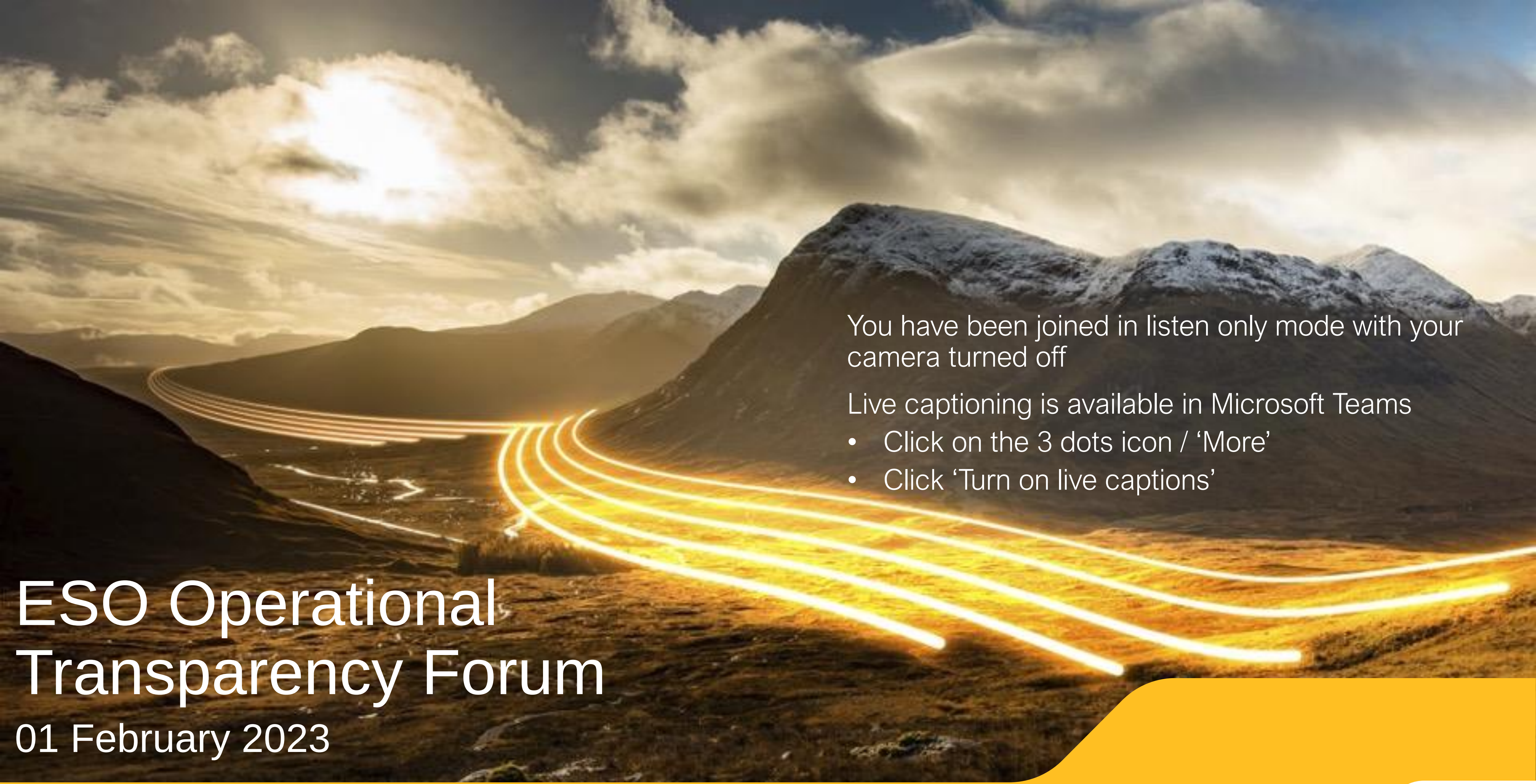


You have been joined in listen only mode with your camera turned off

Live captioning is available in Microsoft Teams

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

ESO Operational Transparency Forum

01 February 2023

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

<u>Today:</u>

December Balancing Costs Overview

<u>Coming soon:</u>

Reserve Reform update

Response markets deep dive

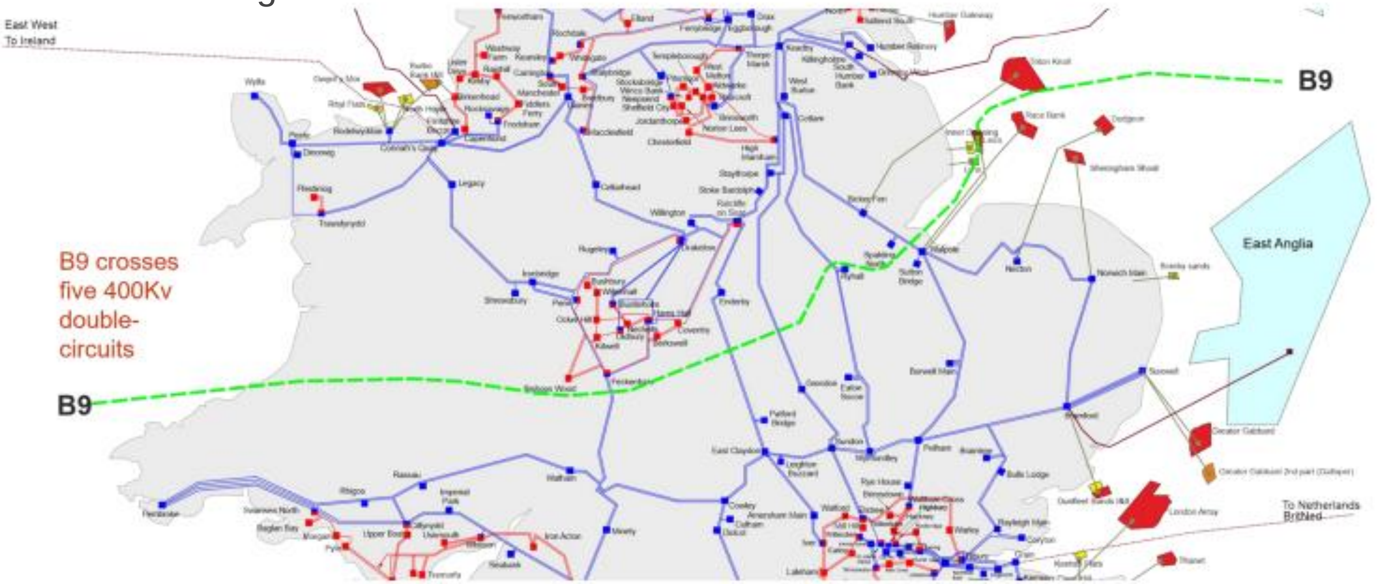
System Inertia

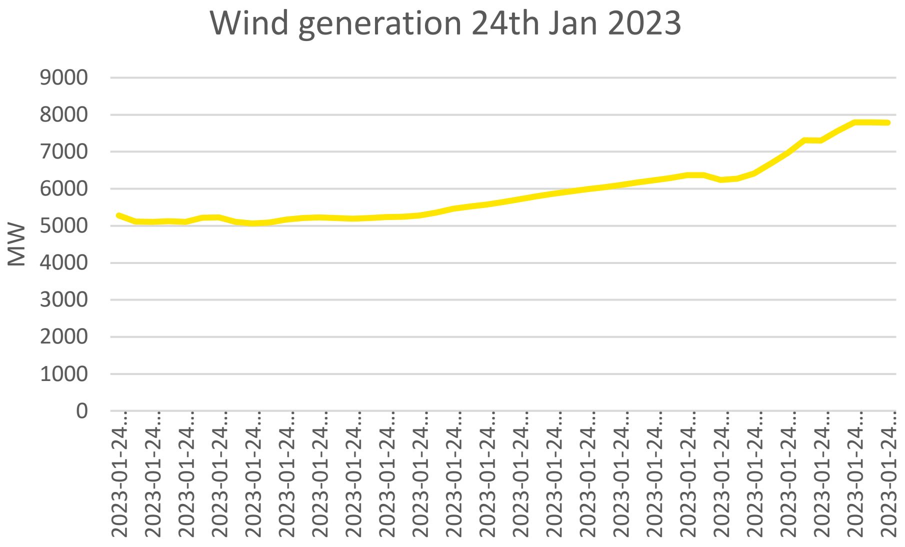
Feedback welcomed on our proposed deep dive topics

