

A landscape photograph featuring snow-capped mountains under a cloudy sky. In the foreground, a valley is filled with several bright, glowing yellow light trails that curve across the terrain. The overall scene is bathed in a warm, golden light, suggesting a sunrise or sunset.

ESO Operational Transparency Forum

15 March 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 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 / focus topics

Coming soon

Balancing Markets Winter Costs review (November, December, January, February) – 22nd March

Future

Response markets deep dive

System Inertia – Stability webinar Tuesday 28th March, 10:00 – 11:30

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
DRAXX-5	14/03/2023 10:00	N/A	Planned Non-Proving Run
DRAXX-6	14/03/2023 07:55	N/A	Planned Non-Proving Run

Demand Flexibility Service Advanced Anticipated Requirements Notice

BMU ID	Instruction Issued	Instruction Cancelled	Notes
DFS	14/03/2023 14:30	N/A	BMRS - Test 18:30 - 19:30 on 15 March
DFS	13/03/2023 14:30	N/A	BMRS - Test 18:00 - 19:00 on 14 March

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

Winter Contingency Units

Non-Proving Runs

15th March 2023 – Drax

In accordance with the winter contingency service contract terms, Drax is undertaking a planned non-proving run for DRAXX-5 and DRAXX-6 today (15th March 2023).

DRAXX-5 is scheduled between 07:25 and 13:25 with a maximum 300MW output.

DRAXX-6 is scheduled between 07:55 and 13:55 with a maximum 300MW output.

For both non-proving runs, NGESO will issue BOAs to the units to follow a pre-agreed profile (each unit will be instructed from zero to ramp up to SEL (300MW) and then held at this level until de-syncing to zero).

These BOAs will be priced at £0/MWhr and will be removed from settlement via a BSCP18 form. NGESO issued a BMRS market message 24hrs ahead of these non-proving runs.

16th March 2023 – Uniper

Additionally, Uniper is also undertaking a non-proving run for RATS-1 on 16th March 2023 between 05:00 and 23:00 with a maximum output of 480MW. In accordance with the winter contingency service contract terms, Uniper will enact the substitution clause and will therefore be able to submit PNs to follow their desired non-proving run profile. NGESO will issue a BMRS market message 24hrs ahead of the winter contingency unit substitution and associated non-proving run.

Winter Contingency Units – Winter 2023/2024

Letter from Department for Energy Security and Net Zero

We have received a request from the Government to explore an extension of the winter contingency contracts we negotiated for the 2022/23 winter, so that they these units can be available again for the 2023/24 Winter.

Following this request, we will be negotiating with market participants to secure additional non gas-fired capacity over the next winter that would otherwise not have been available.

As these negotiations will be commercially sensitive we will not be providing a running commentary on their progress

As we did for the 2022/23 contracts, we will inform the market of the implications of any agreed contracts (once completed), in order to support the wider energy market's preparations for next winter.

DFS Webinar

Overview

Following the show and listen workshop on 8 February, we're keen to continue our collaboration with industry and to discuss the potential future options for DFS. We will be holding an online webinar on 16 March, 15:00-16:00.

Webinar Agenda

- 15:00 - Welcome and introductions
- 15:05 - Aim and objectives of the webinar
- 15:10 - Feedback from show and listen workshop
- 15:20 - Future design opportunities
- 15:40 - Q&A session
- 16:00 - Close

Details of the Event

Date/Time

Thursday 16th March 15:00 – 16:00

Location

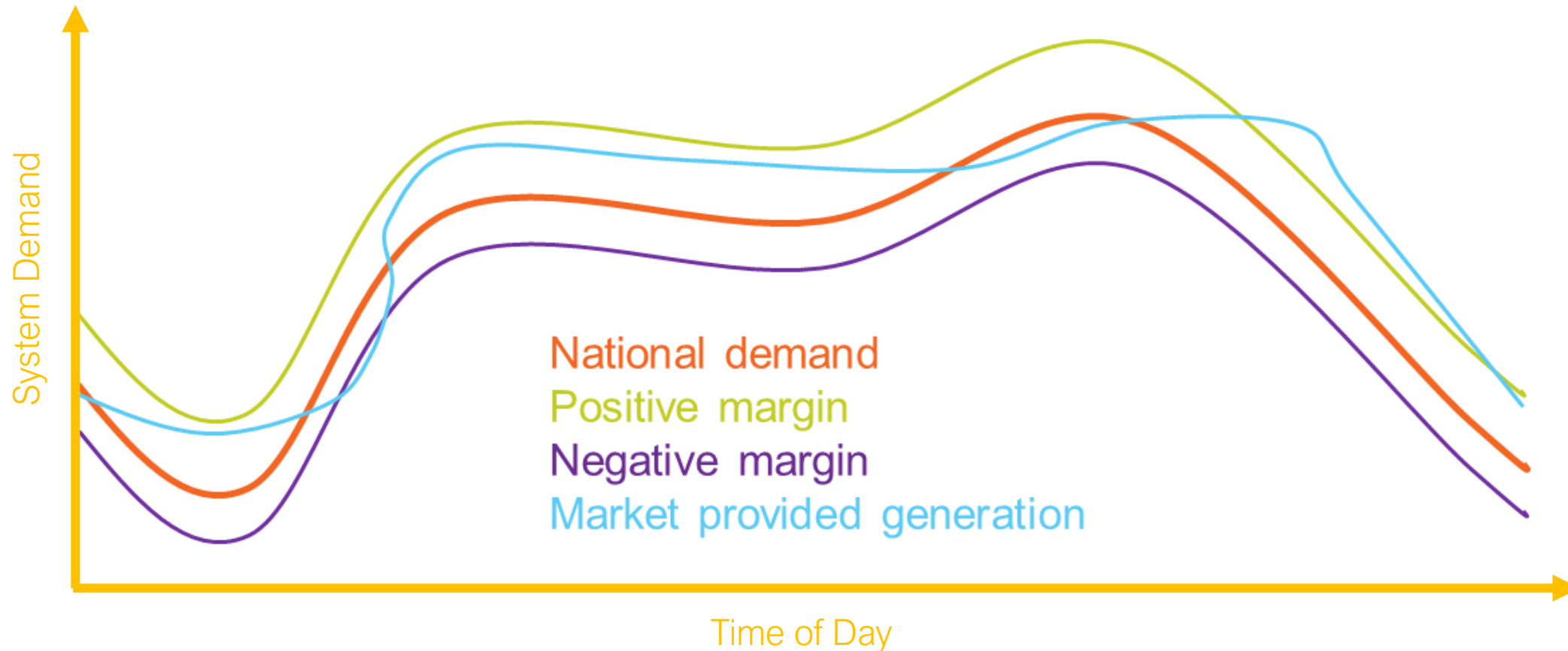
Microsoft Teams

Register

<https://www.nationalgrideso.com/calendar/dfs-webinar>

Transparency | Why do we hold Operating Margin?

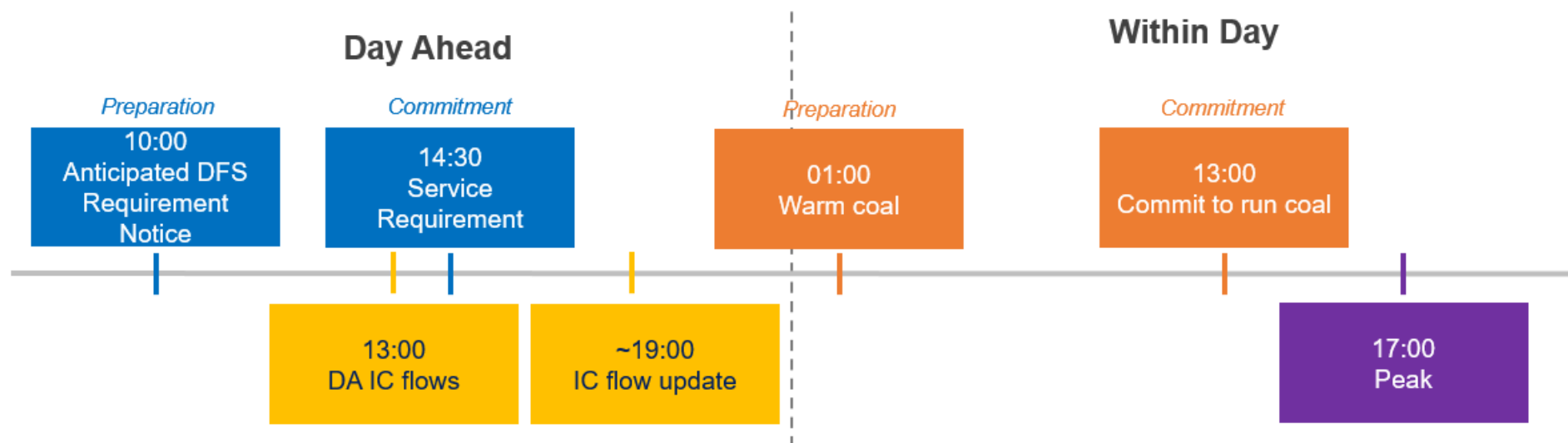
NGESO must ensure that there is sufficient Operating Margin held to meet system security requirements due to variety of factors, such as loss of generation, normal fluctuations in national demand and variance from forecast.



This reserve is required to account for the low likelihood series of events which could occur

Context and background

- Winter contingency contracts and the Demand Flexibility Service (DFS) have been implemented as **enhanced actions** for this Winter
- These services are intended for use when we anticipate we will exhaust our **every day actions**
- Each service has two key stages: *preparation* and *commitment*



For more information on our Order of actions Policy see <https://www.nationalgrideso.com/document/268116/download>

Navigating uncertainty

When taking decisions at these lead times, as ESO we will always be navigating uncertainty with respect to the assumptions that impact our requirement calculations such as:

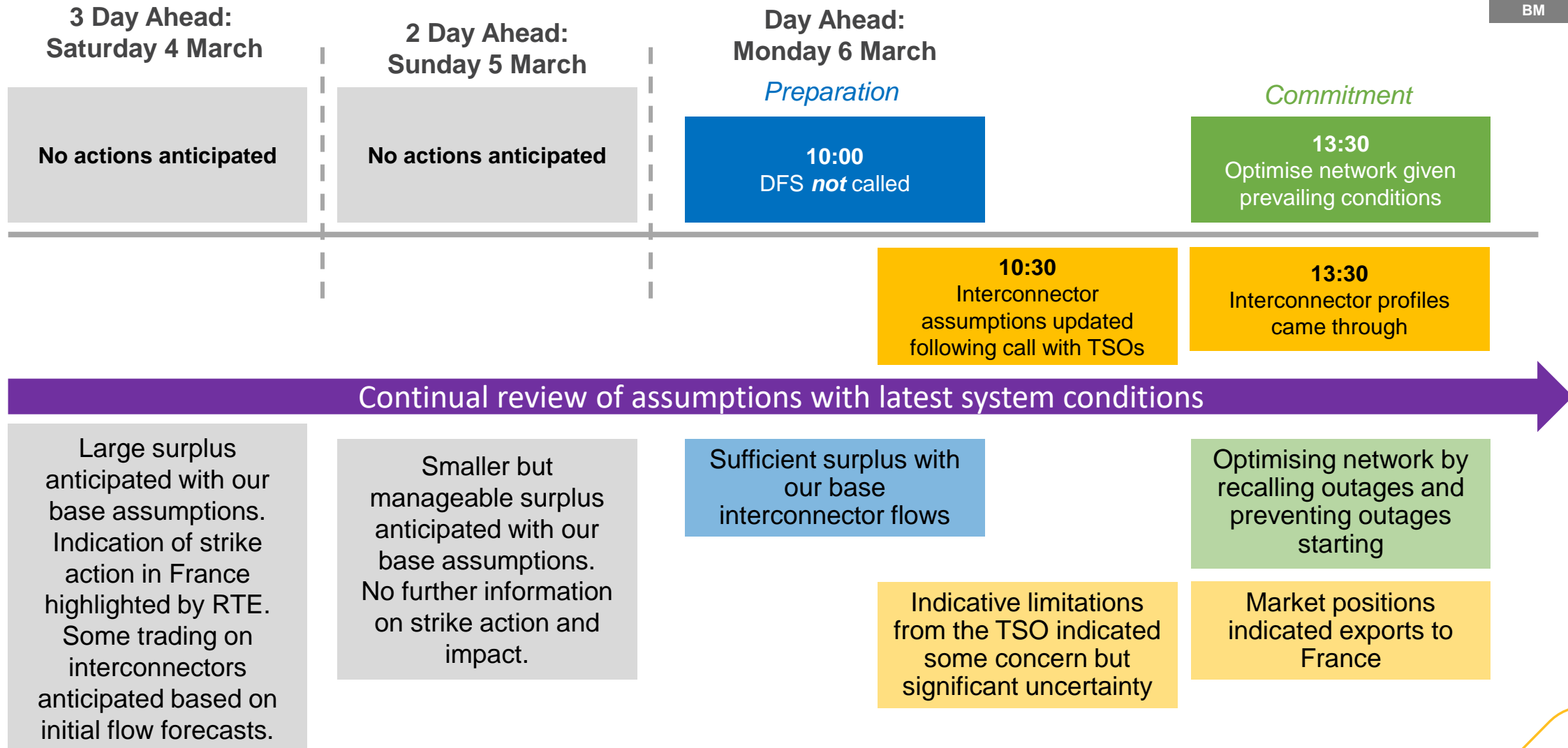
- Available generation including access to constrained generation
- Interconnector flows and status of other TSOs
- Demand, including risk of triad avoidance and demand suppression
- Wind forecast variability
- Reserve requirements e.g. contingency reserve requirement erodes as you get closer to real time

