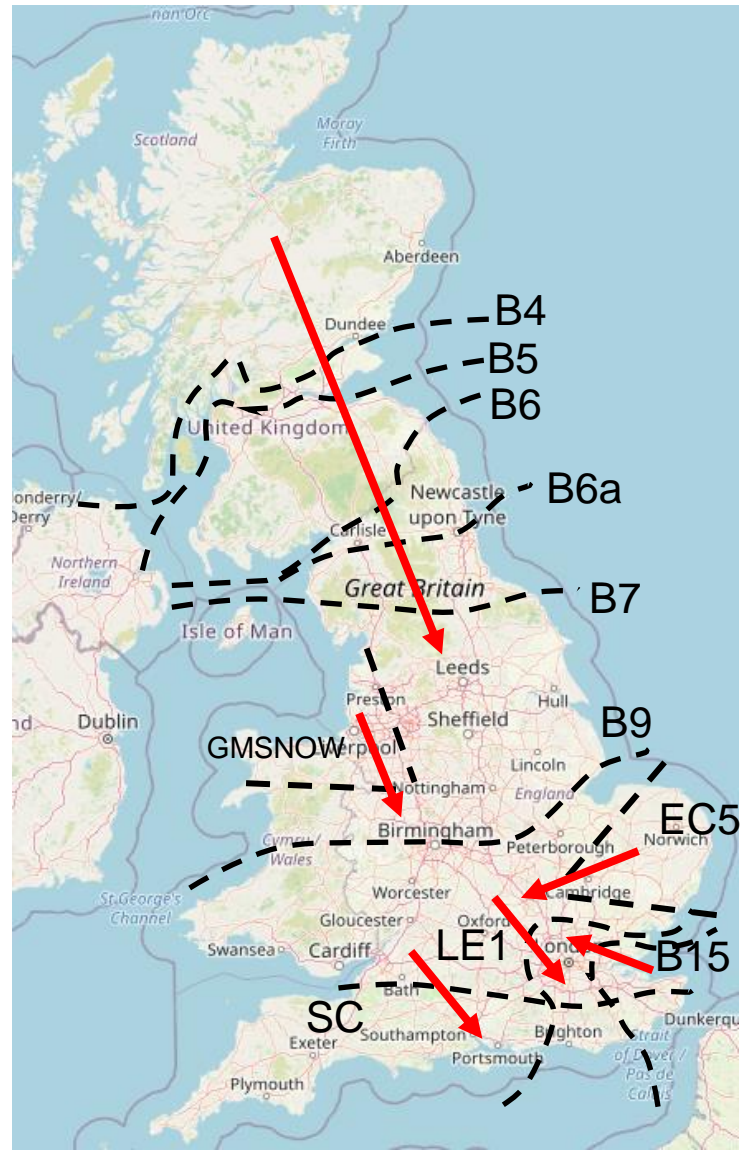


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Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

## Previously asked questions

Q: Could you elaborate on what could be the reasons for NGESO Interconnector Requests not being fulfilled. i.e. a volume requested but not being fully filled?

I do not mean emergency assistance but interconnector-requirement-and-auction requests for certain volume that is not fully fulfilled, could you name reasons why you request more than you accept in the end

A: We will be able to explain this at the Interconnector session on 1<sup>st</sup> March.

Q: Thanks for the reply. Sorry I forgot P/S Pump (1-1.5GW from last weeks Mins) and of course the rest (Total capacity 2.7GW) can be spinning. I take it Inertia Constants are still 6 seconds for Steam Turbo Alternators and 4 for Hydro Turbines?.

A: Inertia constants are specific to individual generators.

## Advance questions

Q: 1. Do interconnectors flow in both directions simultaneously? for example, if IFA1 is scheduled to export 2GW to France and import 1.9GW into UK, does that mean that only 100MW will be flowing on the generating cable? or will we be seeing 2GW flowing in the generating cable and 1.9GW flowing in the demand cable simultaneously?

2. Why do the two separate directions need two separate REMIT notifications? is an outage in only one direction possible?

A: 1. The nominations on interconnectors are netted to result in the final flow. In this example, the resulting flow would be 100MW GB to France. The interconnectors can only flow in one direction at a time i.e. Import to GB/Export from France or Export from GB/Import to France.

2. Yes, whilst it is possible, it is very unusual to have a full outage in a single direction only. The more common occurrence is a restriction (rather than a full outage) in one direction but not in the other. Hence the need to be able to REMIT for each direction of flow.

# Advance questions

Q: Following on from last week's query. I'm keen to fully understand...

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

Is the following correct? Particularly wrt -ve 205 €/MWh bid.

Refers to transactions between NGC (GB) and RTE (France), 30th/31st Jan 2023.

Between hours of 11pm and 5am:-

NGC would pay €350/MWh to increase import, €0/MWh to reduce.

RTE would pay €684/MWh to increase import, be paid €205/MWh to reduce.

Between hours of 5am and 7pm:-

NGC would pay €350/MWh to increase import, €0/MWh to reduce.

RTE would pay €1141/MWh to increase import, €0/MWh to reduce.

Between hours of 7pm and 11pm:-

NGC would pay €350/MWh to increase import, €0/MWh to reduce.

RTE would pay €1141/MWh to increase import, €0/MWh to reduce.

A: These prices are for a System Operator (SO)-SO service which exists between RTE and NGESO called Excess Energy. Using this service, either SO can request to increase or decrease the flow on the interconnector if the other SO agrees. This is a 'within-gate' service i.e. to be used once all market volumes have been nominated and the gate is closed meaning the interconnector flow for that period is firm.

These are the prices that would be paid by each SO and are correctly laid out in your example.

Does 'increase' imply this arrangement sits on top of an already existing import/export agreement?

## Advance questions we are still working on

Q: Every year the ESO publishes incentivised forecasts 'National Demand ACS Peak (Incentivised Demand)' for one year ahead and four year ahead winters in a "Demand Incentive Letter" and these are used in the process of recommending the amount of capacity to be purchased in the Capacity Market auctions. Please can you provide the comparable outturn demand for each year that has been subject to an incentivised forecast (or provide a link to where this data is published).

Received after deadline

Q: The average clearing price for Dynamic Regulation for delivery on 14/2/2023 was £18.80/MW/hr for 70MW. There was an alternative solution which would have delivered 80MW of volume at a cheaper rate of £10/MW/hr. The result was that one optimiser, Tesla, secured 100MW of DRH and 70MW of DRL at inflated prices at the expense of all other participants. How did this happen? This is not an isolated case

**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](mailto:box.NC.Customer@nationalgrideso.com)