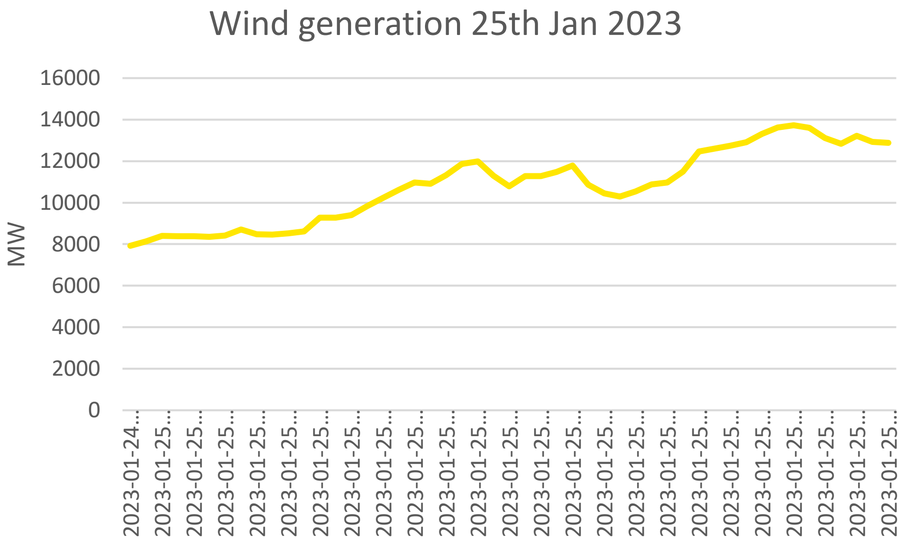
Operational Update - 25th January 2023

The Electricity System is always changing

- The Electricity System dynamic changes every day and does require constant adjustments to manage system conditions.
- On the 24th January 2023, wind generation was low and the weather was cold. ESO instructed the use of Demand Flexibility Service (DFS) to help with tight margins.
- In contrast on the 25th January 2023, wind generation was higher, with exports on interconnectors causing bigger north to south flows on the network and margins were adequate.
- Much of the wind generation is located in Scotland which needs to flow down the country to reach higher demand centres.
- The B9 boundary cuts through 5 double circuits and can become heavily loaded at times of high Scottish wind.







25th January 2023

- One of the circuits that cuts through the B9 boundary had been due to start a planned outage in the morning, but the flows were increasing and it was decided to not release the outage due to constraint costs and system security.
- The B9 constraint became active between 13:00 to 14:00 after a change of flow to the continent of 800MW following the Interconnector Intraday renominations.
- Three gas turbines were synchronised and 800MW of small BMUs were instructed on to manage flows.
- At 13:03 the circuit tripped which activated the B9 constraint boundary.
- All available generation within the B9 group was synchronised including 800MW of small Balancing Mechanism Units (BMUs).
- At 13:34 Emergency Assistance (EA) was requested from a neighbouring TSO using the emergency push button as immediate action was required.
- European Awareness System (EAS) was put into alert status for N-1 violation.
- Throughout the afternoon EA was requested to manage the boundary from multiple interconnectors as can be seen in the Balancing Mechanism Reporting Service (BMRS) messages.
- By 19:00 the right generation/demand balance within constraint was established with no requirement for any further EA.

Balancing Mechanism Reporting Service (BMRS) messages

System Warnings

Warning Date/Time (GMT)	Warning Text
2023-01-25 18:29	A request for Emergency Assistance has been agreed on a GB connected Interconnector. The requesting party was NGESO. GB net flow will decrease by 300 MW between 18:00 25/01/2023 to 19:00 25/01/2023. Issued by Natasa Dinic at 18:29 on 25/01/2023
2023-01-25 16:58	A request for Emergency Assistance has been agreed on a GB connected Interconnector. The requesting party was NGESO. GB net flow will decrease by 300 MW between 17:00 25/01/2023 to 18:00 25/01/2023. Issued by Natasa Dinic at 16:57 on 25/01/2023
2023-01-25 16:27	A request for Emergency Assistance has been agreed on a GB connected Interconnector. The requesting party was NGESO. GB net flow will decrease by 500 MW between 16:00 25/01/2023 to 17:00 25/01/2023. Issued by Natasa Dinic at 16:26 on 25/01/2023
2023-01-25 15:23	A request for Emergency Assistance has been agreed on a GB connected Interconnector. The requesting party was NGESO. GB net flow will decrease by 500 MW between 15:00 25/01/2023 to 16:00 25/01/2023. Issued by Natasa Dinic at 15:20 on 25/01/2023
2023-01-25 13:39	A request for Emergency Assistance has been agreed on a GB connected Interconnector. The requesting party was NGESO. GB net flow will decrease by 500 MW between 13:34 25/01/2023 to 15:00 25/01/2023. Issued by Ian Bennett at 13:39 on 25/01/2023

Operability Update – 26th January 2023

Winter Contingency Units

Service instructions (Wednesday 25 January to Thursday 26 January 2023)

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

BMU ID	Instruction Issued	Instruction Cancelled	Notes
DRAXX-5	25/01/23 23:50	26/01/23 11:08	SONAR & BMRS
DRAXX-6	25/01/23 23:48	26/01/23 11:07	SONAR & BMRS
WBUPS-2	25/01/23 23:46	26/01/23 04:58	SONAR & BMRS

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

[Sonar (nationalgrid.com)]

[Electricity Data Summary | BMRS (bmreports.com)]

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

Advance Questions – on operations

We’ve received a number of questions of a similar nature on the operations, and costs around last week’s activities.

We’ve used these to pull together today’s update on last week’s operations. As standard, the actions that we take to manage operational risk in this timescale (including the cost of warming) are included in BSUoS costs.

We’ve previously done deep dives on Emergency Assistance and Emergency Instructions and will look to run another in the future at the OTF.

Previous OTF Sessions

SO-SO Trading February 15 2022

ESO I/C Trading September 2022

ETYS 2022 now Published!

To read more go to https://www.nationalgrideso.com/etys

ETYS 2022 now Published!

The Electricity Ten Year Statement (ETYS) is the ESO's view of future transmission requirements and the capability of Great Britain's National Electricity Transmission System (NETS) over the next 10 to 20 years.

Usually, the ETYS is published in November, but ETYS 2022 has been delayed to 31st January 2023 due to changes to our planning activities.

What's new?