All decisions are made with the most up to date data available at the time alongside engineering judgment to minimise uncertainty

Timeline for the decisions taken moving into Tuesday 7 March

Week Ahead to Day Ahead Timescales

warning	warning
system	system
DFS	DFS
Coal	Coal
ICs	ICs
BM	BM



Day Ahead – Monday 6 March (continued)

warning	warning
system	system
DFS	DFS
Coal	Coal
ICs	ICs
BM	BM

Commitment

14:30
DFS Service requirement *not* issued

Preparation

14:35
WBUPS-2 warmed

RTE confirmed no trades were available on interconnector

22:05
EMN issued for 16:30-20:30
Shortfall 980MW

19:00 – Updated interconnector flows

Continual review of assumptions with latest system conditions 

The uncertainty at this point was still too large to be able to commit to DFS. Requirement notice not anticipated at 10am

Warming this contingency unit was a preparatory action to mitigate the risk of not being able to access required trading volumes on interconnectors.

No trading capacity with France assumed. Ongoing assumptions with changing variables meant that the situation looked increasingly challenging.

Control Room update plans for Monday. Shortfall of 980MW against EMN trigger level, so ~1800MW against contingency reserve requirement

Within Day – Tuesday 7 March

warning	warning
system	system
DFS	DFS
Coal	Coal
ICs	ICs
BM	BM

Preparation

01:40
WBUPS-1 warmed

All day
RTE withdrew EA

07:45
ESO silver command stood up

10:10
Small volume of trade confirmed with Irish interconnectors

12:25
EMN reissued for 16:30-20:30
Shortfall 700MW

Preparation

01:42
DRAXX-6 warmed

All day
RTE confirmed that they could not support trades without being put into Alert status

10:00
RTE confirmed that they could only consider support, e.g. EA, for GB if GB was in Alert state

10:21
GB system went into Alert on EAS

Preparation

02:22
DRAXX-5 warmed

Trades pursued with counterparties to attempt to access capacity over the French interconnectors

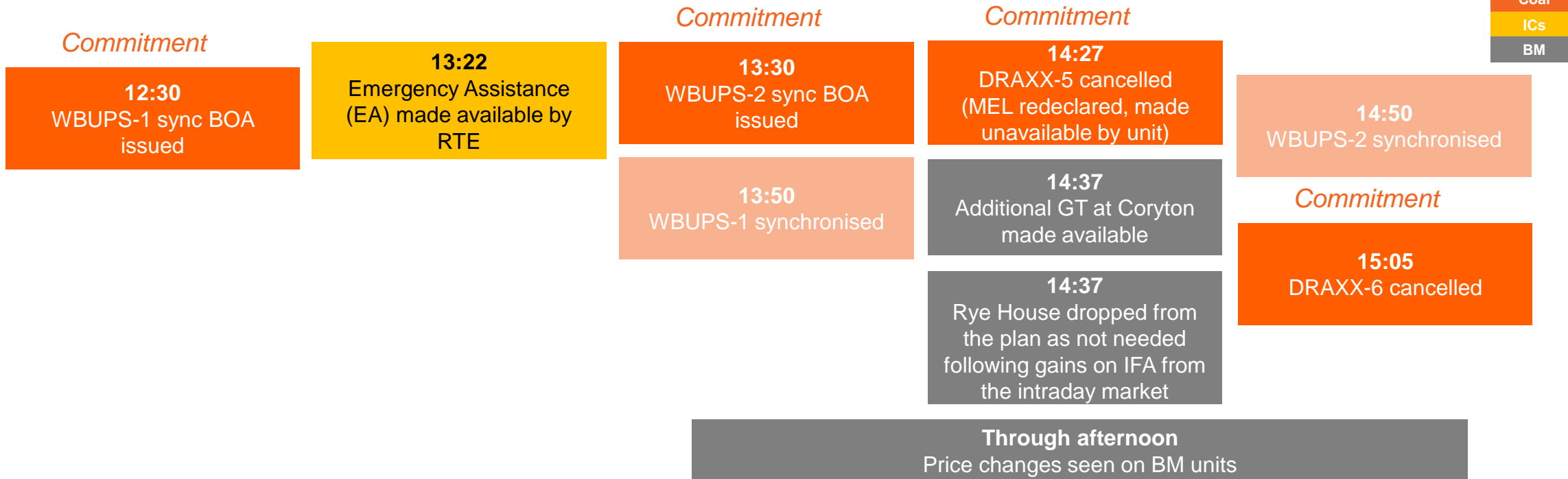
Continual review of assumptions with latest system conditions

ESO Incident Management in place to manage Tuesday and Wednesday. At this point Wednesday looked more challenging.

Control room continue to analyse Darkness Peak, margins have not improved.

Within Day – Tuesday 7 March

warning	warning
system	system
DFS	DFS
Coal	Coal
ICs	ICs
BM	BM



Trades pursued with counterparties to attempt to access capacity over the French interconnectors

Continual review of assumptions with latest system conditions

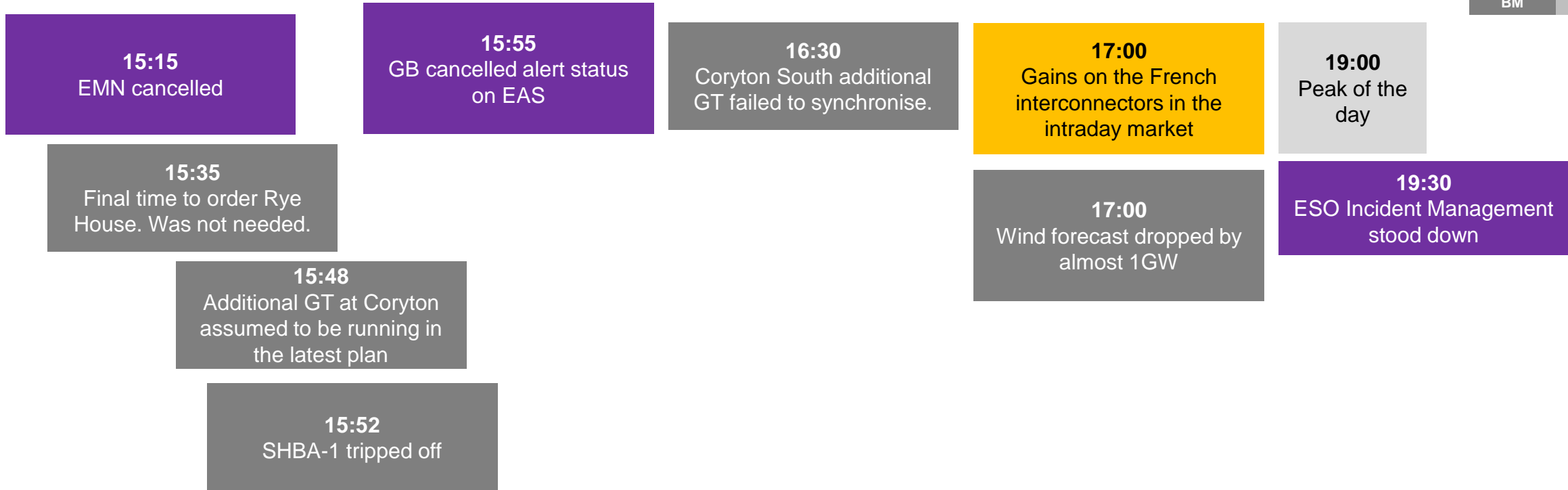
Sync BOA issued for synchronisation at 13:50 to reach full load by evening peak

Sync BOA issued for synchronisation at 14:50 to reach full load by evening peak

DRAXX-5 & DRAXX-6 held at hot standby to cover contingency requirements and dropped once no longer needed

Within Day – Tuesday 7 March

warning	warning
system	system
DFS	DFS
Coal	Coal
ICs	ICs
BM	BM



Continual review of assumptions with latest system conditions

Contingency requirement reduced to zero on approach to real-time. Approx. ~4hrs ahead of real-time

Day Ahead for Wednesday 8 March

Demands for Peak on 8 March were forecast to be similar to 7 March

Decision made at 10:00 to put out an Anticipatory Requirement Notice for DFS for delivery on the 8 March

Ability to access coal units if required

Continued uncertainty about French strikes and flows on interconnectors

We continued to review flows and interconnector nominations

Market flows submitted after 13:00 showed sufficient imports for darkness peak on 8 March and not a repeat of the position for the 7 March. (5 GW differential between the two days).

Decision taken decision to stand down DFS and not call a live event.

Winter Contingency Units

Service instructions (Monday 6th and Tuesday 7th March 2023)

The following instructions were issued over the period:

BMU ID	Start up	Synchronised	Cancelled	De-Synchronised	Notes
WBUPS-2	06/03/2023 14:35	07/03/2023 14:50		07/03/2023 20:45	SONAR & BMRS
WBUPS-1	07/03/2023 01:40	07/03/2023 13:50		07/03/2023 20:30	SONAR & BMRS
DRAXX-6	07/03/2023 01:42		07/03/2023 15:05		SONAR & BMRS*
DRAXX-5	07/03/2023 02:22		07/03/2023 14:27		SONAR & BMRS*

BM Start Up Instructions can be viewed on the ESO's SONAR system and on BMRS

[Sonar \(nationalgrid.com\)](https://nationalgrid.com)

[Electricity Data Summary | BMRS \(bmreports.com\)](https://bmreports.com)

*Please note the DRAXX-5 MEL redeclaration auto cancellation and DRAXX-6 cancellation were inadvertently not published through BMRS but were captured on SONAR

Balancing Mechanism Reporting Service (BMRS) messages

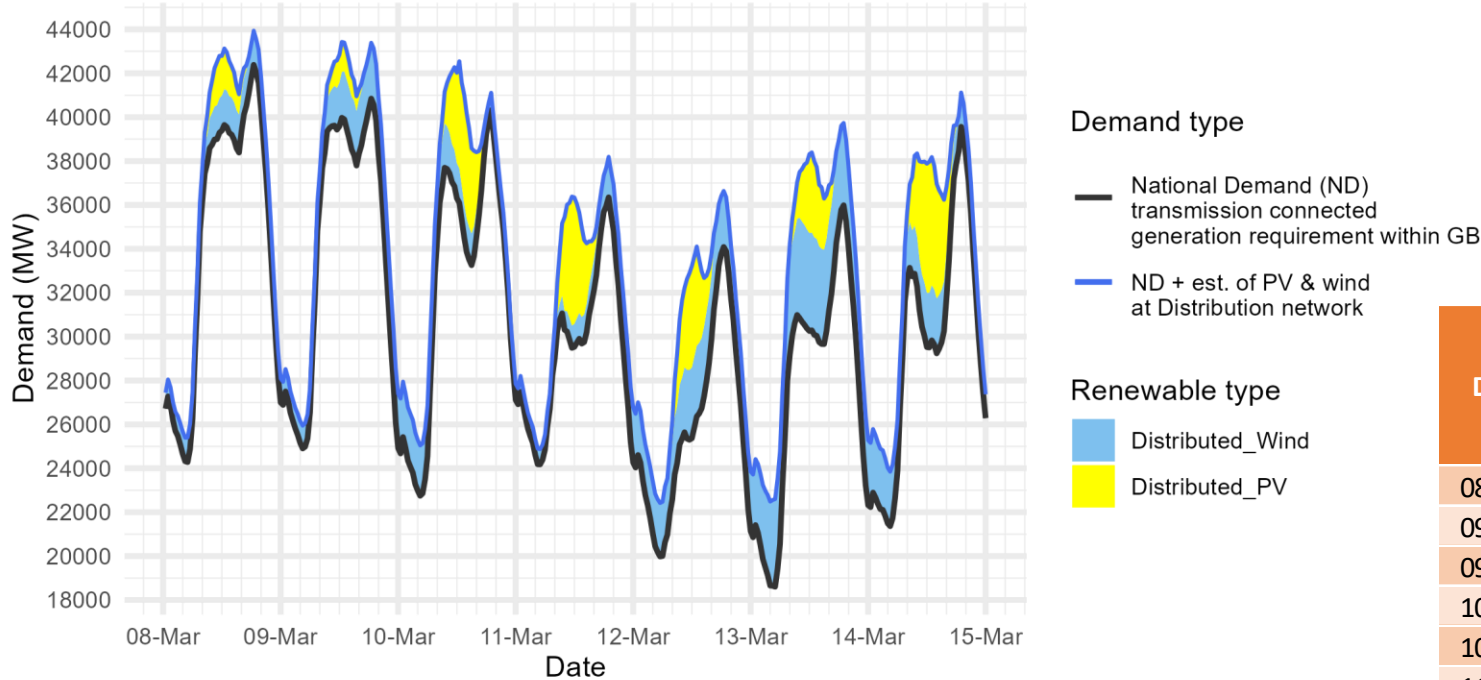
System Warnings	
Warning Date/Time (GMT)	Warning Text
2023-03-07 20:51	From : Power System Manager - National Grid Electricity Control Centre NATIONAL GRID NOTIFICATION Nature of Notification WINTER COAL CONTRACTS. National Grid has allowed Winter Contingency Unit to De-Synchronise. BMU ID: WBUPS-2 De-sync time: 07/03/2023 20:45 Notification Issued at 20:50 hrs on 07/03/2023 Issued by Pat Stewart National Grid Electricity Control Centre.
2023-03-07 20:47	From : Power System Manager - National Grid Electricity Control Centre NATIONAL GRID NOTIFICATION Nature of Notification WINTER COAL CONTRACTS. National Grid has allowed Winter Contingency Unit to De-Synchronise. BMU ID: WBUPS-1 De-sync time: 07/03/2023 20:30 Notification Issued at 18:40 hrs on 07/03/2023 Issued by Pat Stewart National Grid Electricity Control Centre.
2023-03-07 15:24	From : Power System Manager - National Grid Electricity Control Centre NOTIFICATION CANCELLATION of GB TRANSMISSION SYSTEM WARNING The GB Transmission System Warning ELECTRICITY MARGIN NOTICE issued for the period from 16:30 hrs to 20:30 hrs on Tuesday 07/03/2023 has been cancelled The following GB Transmission System Warnings remain in force No GB TRANSMISSION SYSTEM WARNINGS still in force Notification Issued at 15:15 hrs on 07/03/2023 Issued by Pat Stewart National Grid Electricity Control Centre
2023-03-07 15:01	From : Power System Manager - National Grid Electricity Control Centre NATIONAL GRID NOTIFICATION Nature of Notification WINTER COAL CONTRACTS Winter Contingency Unit Synchronised by National Grid BMU ID: WBUPS-2. Estimated Capacity: 260MW, Sync Time: 07/03/2323 14:50 System Flag. Start-Up Price: £0/hr Start-Up Cost: £0 Notification Issued at 15:00 hrs on 07/03/2023 Issued by Pat Stewart National Grid Electricity Control Centre.
2023-03-07 14:58	From : Power System Manager - National Grid Electricity Control Centre NATIONAL GRID NOTIFICATION Nature of Notification WINTER COAL CONTRACTS Winter Contingency Unit Synchronised by National Grid BMU ID: WBUPS-1. Estimated Capacity: 260MW, Sync Time: 07/03/2323 13:50. System Flag. Start-Up Price: £0/hr Start-Up Cost: £0 Notification Issued at 15:00 hrs on 07/03/2023 Issued by Pat Stewart National Grid Electricity Control Centre.
2023-03-07 12:24	From : Power System Manager - National Grid Electricity Control Centre ELECTRICITY MARGIN NOTICE An ELECTRICITY MARGIN NOTICE has been issued by the System Operator to encourage market actions to increase System Margins. For the period: from 16:30 hrs to 20:30 hrs on Tuesday 07/03/2023 There is a reduced system margin. System margin shortfall 700 MW The current contingency requirement is 370 MW. 0 MW of generation is excluded from the available system margin due to system constraints. Maximum Generation Service may be instructed. Trading Points, Control Points and Externally interconnected System Operators are requested to notify National Grid of any additional MW capacity. Suppliers please advise National Grid of any additional Demand Control available The situation will be reviewed again by National Grid at 15:00 hours and an update issued. This Notification of Issue of a GB Transmission System Warning - ELECTRICITY MARGIN NOTICE Issued at 12:24 hrs on 07/03/2023 Issued by Peter Chandler National Grid Electricity Control Centre ***** Information Note:- As the System Operator, National Grid are responsible for balancing the electricity system in the final hours before real-time. We have a number of routine tools we can use to help us do this, this toolkit includes ELECTRICITY MARGIN NOTICES. An ELECTRICITY MARGIN NOTICE is used to send a signal to the electricity market. It highlights that, in the short-term, we would like a greater safety cushion (margin) between power demand and available supply. It does not signal that blackouts are imminent or that there is not enough generation to meet current demand.

2023-03-07 09:59	From : Power System Manager - National Grid Electricity Control Centre NATIONAL GRID NOTIFICATION - DEMAND FLEXIBILITY SERVICE. An Anticipated DFS Requirement Notice has been published for tomorrow Wednesday 08/03/2023 This is an indication that a DFS Service Requirement might be published today at 14:30. This will be Energy Tagged. For full details see the ESO Data Portal at . Notification Issued at 10:00 hours on 07/03/2023. Issued by Peter Chandler National Grid Electricity National Control Centre.
2023-03-07 02:49	From : Power System Manager - National Grid Electricity Control Centre Issue of BM Start-Up Instruction. National Grid has issued the following BM Start-Up Instruction. Instruction issued: 07/03/2023 02:22 BMU ID: DRAXX-5 Estimated Capacity: 645MW Earliest Sync Time: 07/03/2023 14:25 Energy/System Flag: System Start-Up Price: £0/hr Start-Up Cost: £0
2023-03-07 02:43	From : Power System Manager - National Grid Electricity Control Centre Issue of BM Start-Up Instruction. National Grid has issued the following BM Start-Up Instruction. Instruction issued: 07/03/2023 01:42 BMU ID: DRAXX-6 Estimated Capacity: 645MW Earliest Sync Time: 07/03/2023 13:55 Energy/System Flag: System Start-Up Price: £0/hr Start-Up Cost: £0
2023-03-07 02:31	From : Power System Manager - National Grid Electricity Control Centre Issue of BM Start-Up Instruction. National Grid has issued the following BM Start-Up Instruction. Instruction issued: 07/03/2023 01:40 BMU ID: WBUPS-1 Estimated Capacity: 400MW Earliest Sync Time: 07/03/2023 13:50 Energy/System Flag: System Start-Up Price: £0/hr Start-Up Cost: £0
2023-03-06 22:05	From : Power System Manager - National Grid Electricity Control Centre ELECTRICITY MARGIN NOTICE An ELECTRICITY MARGIN NOTICE has been issued by the System Operator to encourage market actions to increase System Margins. For the period: from 16:30 hrs to 20:30 hrs on Tuesday 07/03/2023 There is a reduced system margin. System margin shortfall 980 MW The current contingency requirement is 700 MW. 0 MW of generation is excluded from the available system margin due to system constraints. Maximum Generation Service may be instructed. Trading Points, Control Points and Externally interconnected System Operators are requested to notify National Grid of any additional MW capacity. Suppliers please advise National Grid of any additional Demand Control available The situation will be reviewed again by National Grid at 12:00 hours and an update issued. This Notification of Issue of a GB Transmission System Warning - ELECTRICITY MARGIN NOTICE Issued at 22:05 hrs on 06/03/2023 Issued by Ben Young National Grid Electricity Control Centre ***** Information Note:- As the System Operator, National Grid are responsible for balancing the electricity system in the final hours before real-time. We have a number of routine tools we can use to help us do this, this toolkit includes ELECTRICITY MARGIN NOTICES. An ELECTRICITY MARGIN NOTICE is used to send a signal to the electricity market. It highlights that, in the short-term, we would like a greater safety cushion (margin) between power demand and available supply. It does not signal that blackouts are imminent or that there is not enough generation to meet current demand.
2023-03-06 16:02	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 Natasa Dinic at 15:45 on 06/03/2023
2023-03-06 15:37	From : Power System Manager - National Grid Electricity Control Centre Issue of BM Start-Up Instruction. National Grid has issued the following BM Start-Up Instruction. Instruction issued: 06/03/2023 14:35 BMU ID: WBUPS-2 Estimated Capacity: 400MW Earliest Sync Time: 07/03/2023 14:50 Energy/System Flag: System Start-Up Price: £0/hr Start-Up Cost: £0
2023-03-06 14:35	From : Power System Manager - National Grid Electricity Control Centre Issue of BM Start-Up Instruction. National Grid has issued the following BM Start-Up Instruction. Instruction issued: 06/03/2023 14:35 BMU ID: WBUPS-2 Estimated Capacity: 400MW Earliest Sync Time: 07/03/2023 14:50 Energy/System Flag: Energy Start-Up Price: £0/hr Start-Up Cost: £0

You can sign up to receive BMRS messages via email on the Elexon website: www.bmreports.com/bmrs

Demand | Last week demand out-turn

ESO National Demand outturn 08-14 March 2023



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

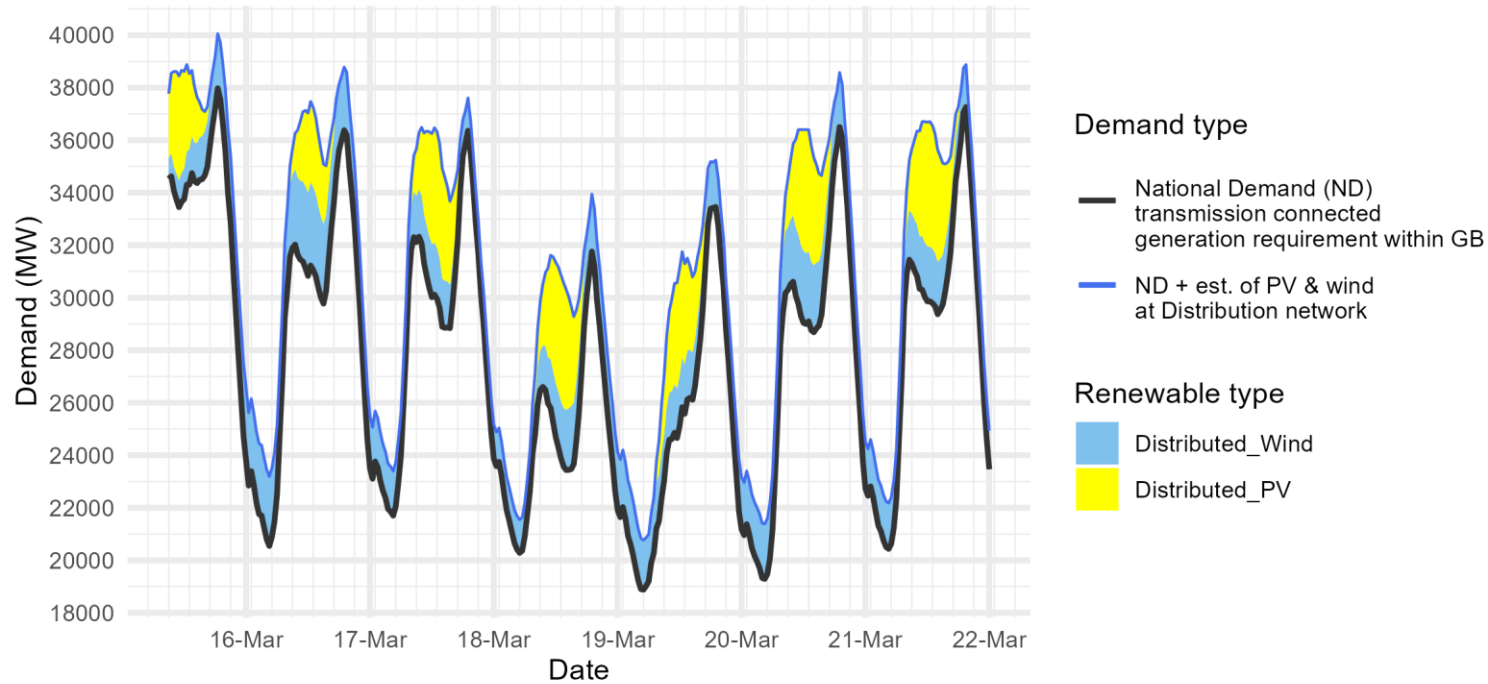
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it **does not include** demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