- An update on our plans and progress as we transition to a new Centralised Strategic Network Plan, and what this means for our readers.
- A new chapter which provides an update on our progress in integrating a wider range of system needs into the ETYS, this chapter includes:
- We are especially keen to hear your thoughts on this new chapter and within this chapter we have set up a short survey to collect your feedback.

ETYS Key Messages

- Over the next decade GB's electricity transmission system will continue to face growing needs in a number of regions:
  Scotland
  North Wales
  East Anglia
  South Coast
- Timely and coordinated network reinforcements will significantly help to reduce network constraints
- We are developing tools to expand our capability to assess a wider range of system conditions and scenarios

To read more go to https://www.nationalgrideso.com/etys

TNUoS and BSUoS Final Tariffs Published Yesterday

- TNUoS and BSUoS Final tariffs for the 2023/24 charging year were published on our website yesterday
- We issued comms to our mailing list to confirm their publication and to invite industry parties to attend two separate webinars that we are running to present and answer questions about the tariffs
- BSUoS webinar taking place on 7th February
- TNUoS webinar taking place on 14th February

Please use the links below for further information about each tariff

Sign up for the TNUoS webinar	View the TNUoS Tariff comms	Contact us about the TNUoS Tariff
Sign up for the BSUoS webinar	View the BSUoS Tariff comms	Contact us about the BSUoS Tariff

Response Reform Webinar
Friday 3 February 11:00 – 12:00

Agenda

- Overview of Response Reform process
- Release 1 updates (timelines, procurement volume changes, static FFR progress and our updated guidance document)
- Release 2 plan (timeline, workshops, roadshows, backlog topics)
- Q&A
- Next steps

Sign up for the webinar

Link to webinar sign up page Webinar registration | Microsoft Teams

Increasing DR & Reducing DFFR Requirements

In this months Response market information report we communicated that from March we will aim to procure up to **200MW** of Dynamic Regulation in line with our phased approach to removing the volume caps on the new response services. This reduces our Dynamic FFR requirements by 50MW across all EFA periods. More here: ESO Data Portal: Frequency Response Products Market Information Report - March 2023 - Dataset| National Grid Electricity System Operator (nationalgrideso.com)

Balancing Reserve (BR) Webinar #3
Tuesday 7 February 10:00 – 10:55

Agenda

- Overall project progress update
- SMP onboarding
- Bid submission process
- Auction process
- Mock auction plan
- Steps providers need to complete to ready to participate in BR
- Q&A
- Next steps

Sign up for the webinar

Link to webinar sign up page

[Microsoft Virtual Events Powered by Teams]

Balancing Programme Quarterly update

Overview

This programme was established to develop the balancing capabilities that the Electricity National Control Centre needs to deliver reliable and secure system operation, facilitate competition everywhere and meet our ambition for net-zero carbon operability.

Commitment for engagement

Following our strategic review with industry stakeholders last year, we made commitments to keep engaging with you on a quarterly basis, whilst also provides updates on our website.

Engaging with the industry

- Provide updates on our industry co-created roadmap we created as part of strategic review last year.
- Ensure the balancing capabilities we are delivering still meets the requirements of our stakeholders.
- Your chance to have an input into how we deliver the future balancing systems.

More information

Further details about the Balancing Programme and our previous engagement with industry can be found on our website.
https://www.nationalgrideso.com/industry-information/balancing-services/balancing-programme

Next in-person workshop

Date/Time

Thursday 9th February 10:00 – 16:00

Location

Hilton London Paddington,
46 Praed St,
London,
W2 1EE

Register

https://forms.office.com/pages/responsepage.aspx?id=U2qK-fMlEkKQHMd4f800lRPd2d7O7JlFsIm9miOGUVtUNzVTS1kwMEVMQ0k1NjAxUkRNWlpXMk9NQi4u

Deep Dive:
December Balancing Costs Overview

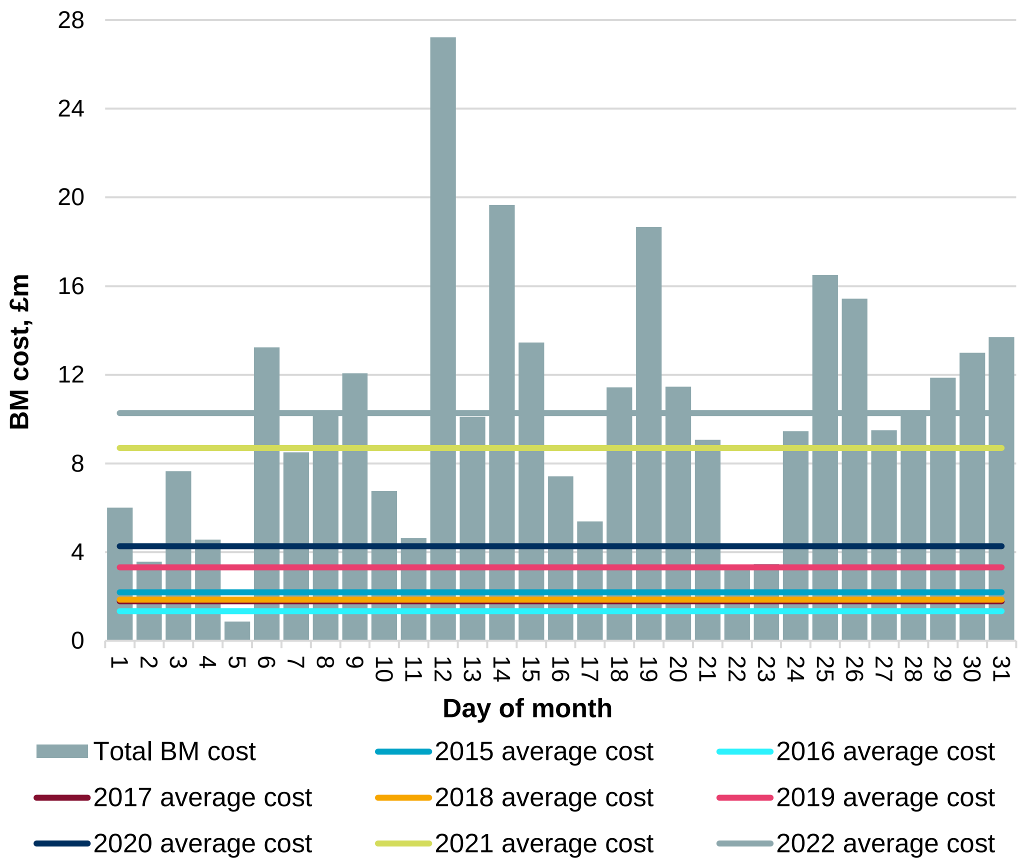
Chris Salter – Senior Market Monitoring Analyst