Date	Forecasting Point	FORECAST (Wed 08 Mar)		OUTTURN	
		National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Dist. wind (GW)
08 Mar	Evening Peak	41.5	1.5	42.4	1.5
09 Mar	Overnight Min	25.2	0.8	24.9	1.0
09 Mar	Evening Peak	40.2	2.4	40.8	2.5
10 Mar	Overnight Min	22.5	2.4	22.7	2.3
10 Mar	Evening Peak	39.6	1.3	40.3	0.8
11 Mar	Overnight Min	23.4	0.8	24.2	0.7
11 Mar	Evening Peak	34.8	2.2	36.3	1.8
12 Mar	Overnight Min	20.0	2.6	20.0	2.4
12 Mar	Evening Peak	34.4	2.1	34.1	2.6
13 Mar	Overnight Min	19.9	2.2	18.6	4.0
13 Mar	Evening Peak	37.4	2.6	36.0	3.8
14 Mar	Overnight Min	20.5	2.4	21.4	2.5
14 Mar	Evening Peak	38.5	1.8	39.6	1.6

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

ESO Demand forecast for 15-21 March 2023



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 Mar)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
15 Mar 2023	Evening Peak	38.0	2.1
16 Mar 2023	Overnight Min	20.5	2.6
16 Mar 2023	Evening Peak	36.4	2.4
17 Mar 2023	Overnight Min	21.7	1.7
17 Mar 2023	Evening Peak	36.4	1.2
18 Mar 2023	Overnight Min	20.3	1.3
18 Mar 2023	Evening Peak	31.8	2.2
19 Mar 2023	Overnight Min	18.9	1.9
19 Mar 2023	Evening Peak	33.5	1.8
20 Mar 2023	Overnight Min	19.3	2.1
20 Mar 2023	Evening Peak	36.5	2.1
21 Mar 2023	Overnight Min	20.4	1.7
21 Mar 2023	Evening Peak	37.3	1.6

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 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. 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	16/03/2023	42123	12200	4400	37540	16160
Fri	17/03/2023	41594	5560	4400	36070	10870
Sat	18/03/2023	40214	11440	4400	32080	19000
Sun	19/03/2023	40708	8600	4400	33830	15300
Mon	20/03/2023	41710	11400	4400	37170	15540
Tue	21/03/2023	41950	7980	4400	37780	11950
Wed	22/03/2023	42150	8180	4400	37970	12090

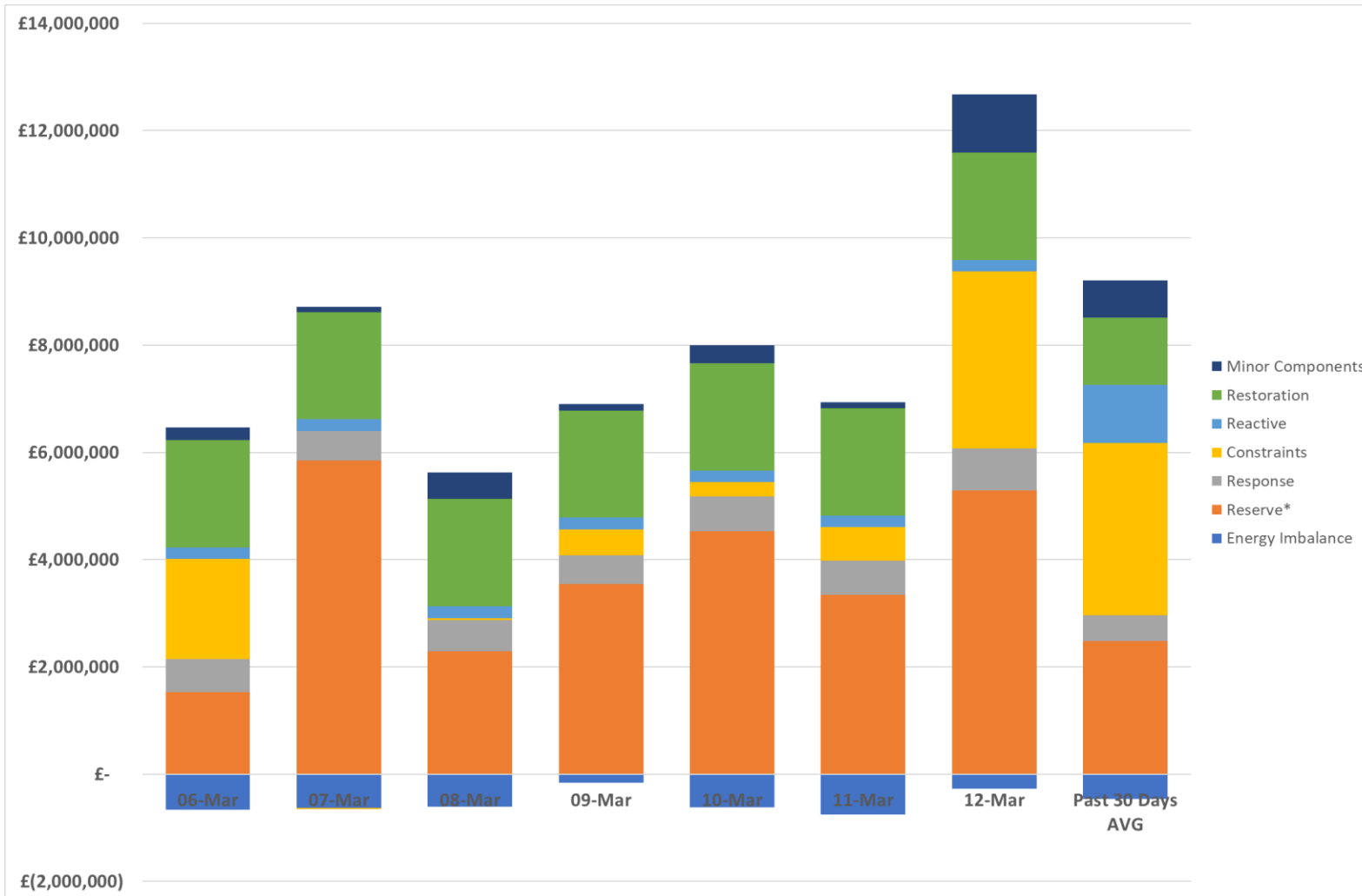
*Interconnector flow in line with the Winter Outlook Report Base Case but will ultimately flow to market price

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)
06/03/2023	5.8
07/03/2023	8.1
08/03/2023	5.0
09/03/2023	6.7
10/03/2023	7.4
11/03/2023	6.2
12/03/2023	12.4
Weekly Total	51.6
Previous Week	40.3

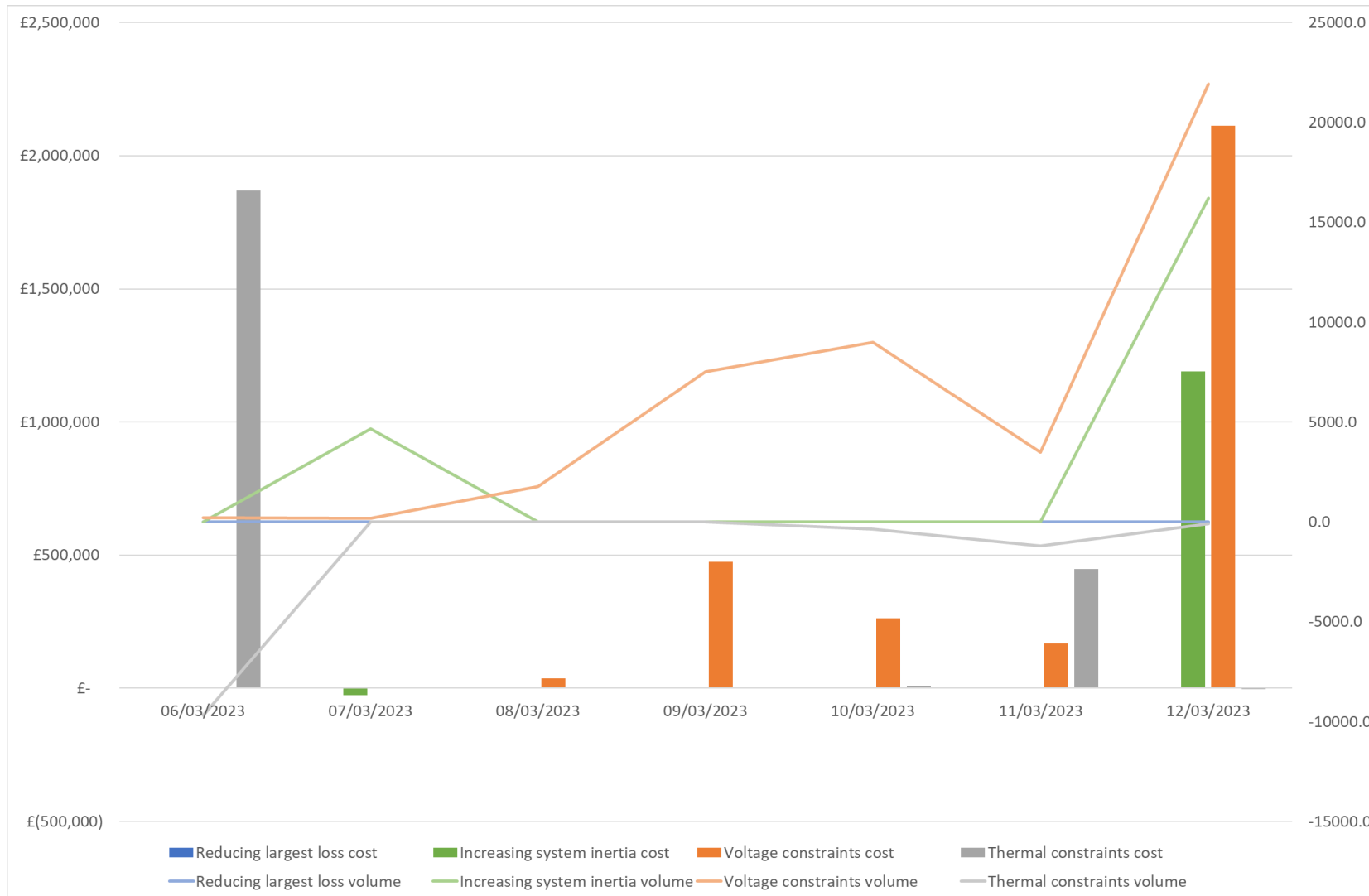


Reserve and Constraints costs were the key cost component throughout the week.

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



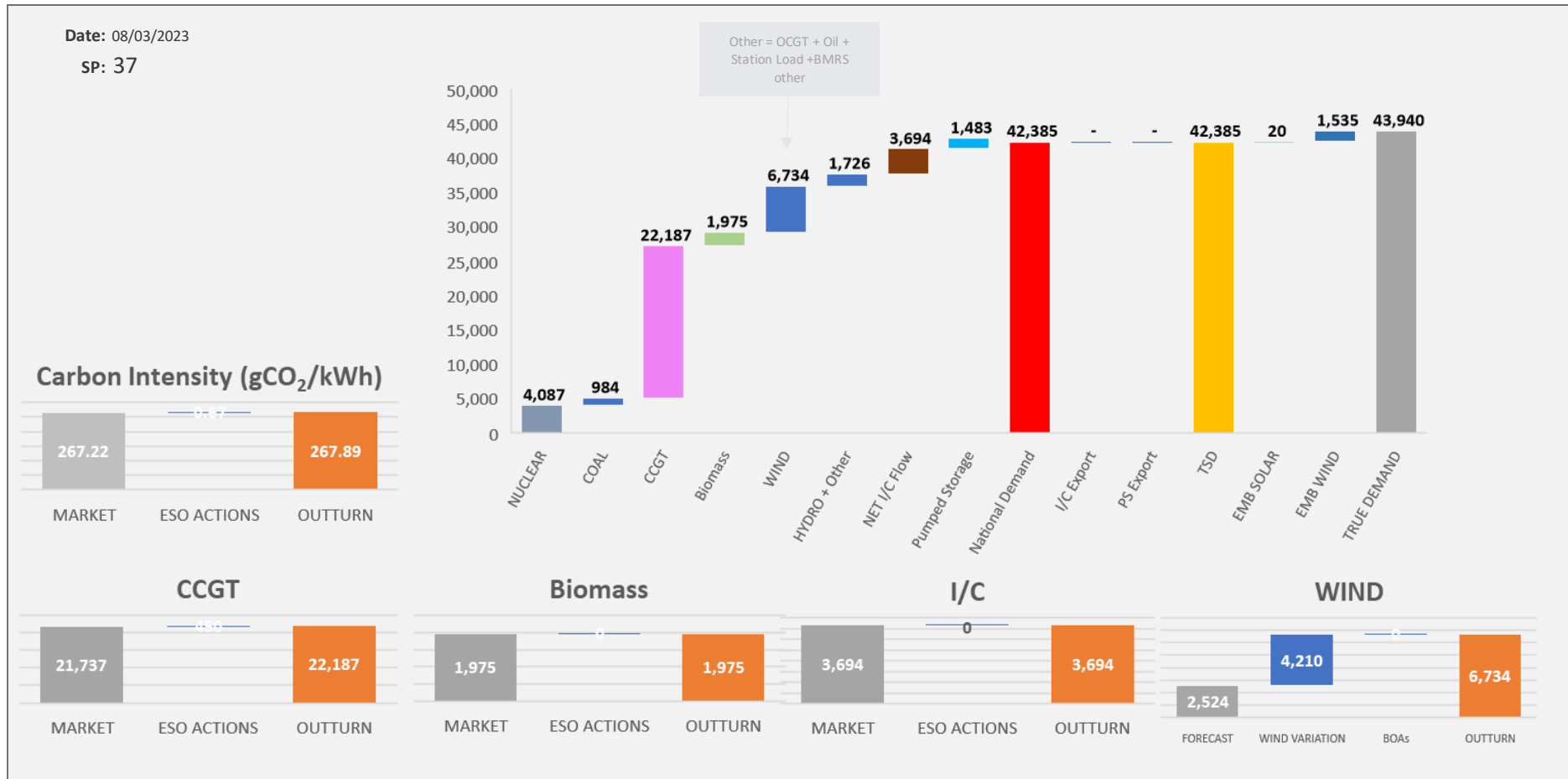
Thermal – network congestion
 Actions required to manage Thermal Constraints on Monday and Saturday with highest costs on Monday.

Voltage
 Intervention was required to manage voltage levels on Wednesday onwards.

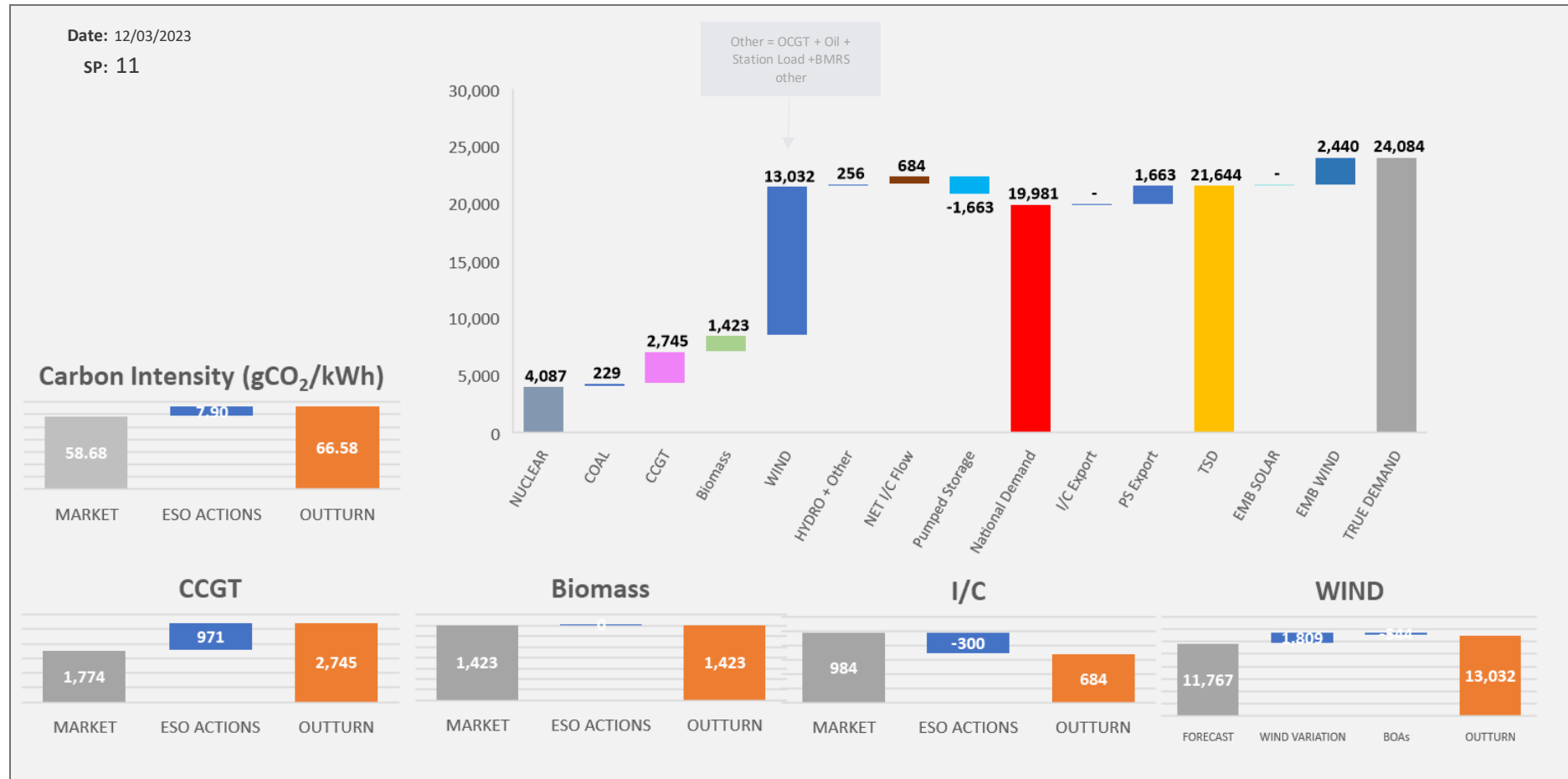
Managing largest loss for RoCoF
 No intervention was required to manage largest loss.

Increasing inertia
 Intervention was required to manage system inertia on Tuesday & Sunday.

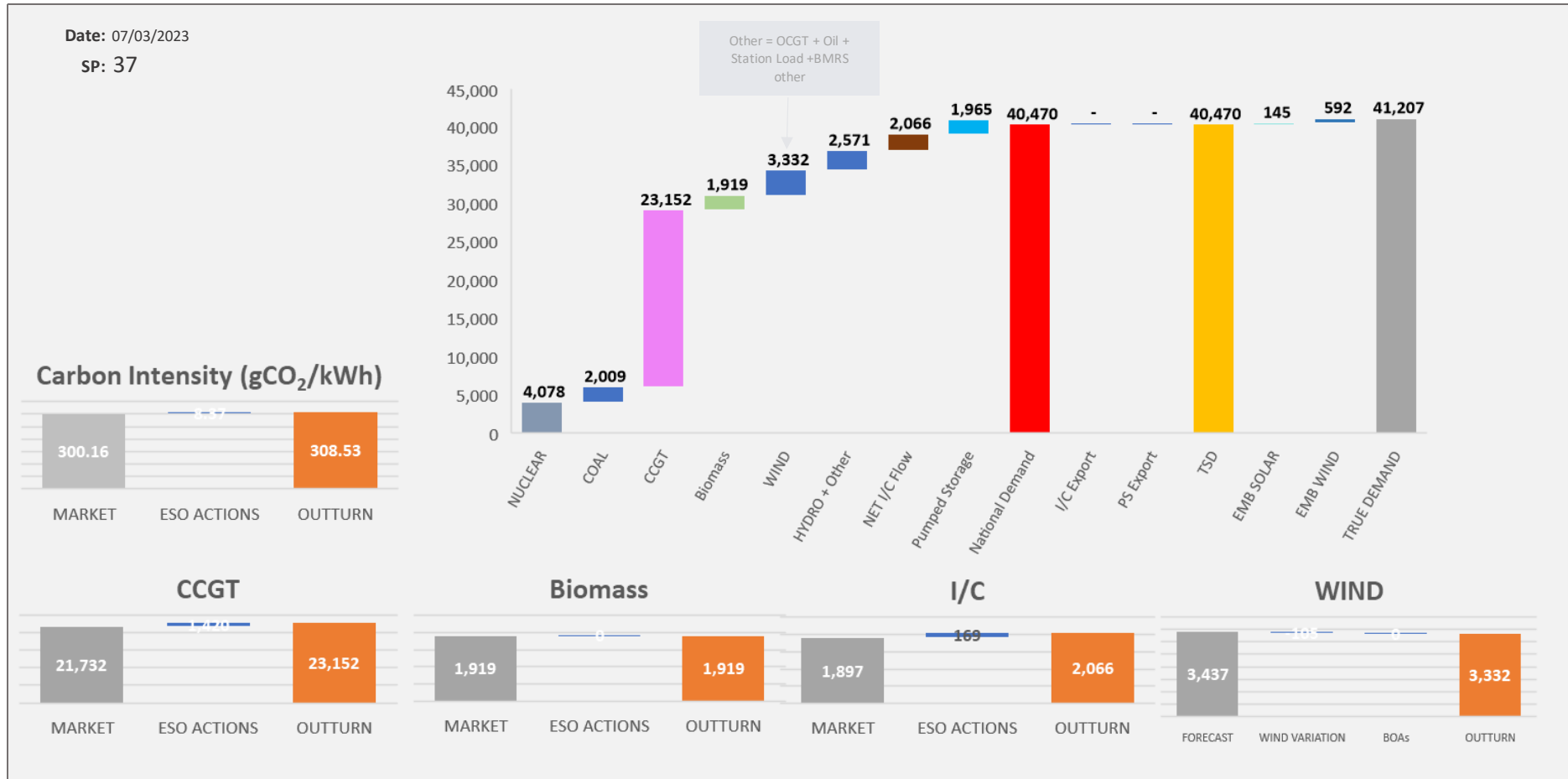
ESO Actions | Wednesday 8 March – Peak Demand – SP 37 spend ~£82k