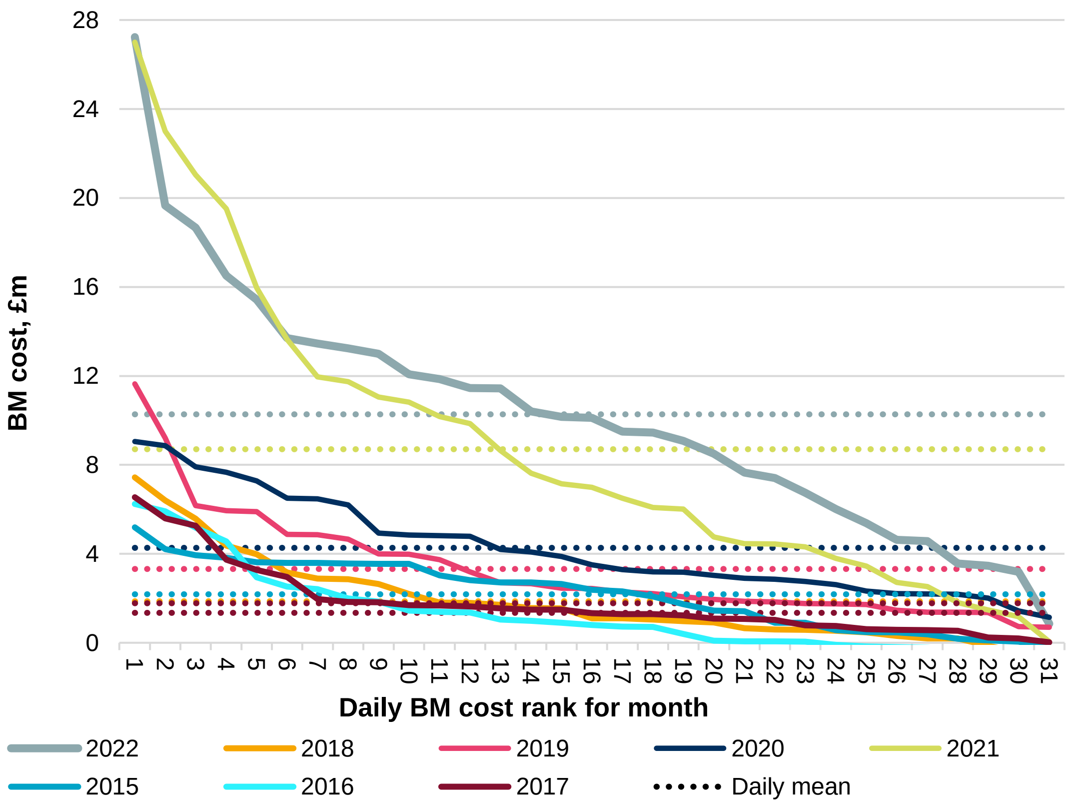
ESO

Balancing Market Winter Cost Review (December)

December costs were driven by system scarcity and low residual demand

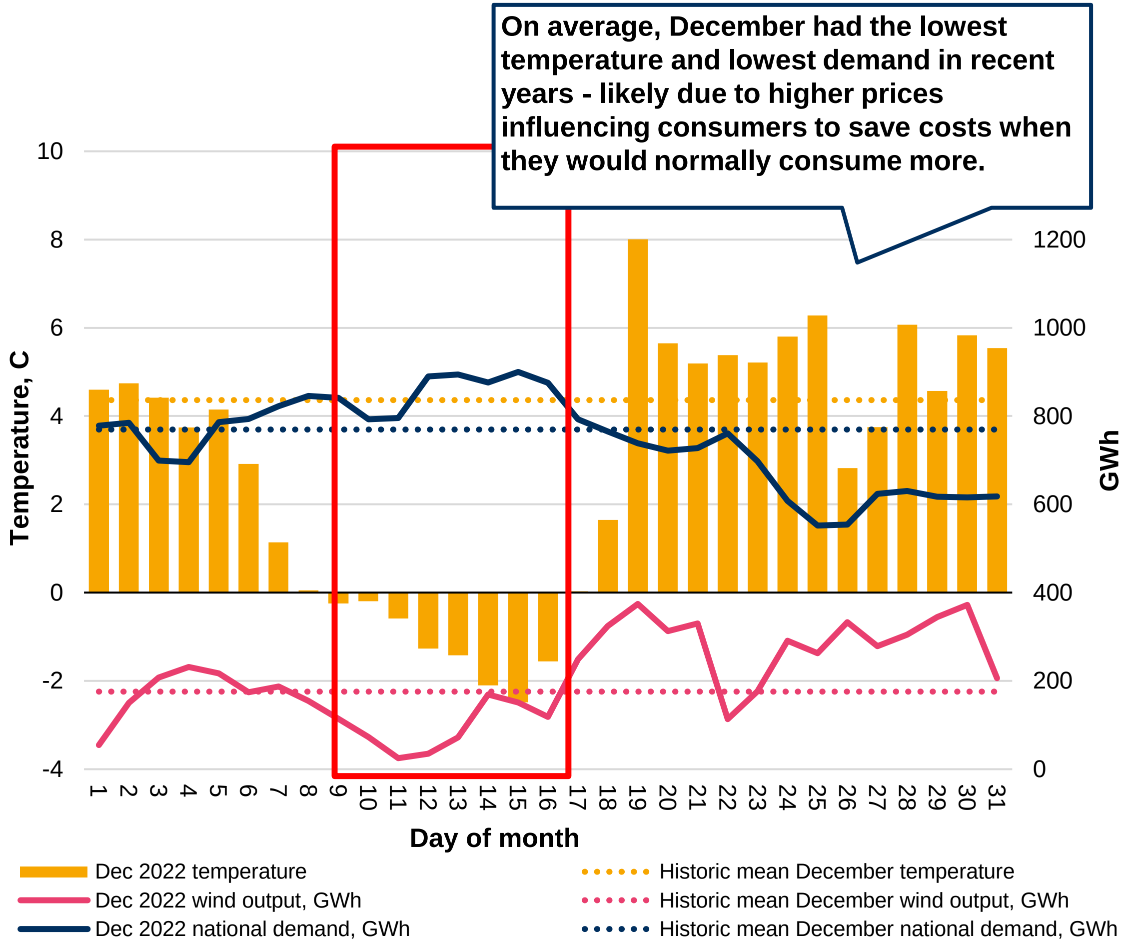
Balancing market costs (comparing to previous Decembers')