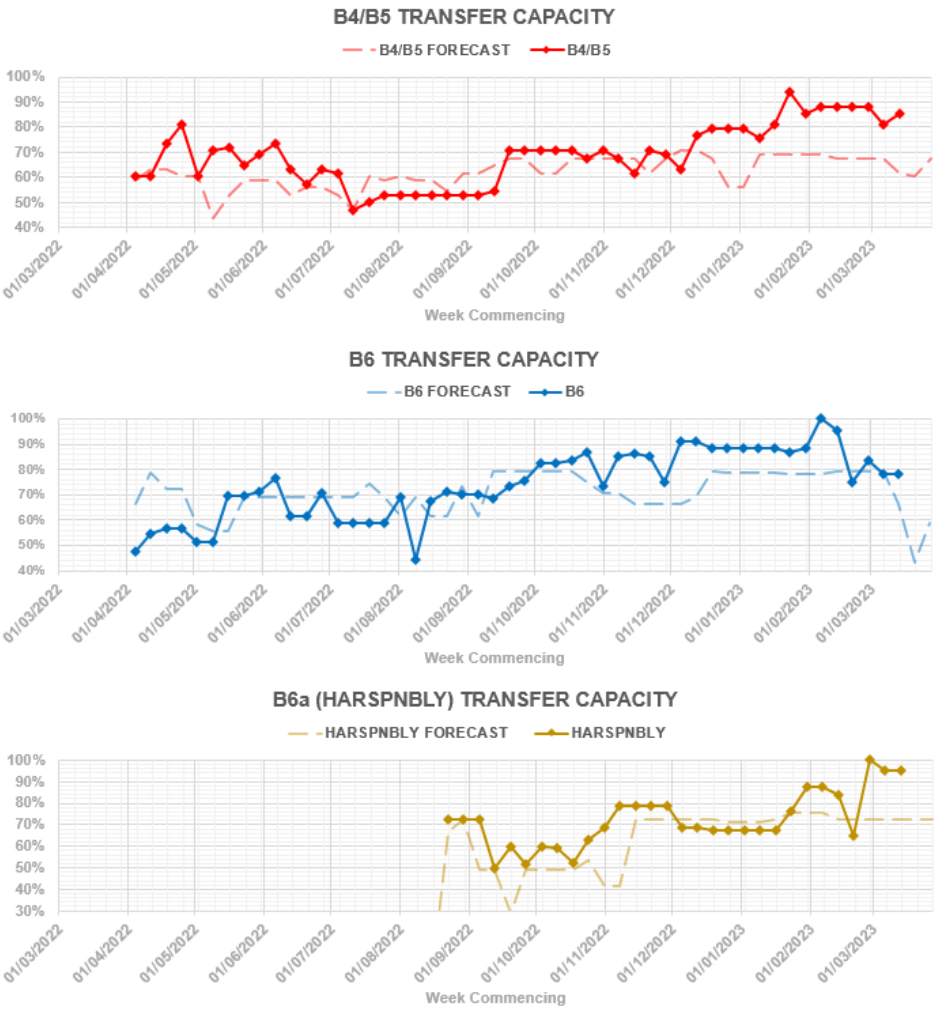
ESO Actions | Sunday 12 March – Minimum Demand – SP 11 Spend ~£259k



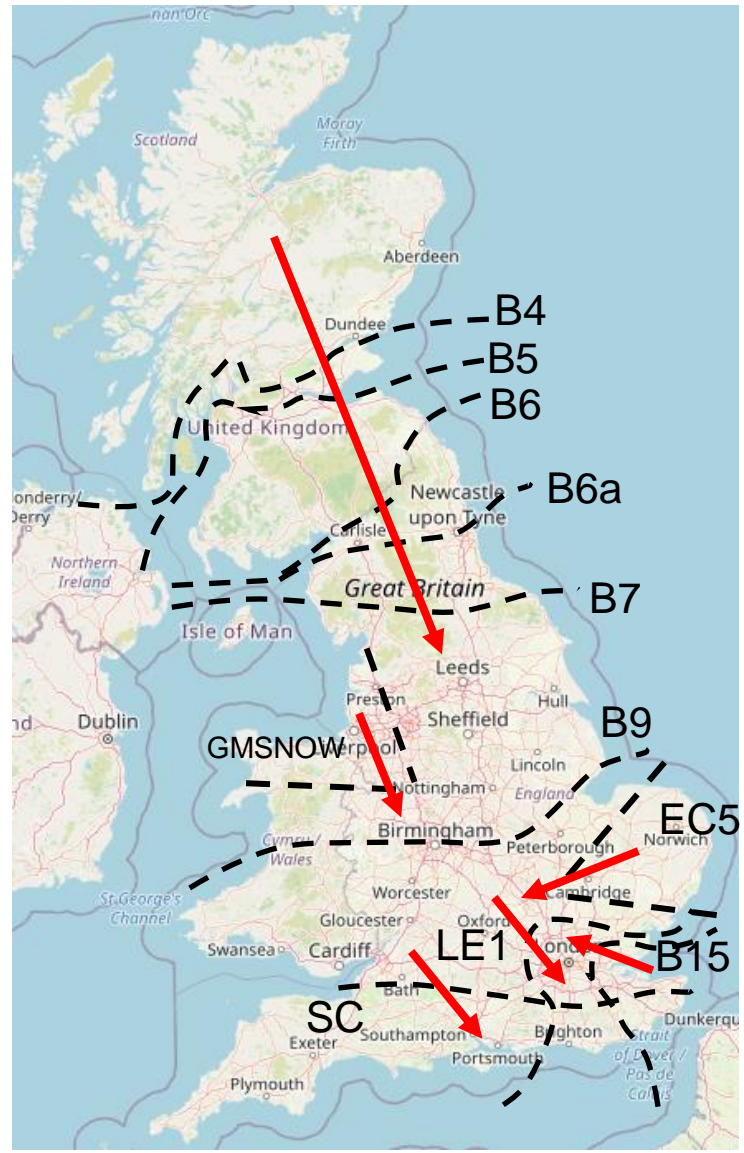
ESO Actions | Tuesday 7 March – Highest SP Spend ~£737k



Transparency | Network Congestion

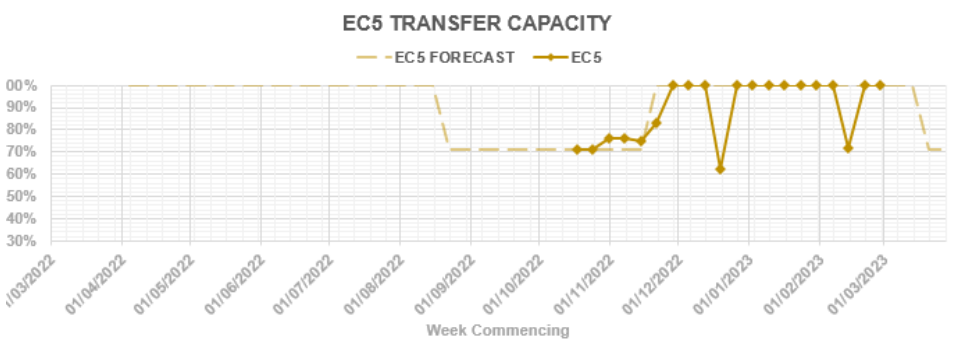
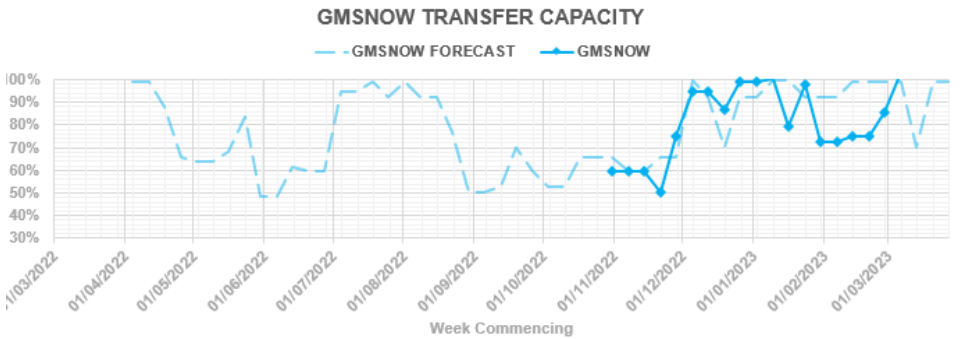
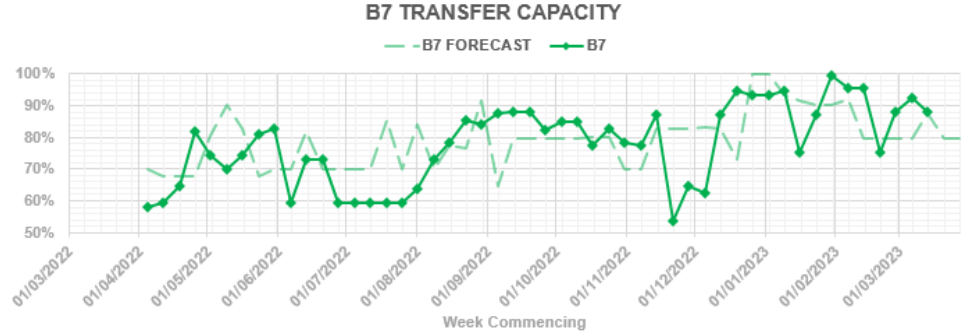


Boundary	Max. Capacity (MW)
B4/B5	3000
B6	5700
B6a	5200
B7	7000
GMSNOW	3400
B9	10500
EC5	5000
LE1	8500
B15	7500
SC	7300

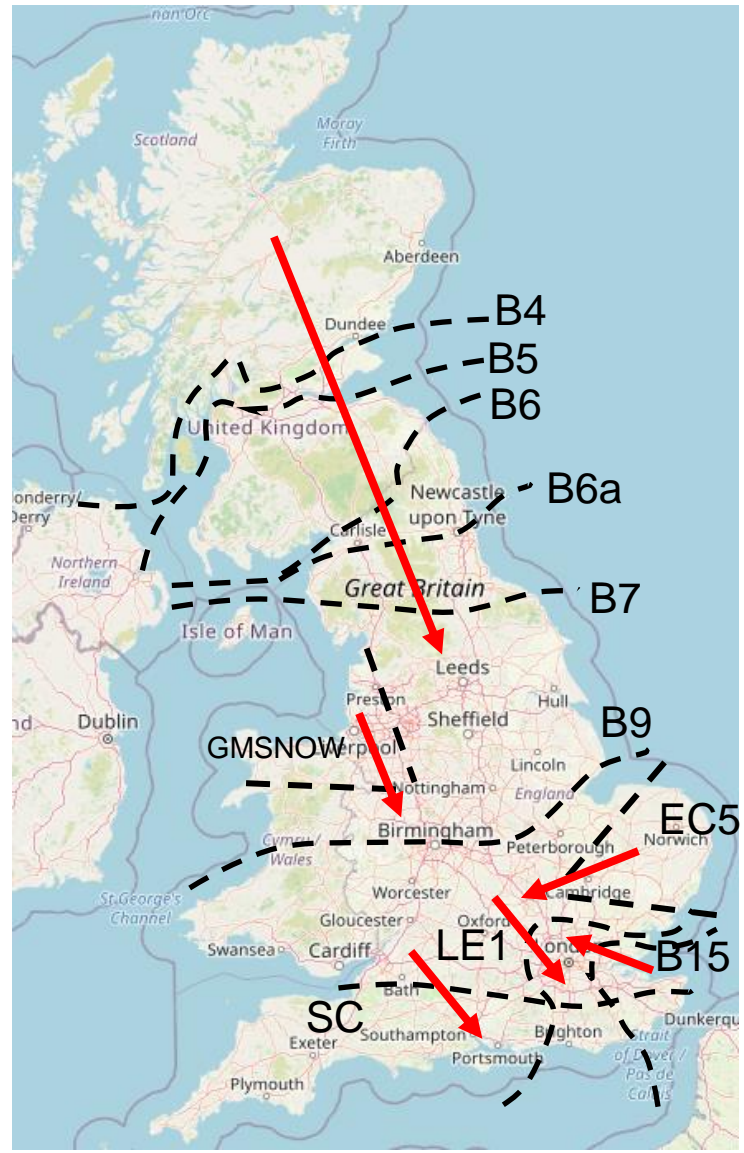


Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal: <https://data.nationalgrideso.com/data-groups/constraint-management>

Transparency | Network Congestion

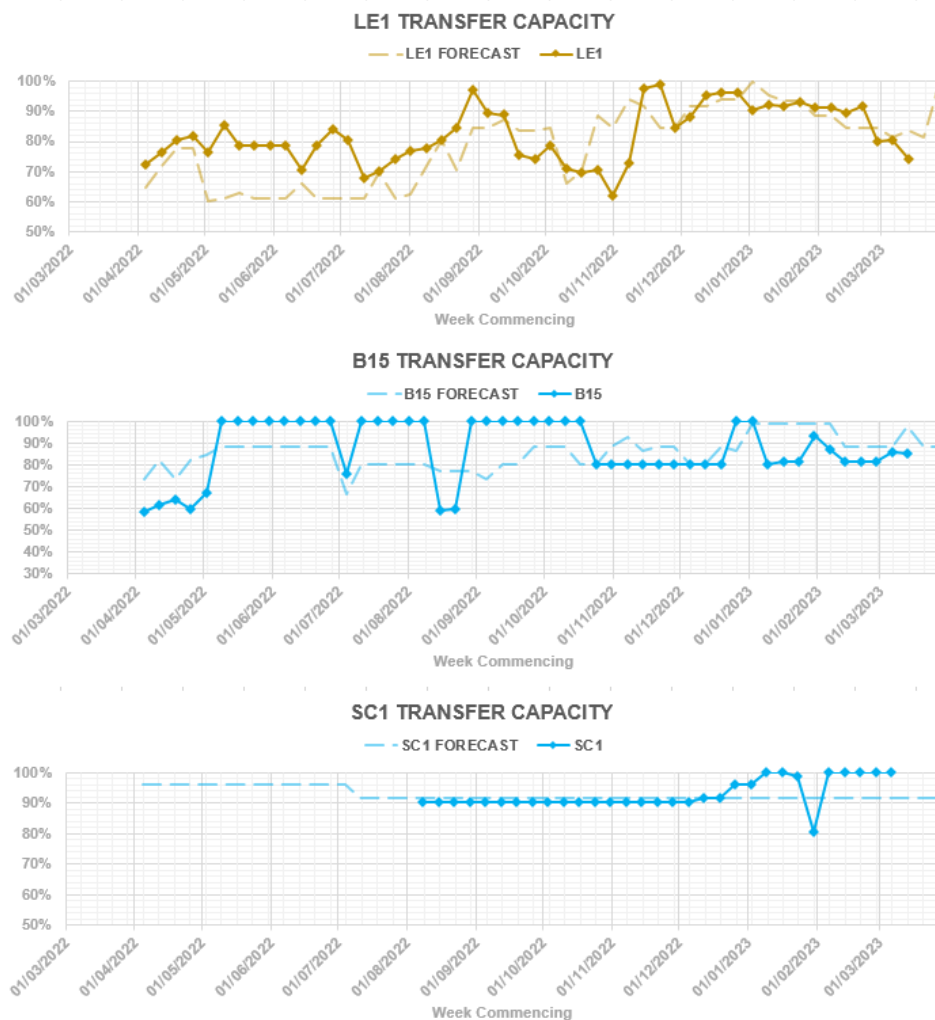


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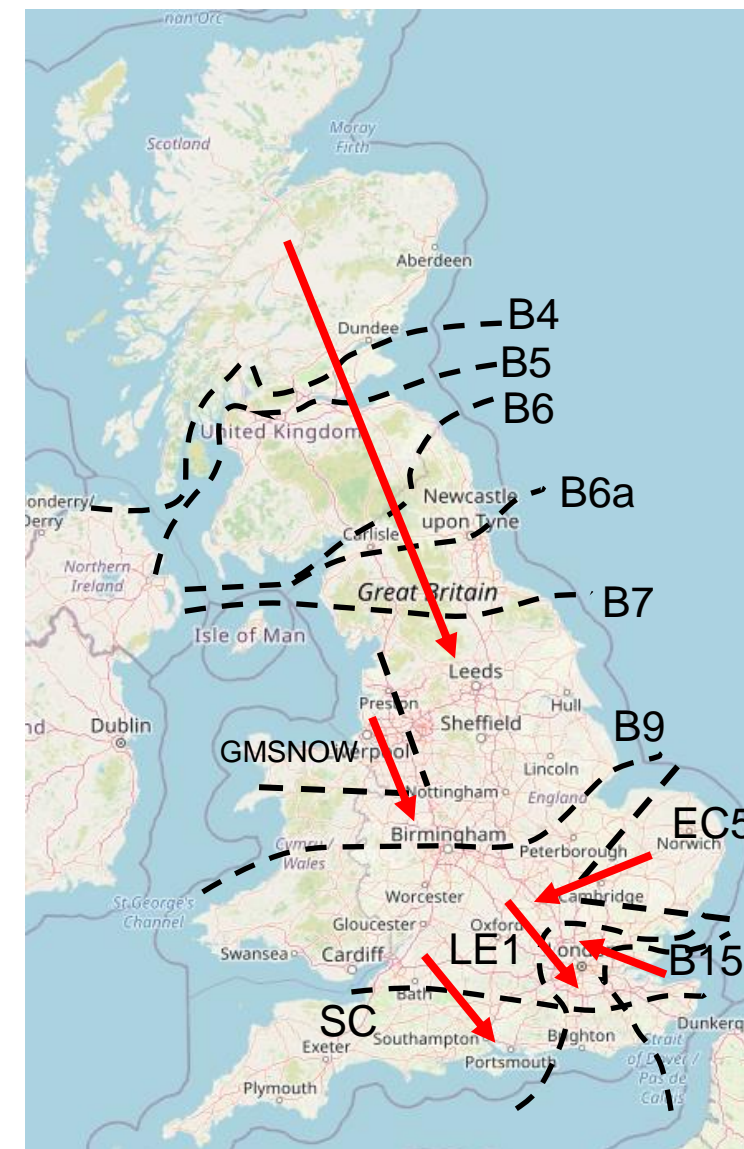


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Transparency | Network Congestion



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

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Previously asked questions - 7th March

Grouped questions

Q: As we saw a first ever by NG ESO using coal contingency and caused price data to be worthless, can NG ESO put a special operational transparency forum in this week to discuss yesterday's events?

Q: Considering NG ESO used a service for the first time ever yesterday, and by doing so made indicative system price for last night useless, do you not think it would have been prudent to talk about this first rather than waiting 8 days to discuss it?

A: Thank you for the feedback on this, we thought long and hard about this decision to run with the Interconnector deep dive which we knew had lots of interest and we had already postponed. We took this decision on 7 March when there was a possibility the tight margins would continue into 8 March. As you'll appreciate, we had a number of individuals working late into the night to ensure that the right communications and decisions were taken at the time. We know it's important that we provide a thorough overview and took the decision to do that the next week.

The OTF will normally report on the week from Monday to Sunday before the forum. We will always try to include information about events on Monday or Tuesday immediately before the OTF, but we can generally only provide brief facts until our experts have time to prepare more detailed reports.

Previously asked questions - 7th March

Grouped questions

Q: Can you explain the decision not to use DFS when the coal plant was being activated?

Q: Why were the Winter Contingency Coal units warmed without issuing DFS requirements?

Q: Throughout winter we've been told that coal activation would only happen after all other assets have been called. However, yesterday a few assets were sat spare and not utilised. This went against everything that we have been told. Is this the new process? When did it change?

Q: At least 3 large BM units weren't utilised over the evening peak on 7th March. 2 coal contingency units were used. These assets sit outside of the market and, as we were told numerous times in the run up to winter, would only be dispatched after all other options were exhausted. Why did this happen?

Q: NGENSO balancing principles state all feasible bids and offers must be taken before use of winter contingency units so why were various available, ready to dispatch plant left unutilised in the BM while winter contingency units were dispatched on 7th March 2023?

A: Throughout our Winter communications we have stated that we will make decisions as per the Order of Actions and that we will make decisions with the best information available to us at the time of making the decision. This is unchanged. We have covered the particulars relating to the events on 7th March in the timeline walkthrough in this forum.

Previously asked questions - 7th March

Q: Day ahead trading (RTE website) seemed to indicate we would be exporting to France overnight and this morning. As we have gone to Import has there been a major change for Operational reasons?

A: This was predominantly interconnector flow changes due to market position changes.

Q: Did NGESO seek more reserve via STOR to despatch at these peaks if it was cheaper?

A: We used all available everyday options in cost order as per the Order of Action and then when additional actions were identified as being required we utilised the contingency coal units.

Previously asked questions - 7th March

Q: 'Last resort' Coal Units were dispatched yesterday ahead of other BM units. I understand the time dependent nature of needing to commit to these units but how do the stalwart BM units left behind obtain the scarcity value they need to survive?

A: We have covered the dispatch decisions in the timeline walkthrough included in this forum. Any BM unit would have been able to sell their energy in the forward markets to receive revenue for these periods.

Q: Why didn't the ESO warm Drax U1 so that it was available to run on 7th March?

A: DRAXX-1 was not available to be warmed in the timescale that we knew we would have a requirement to use it.

Q: Draxx-1 available at £1,500/MWh 07/03 but not warmed. NDZ = 999, or max As the unit wasn't warmed I'm assume it was say 2 days NDZ or such. Do you think no. of NDZ digits needs increased to give the market a clear sense of what's available as a balancing tool. NG & Draxx know, but market doesn't

A: NDZ = 999 is an indication that the unit is unavailable without warming as you have referenced. This means that it is essentially unavailable as a balancing tool unless you have seen a warming instruction related to the unit.

Previously asked questions - 7th March

Q: West Burton units have a 10 hour MNZT - how were you able to desync them at the times you did?

A: Once we were through the peak, EDF contacted our control room and requested to be allowed to desynchronise early. As we no longer had a requirement for the additional power we were able to inform them that this violated their MNZT but allow them to go.

Q: SHBA-1 tripped over the evening peak 07/03. The EMN signalled potential for high cashout and extreme trip risk and should have signalled to units to buy back to reduce this risk however none did, likely due to pressure from Ofgem regarding "sharp practices". Flagging this as real insolvency risk

A: Thank you for your comment. We are not able to discuss the topic in this forum.

Previously asked questions - Interconnectors

Q: Re: in-person workshops, can you please still have a remote participation option? It's not always easy to travel to these events, and those who don't really miss out

A: Thanks for the feedback we are aware that in person events are not practical for everybody and welcome your suggestions on making our events available for even wider participation at: .box.NC.customer@nationalgrideso.com. For access to a specific event, in the first instance please contact the event organisers directly.

Q: At times some of the top interconnector questions were not answered. Instead these were ignored and others promoted above them. It gives the appearance that NGESO are hiding something.

A: Each week we answer as many questions as possible at the end of the session. Even when there are only a few questions we may not have the right experts, information or data immediately available to provide an answer. Any questions which are not answered during the forum we take away and include in the slides for future weeks until they can be answered. Answers for most take away questions are provided at the next week's forum. All answered questions can be found on the OTF page on our website along with the slides and recordings from previous weeks.: [Operational Transparency Forum | National Grid ESO](#)

Previously asked questions - Interconnectors

Q: Is there any chance you could let the markets know (perhaps through the data portal) when other TSOs are in alert status?

A: System Operators (SOs) are responsible for publishing their own System States if and when required. ESO cannot therefore publish another SO's data.

Q: Why doesn't the ESO have SO-SO Trading Service over the ElecLink interconnector (but does over IFA and IFA2)?

A: Answered in the SO-SO Trade slides in last weeks deep-dive. Interconnectors are not mandated to provide SO-SO Trade services.

Q: John ZH- thats alot of agreements! all of these can influence the design & operation of interconnector whose convertor gets designed early on - when are they agreed?- as interconnector scale & their effect grows; the more agreements are done early on, the better planning & design for them will be.

A: All parties involved in the interconnector arrangements begin working together as early as 4-5 years before go-live to try and ensure construction and operational designs will be applicable for all parties.

Previously asked questions - Interconnectors

Q: Under FSO will there still be a requirement to Trade on interconnectors through third parties or will the FSO trade directly?

A: We are not anticipating any change to our current approach under FSO.

Q: # Interconnectors: When you say you trade via counterparties, can you please say a little more about that? I.e. how are the arrangements structured, what are the limits of what you can/can't ask them for, is it competitive or over-the-counter, etc?