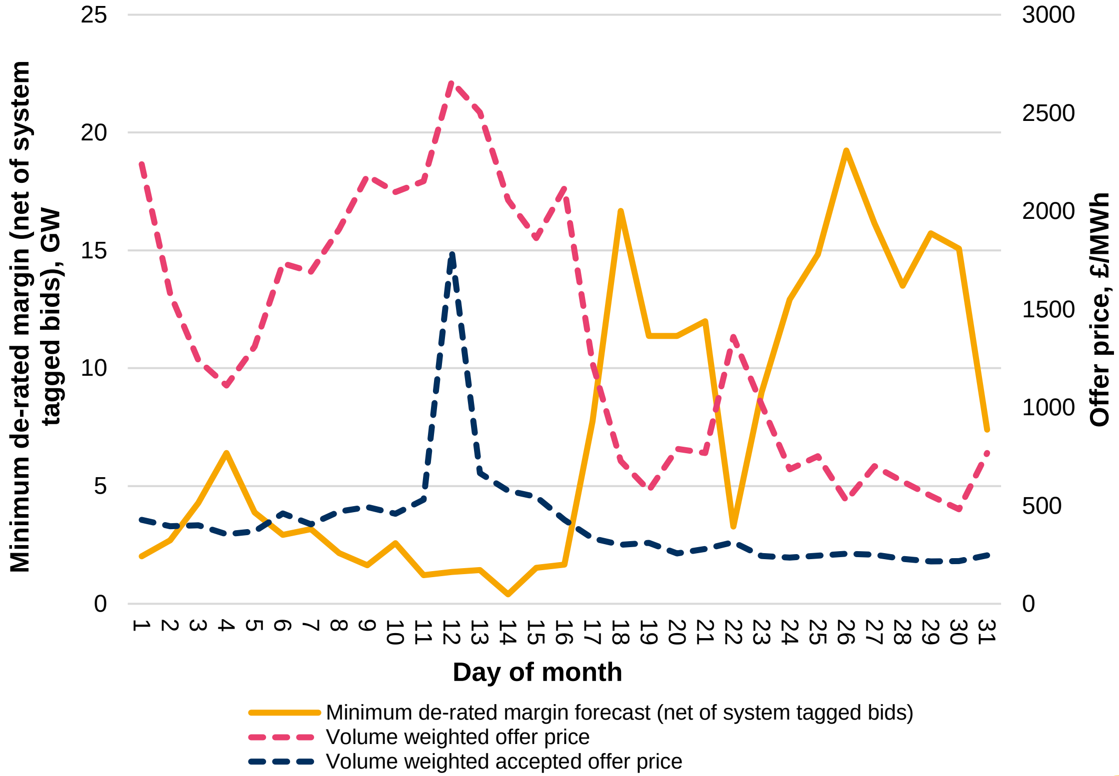




Balancing cost trends and drivers

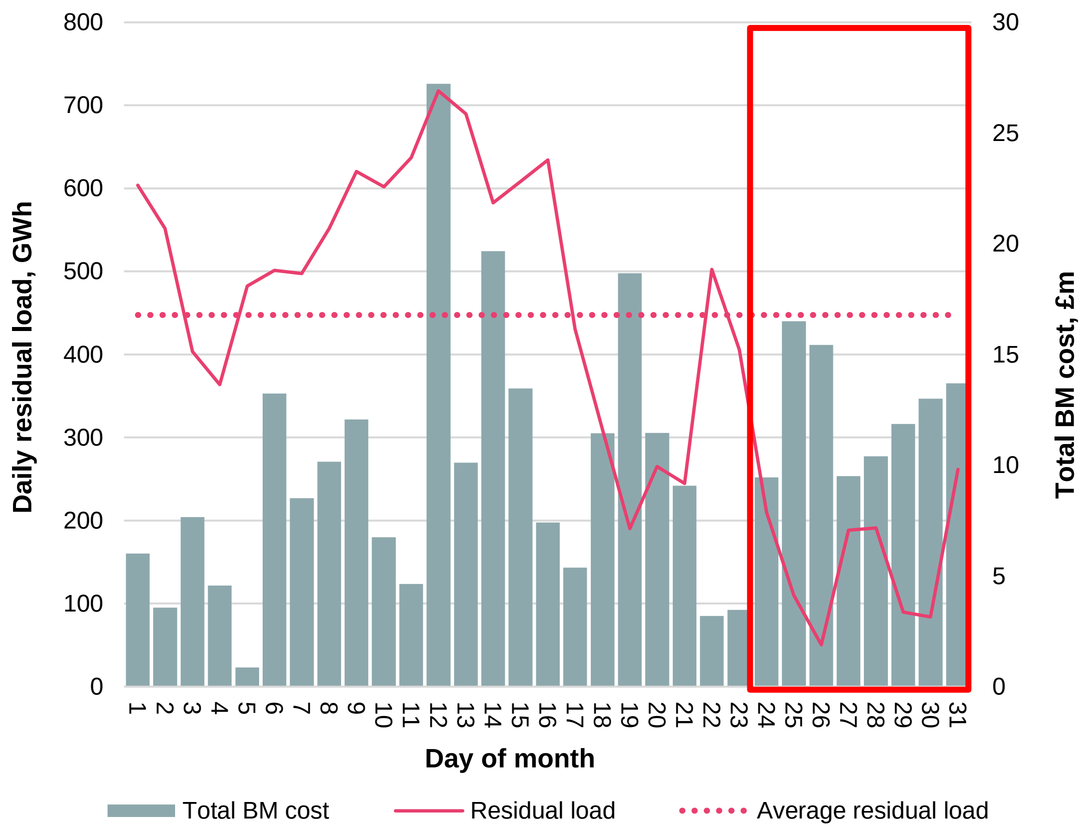
High demand and low wind drove low derated margins and very high offer prices





Reasons for actions taken

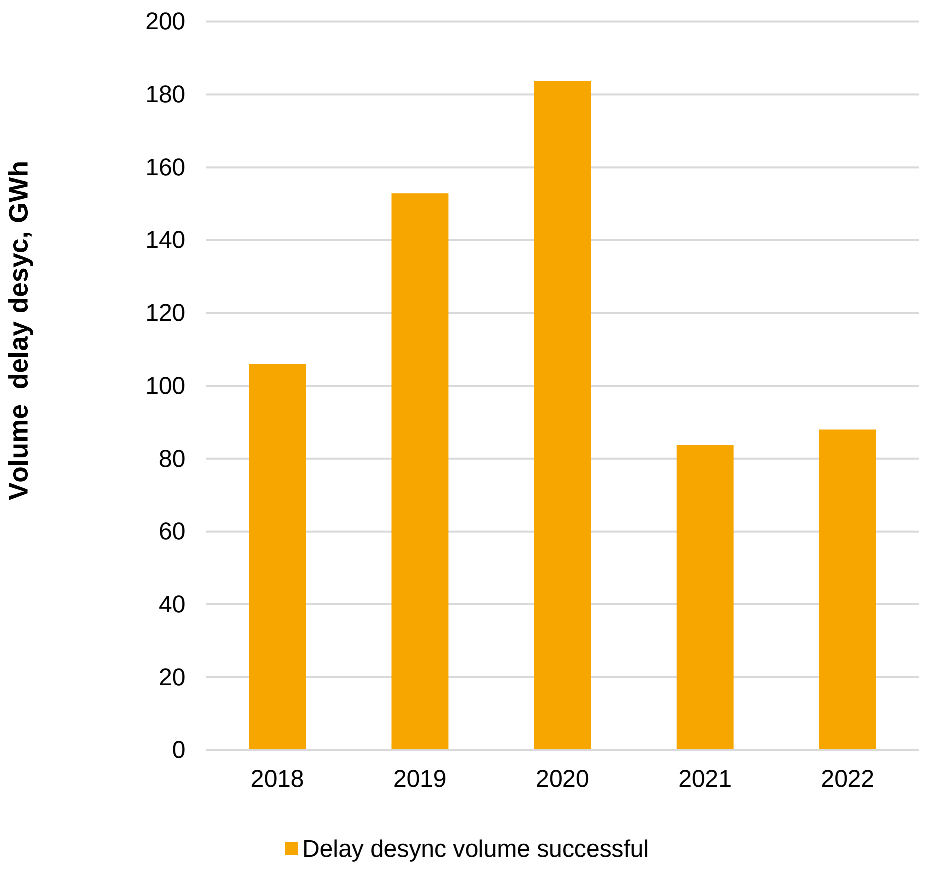
Lack of conventional generation drove requirements to replace wind more synchronous machines