A: We trade via with counterparties. These are bilateral trades arranged via a competitive ESO interconnector auctions. The counterparties then deliver the trade by nominating the energy against the capacity they have bought on the interconnector. You can find more details in the trading deep dive on the 5th October 2022 and 1st December 2021 and all trade details are published on the data portal.

Q: What proportion of IC trades (roughly) are taken for system balancing reasons compared to energy balancing?

A: Please see the data published on the data portal and reference the Interconnector Trading deep dive on the 5th October 2022 and 1st Dec 2021. The recordings are available.

Previously asked questions - Interconnectors

Q: Please can you explain to the group on the call the background and challenges related to GC0154: Incorporation of interconnector ramping requirements into the Grid Code, as part of the interconnector deep dive.

A: GC154 is introducing a codification of interconnector ramp rates as a result of retained EU law. As part of this work the ESO wants to also consider how interconnector ramping should be effectively codified.

Q: It appears that SO-SO trades (esp. Excess Energy) are published after the period ends (prices are earlier, trades are not). This can have a massive impact on cashout. Can you please publish SO-SO as they're used, rather than afterward?

A: Thank you for the feedback. We will consider this in future service designs.

Q: Where there is an SO-SO trade who is responsible for rebalancing the cables? I assume someone has to rebalance the flows at both ends of the cable

A: Covered in the Pricing slides of EA & EI in today's deep dive.

Q: do you send IC requests on behalf of other TSO's to manage the system on their side?

A: No.

Previously asked questions - Interconnectors

Q: There was a question at a prev. ops forum around the effect of interconnectors "wheeling power" through GB to satisfy external SO needs when that leads to a GB constraint cost-it would be useful to explain how these situations are approached-do we use emergency assistance to then back-off that flow?

A: ESO only uses the available tools and options to manage issues within the GB system. We do not prevent or restrict interconnector flows if the market flows do not cause an issue in GB.

Q: Should both TSOs requiring EA via I/Cs from each other be expected to enter into Emergency State, how do you define precedence?

A: Answered on the EA & EI slide from last weeks deep dive.

Q: John ZH- so far we have been discussing steady state energy exchange- within continental Europe, interconnectors AC & HVDC are being used for a range of what we'd define as ancillary services. Should we be developing more capability to do this between GB & other SO areas?

A: SO is actively investigating what ancillary service are possible on interconnectors whilst ensuring compliance with relevant codes.

Previously asked questions - Interconnectors

Q: Last bullet point on slide 29 - says ESO does not publish EI (which is emergency state) - however, GB ESO has to notify stakeholders immediately when GB in emergency state - where can I find this real time notification when GB goes into emergency state?

A: This is being discussed through current Grid Code modification forums.

Q: Is Excess Energy published anywhere in real-time?

A: Answered in the SO-SO Trade slide in last weeks deep dive.

Q: The Order of Action slide does not reference ITL's where do these fit into the order?

A: ITLs (interconnector trading limits) aren't used for energy so not relevant to the order of action. ITLs are used only to manage localised or other system risks.

Q: When an SO-SO action is required. Who determines which interconnector is used?

A: ESO will always try and use SO-SO Trade actions in cost order however as detailed in the slides today, the connected SO can reject the request for any reason.

Previously asked questions - Interconnectors

Q: How do Interconnector flows feed into IMBAL forecast and when and how do the PNs change for Interconnectors.

A: This was covered at our deep dive into interconnectors 6 July 2022.

Q: It strikes me the players who have interconnector capacity and are participating in some of these Emergency processes have a lot of information not available to the wider market. What is the ESOs view on this?

A: Interconnector capacity holders do not have any involvement in the Emergency procedures. They are between the connected SOs and the Interconnector Owners only.

Q: In SP31 on Friday 10th March, the IFA interconnector increased its import to 2GW, against its IPN and FPN schedule. This led to an over-generation of 2GW in SP31 and SP32. Why did the IFA do this?

A: ESO cannot comment on the operations of individual units.

Previously asked questions - DFS

Q: When will we receive info on actual performance (compared to contracted volumes) from (non test) utilisation of DFS a few weeks back?

A: Data for Live events which took place on Jan 23 and 24 is available in the Data Portal: https://data.nationalgrideso.com/dfs/demand-flexibility-service-live-events/r/utilisation_report_summary_live. We are running a webinar on the 16th March – details of which are on our website – where this will be looked at in more detail.

Q: Has any analysis been done yet on how useful DFS actually is, rather than just comparing to the baselines from the previous 10 days? For example, do we know if total demand actually drops, or if people use energy elsewhere (e.g. stay late at the office, go to the pub, etc)?

A: There is a DFS webinar scheduled for 16 March where we can share more analysis.

Details of the Event

Date/Time

Thursday 16th March 15:00 – 16:00

Location

Microsoft Teams

Register

<https://www.nationalgrideso.com/calendar/dfs-webinar>

Previously asked questions

Q: So many complaints/questions over this Winter RE DFS/EA/Winter Contingency are based on fact the market does not have access to defined, accurate data in time to make trading decisions. Can you commit to making sure going forwards, impact on cashout and trading ability is considered is a priority.

A: We welcome the feedback on areas that the industry would appreciate additional visibility over. We are committed to continuing our focus on balancing costs, and taking the most economic and efficient actions available to us at that point in time to ensure that we can continue to ensure the security of the system.

Q: Questions on op dispatch decisions e.g. WBUPS yesterday. REMA puts more dispatches into NGENSO dispatching plants; questions will be louder. Does NGENSO have an idea how it could transparently dispatch better than the market and can address potential conflicts of interest if it owns assets like the IC

A: The ESO is an independent company with requirements for business separation from the rest of National Grid Group defined as a condition of our licence. To be absolutely clear, the ESO does not own or operate any plant or assets.

REMA = Review of Electricity Market Arrangements

Previously asked questions

Q: The advance-answered questions don't seem to be on the website PDF

Q: Will you be presenting the normal weekly OTF data / slides on Balancing Costs and Constraints etc?

A: These were included in an appendix to the slide pack published at: [Operational Transparency Forum | National Grid ESO](#)

Q: What is the meaning of a boundary becoming active?

A: This means that the flows across that boundary are or will go over the allowed maximum limit, therefore the constraint boundary becomes “active”.

Q: When are you going to remove BALIT from your messages on BMRS?

A: There are some IT limitations which must be resolved in order to change this. It is difficult to say how long this will take.

Q: Can NG ESO have separate sessions for deep dives and keep the operational forum for operational events that happened this week?

A: Thanks for the feedback we will consider the suggestion. Deep dives such as the Interconnector topic on 8 March have received positive feedback and we think they are a useful way of highlighting certain issues to the market. This particular presentation was developed in response to the questions raised in this forum. We will normally report on operational activity during the previous week up to and including the Sunday before the forum. This is subject to the availability of the operational staff who support the forum and they were very busy on 7 March.

Previously asked questions

Q: I would like operational transparency forum to talk about operational activity, especially when something has happened that has never happened before and caused important market data to be useless rather than waiting 8 days to discuss it

A: Thanks for the feedback we will consider the suggestion. While we endeavour to talk about all operational activities happening, we cannot always resource content creation for events happening in the few days before the forum. Content creation is subject to the availability of the operational staff who support the forum, as you may know these people were very busy on 7 March. We will normally report on operational activity during the previous week up to and including the Sunday before the forum.

Q: Please could NGENSO ensure you do not pluralise MW. If you use MWs then this turns the number into MJ not MW. In SI units MWs is MegaWattseconds. MW =MJ/s Mega Joules per Second. So MWs = MJ/s.s = MJ. Thank you.

A: Thank you for the feedback.

Previously asked questions

Q: Can you tell us what the indicative system price would be for yesterday if West Burton had of been priced at £99,999 as it should have been please?

A: As explained in a previous forum, all Offer Acceptances issued by NGENSO for the operation of units under the winter contingency contracts will be priced at £0/MWh.

To ensure the impact on Cashout is mitigated the £0 MWh Offer Acceptance will be removed from settlement using the BSCP18 process and replaced through BSAD with a price of £99,999/MWh. This ensures that both Imbalance Prices and Imbalance Charges are calculated correctly; and the Generator will not receive an additional payment relating to the BOA. The Offer volume will instead be Settled as Balancing Services Adjustment Data (BSAD) and Applicable Balancing Services Volume Data (ABSVD), in accordance with Approved Modification P447.

Advanced questions

Q: In SP31 on Friday 10th March, the IFA interconnector increased its import to 2GW, against its IPN and FPN schedule. This led to an over-generation of 2GW in SP31 and SP32. Why did the IFA do this?

A: ESO cannot comment on the operations of individual units.

Q: Please can the ESO provide an update on when the 2023 Markets Roadmap document is expected to be published? It would be great to know in advance for resource planning if possible.

A: It will be published on the 31st March, with a Markets Roadmap webinar planned for after the Easter holidays (likely w/c 24th April) but date tbc.

Q: A lot of NBM plants – though not DFS – looks cheaper than BM peaks. How is NGENSO proposing to address this in light of Ofgem's inflexible plant conditions? In not now for next winter?

Ofgem's proposal for the inflexible offer licence condition is intended to target periods whereby plant with an MZT greater than 60mins achieve excessive benefits through the BM if their physical notification is 0MW. As the final outcome of this licence condition is not yet known with the consultation window having closed on the 13th March, it may have an impact upon the merit order stack of resources in the BM and the peak prices within the BM.

Advanced questions

Q: Does NGESO have any case studies/analysis in place for Nodal Pricing/Locational pricing? Is it possible to say whether these would have increased the chance RYHPS would have been accepted at £5750 or that regions of SW Eng, would have experienced higher prices for BM or wholesale?

A: NGESO is currently investigating potential wholesale market reform options, under our Net Zero Market Reform (NZMR) programme, which supports the UK Government's Review of Electricity Market Arrangements (REMA). More details on our website: <https://www.nationalgrideso.com/future-energy/projects/net-zero-market-reform>. As part of NZMR, significant analysis is taking place, including analysis on the internal impact of various options and the external value of moving to a different wholesale market structure. Work is ongoing, and not yet in a position where we have concrete case studies which we can share.

In terms of the specific question regarding RYHPS the ESO cannot comment on the operations of individual units. However as a general point it is very difficult to determine what a completely different wholesale market structure would have meant, as we expect that any implementation of Nodal or Zonal pricing would lead to fundamentally different outcomes from the wholesale market, thus the options available to NGESO for residual balancing would also look fundamentally different. In terms of the specific question regarding pricing for South West England, we would refer to the ongoing modelling that Ofgem are doing on REMA options, located here: <https://www.ofgem.gov.uk/publications/locational-pricing-assessment>

Questions we are still working on

Q: On the ESO Data Portal a dataset called “Historic GB Generation Mix and Carbon Intensity” is published. Amongst the different generation types included is one labelled “OTHER”. Output from this “OTHER” category has been increasing over time since early 2018 and now averages more than 300MW with maximum monthly values as high as 1800MW. The ESO does provide a list of BMUs to Elexon identified as “OTHER” that is published on the Generation by Fuel Type tab of the Elexon Kinnect Insights Solution and there is a similar but not identical list published on BM Reports. However the limited number of BMUs in these lists does not explain the magnitude of generation output attributed to “OTHER”. Note that some of the BMUs in the “OTHER” list published on BM reports are even labelled as “dummy”.

Please can you provide more detail on the units that are included in the “OTHER” category of generation output published in your “Historic GB Generation Mix and Carbon Intensity” dataset and ideally a comprehensive list of these units.

Q: Is there a timing issue around buying NBM plants for energy vs assessing the peak need in the BM or via coal?

Questions we are still working on

Q: I have few queries from today's session (8th March):

- The presenter mentioned that BALIT service is now called as “Excess Energy” service. I understood that service is still in use and only name is changed but it is mentioned in the ppt that ESO can not use this service (see snip). On a different slide: it is mentioned that Excess energy service is used by NGESO (see snip2).
- Please clarify can NGESO use “Excess Energy” service?
 - If yes: What is the minimum notice period?
 - If no – what is the minimum notice period?
- Please explain in detail how, when & why “excessive Energy” service is used by NGESO.

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