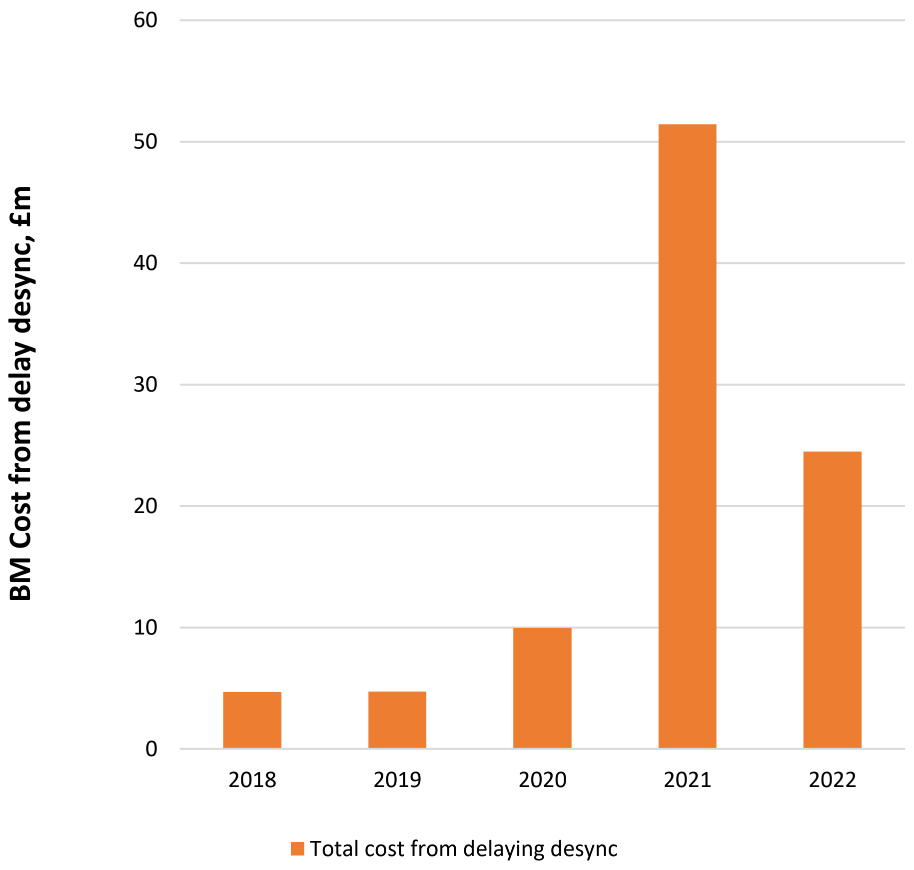


- Residual load is a measure of the requirement for conventional generation on the system.
- It is calculated as the national demand forecast net of the forecast Wind and Nuclear generation.
- December saw very low levels of residual load over the Christmas week as this period, in which demand is typically lower,
- This coincided with high wind and mild temperatures.
- Low residual load resulted in low inertia and voltage issues, meaning conventional generation needed to be turned on at high cost.

Changes in pricing behaviour

Delayed de-synchronisation when a unit must be extended to retain access to its operating margin continued to be a key driver of cost in December 2022 but offer prices were lower than in 2021

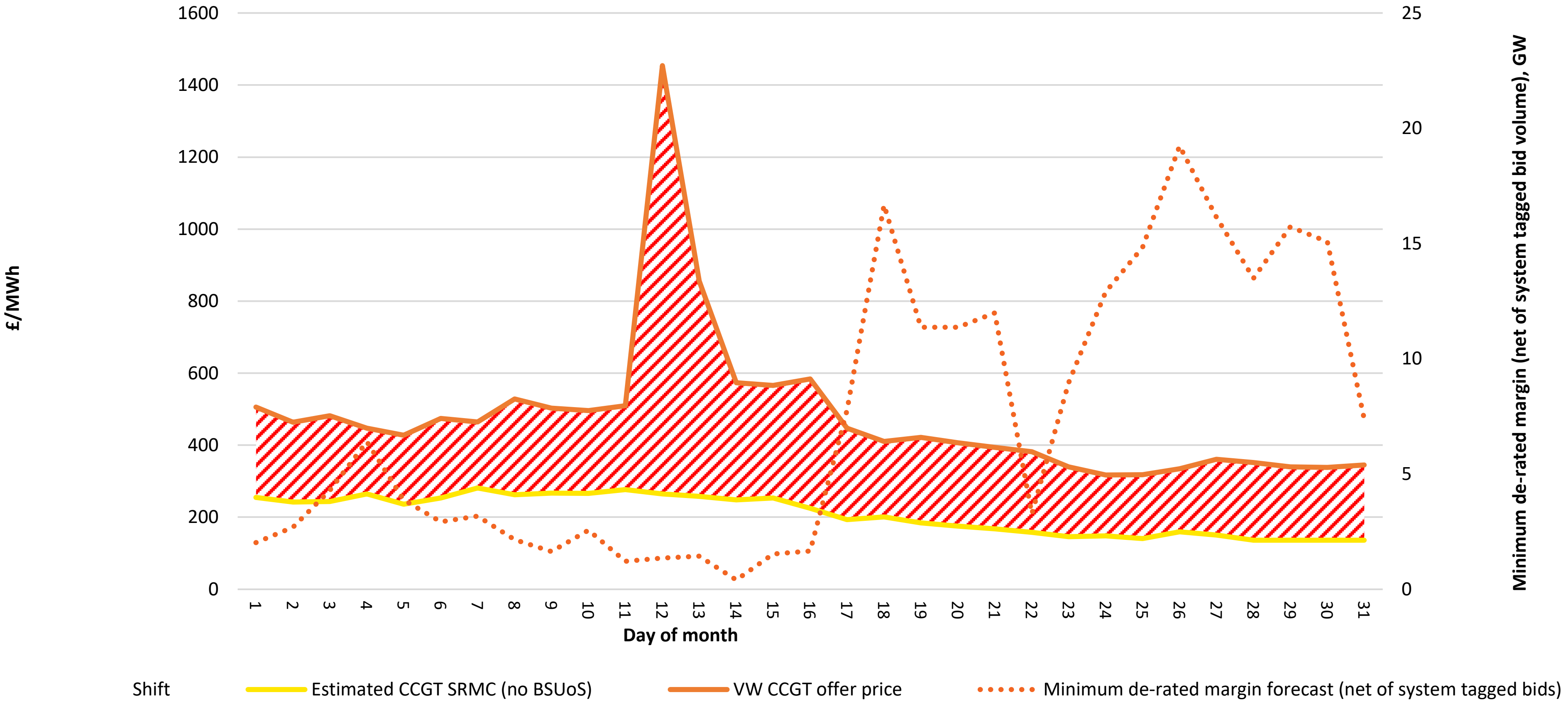




Influence of gas prices on offer prices

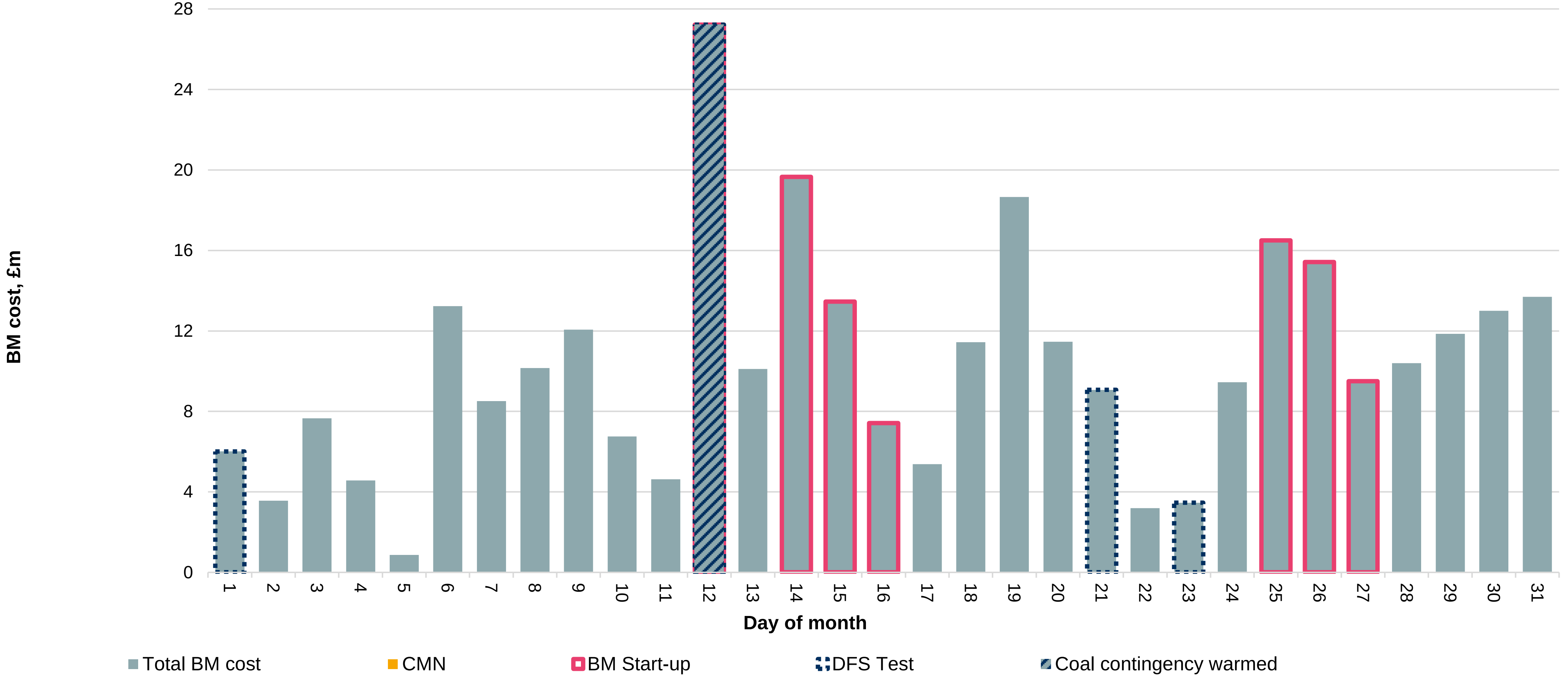
Even though gas prices are historically high, CCGT offer prices represent significant spread and high expected profit margins

Gas costs (Short Run Marginal Costs of CCGT gas plant)

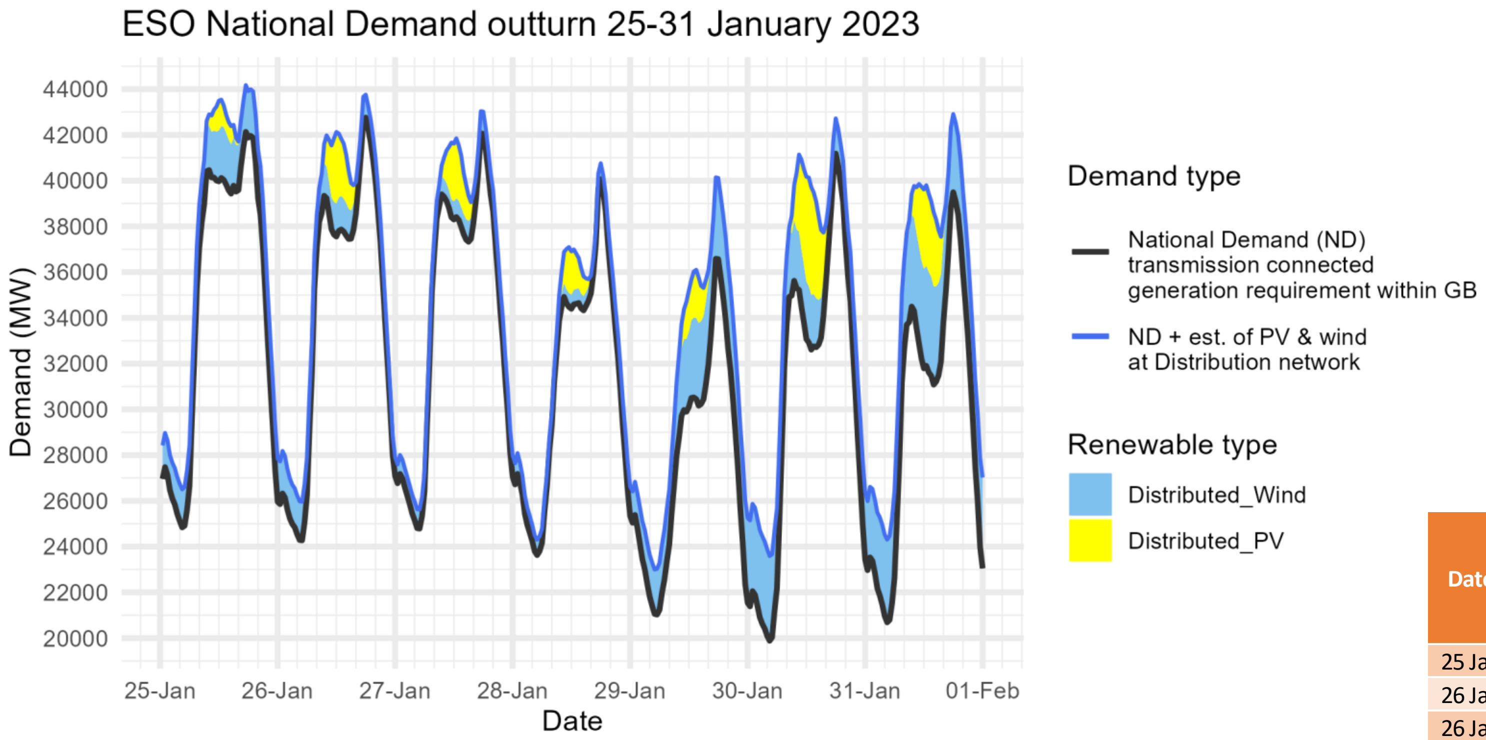


Balancing Market Winter Cost Review

We will be sharing detailed outputs from this winter cost review covering November to March as a single industry report



Demand | Last week demand out-turn



		FORECAST (Wed 25 Jan)		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)
25 Jan	Evening Peak	43.0	2.0	42.1	0.0	42.1	2.0
26 Jan	Overnight Min	23.8	1.8	24.3	n/a	n/a	1.7
26 Jan	Evening Peak	43.6	1.0	42.8	0.0	42.8	1.0
27 Jan	Overnight Min	24.9	0.8	24.8	n/a	n/a	0.8
27 Jan	Evening Peak	41.3	1.1	42.1	0.0	42.1	1.0
28 Jan	Overnight Min	23.6	1.0	23.6	n/a	n/a	0.7
28 Jan	Evening Peak	37.9	0.9	40.1	0.0	40.1	0.7
29 Jan	Overnight Min	21.8	2.0	21.0	n/a	n/a	2.0
29 Jan	Evening Peak	36.9	2.9	36.6	0.0	36.6	3.5
30 Jan	Overnight Min	20.7	3.1	19.9	n/a	n/a	3.7
30 Jan	Evening Peak	41.4	1.7	41.2	0.0	41.2	1.5
31 Jan	Overnight Min	23.5	1.3	20.7	n/a	n/a	3.6
31 Jan	Evening Peak	41.3	1.7	39.5	0.0	39.5	3.4

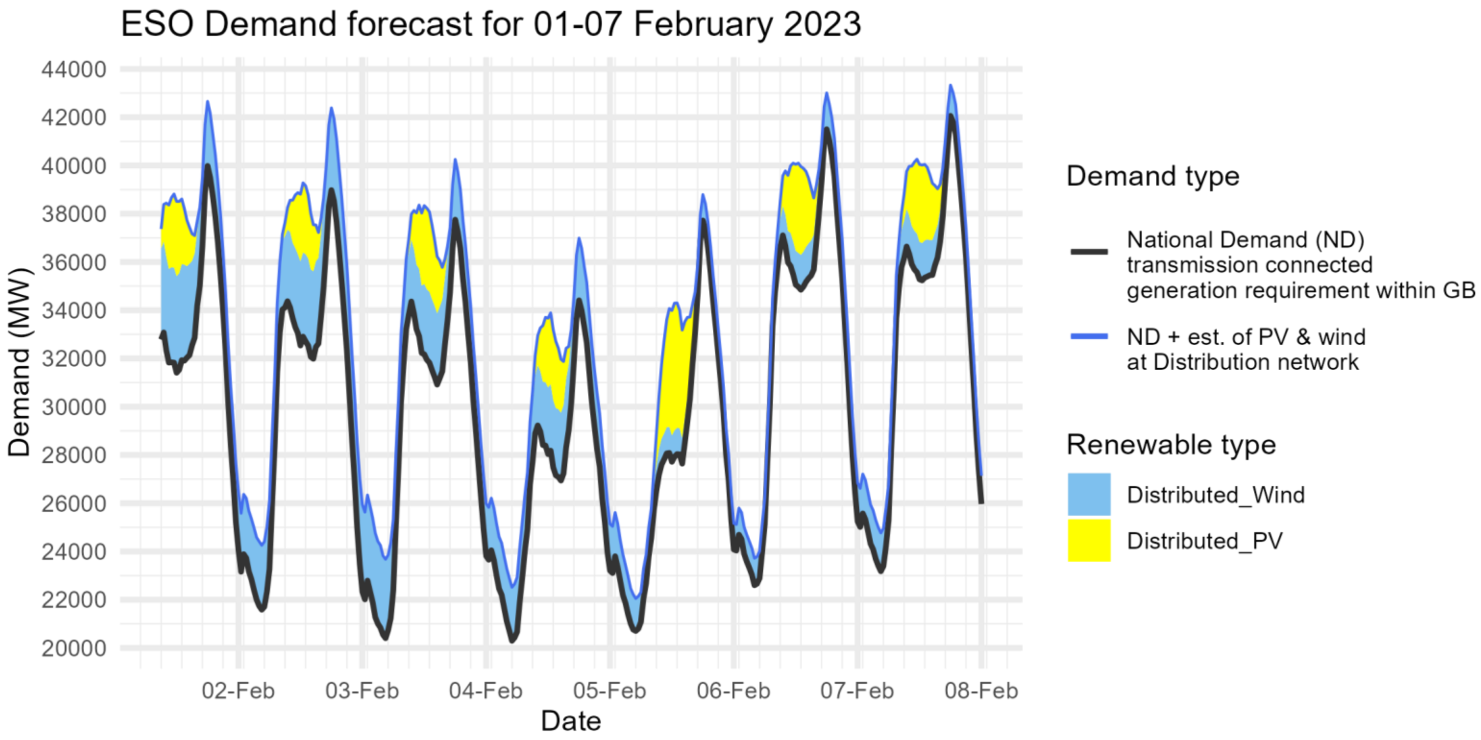
The black line (National Demand ND) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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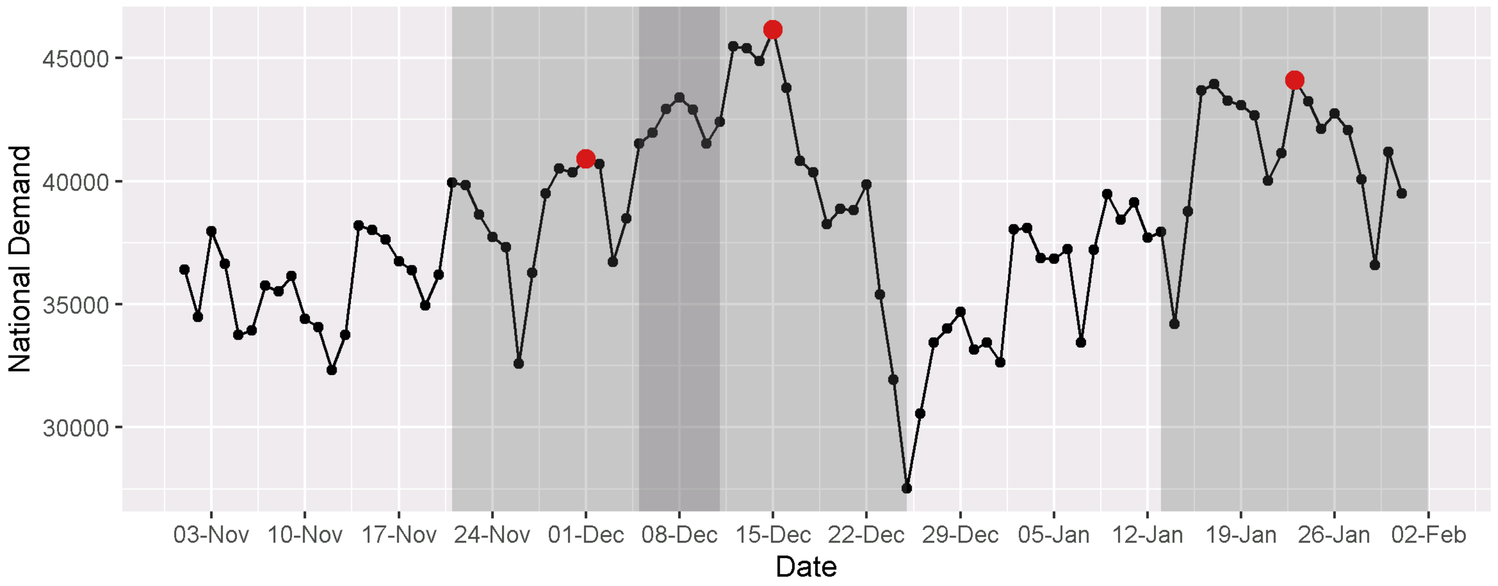
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it does not include demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

		FORECAST (Wed 01 Feb)	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)
01 Feb 2023	Evening Peak	40.0	2.7
02 Feb 2023	Overnight Min	21.6	2.7
02 Feb 2023	Evening Peak	39.0	3.4
03 Feb 2023	Overnight Min	20.4	3.3
03 Feb 2023	Evening Peak	37.8	2.5
04 Feb 2023	Overnight Min	20.3	2.2
04 Feb 2023	Evening Peak	34.4	2.6
05 Feb 2023	Overnight Min	20.7	1.3
05 Feb 2023	Evening Peak	37.7	1.1
06 Feb 2023	Overnight Min	22.6	1.1
06 Feb 2023	Evening Peak	41.5	1.5
07 Feb 2023	Overnight Min	23.2	1.6
07 Feb 2023	Evening Peak	42.1	1.2

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

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 1 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.

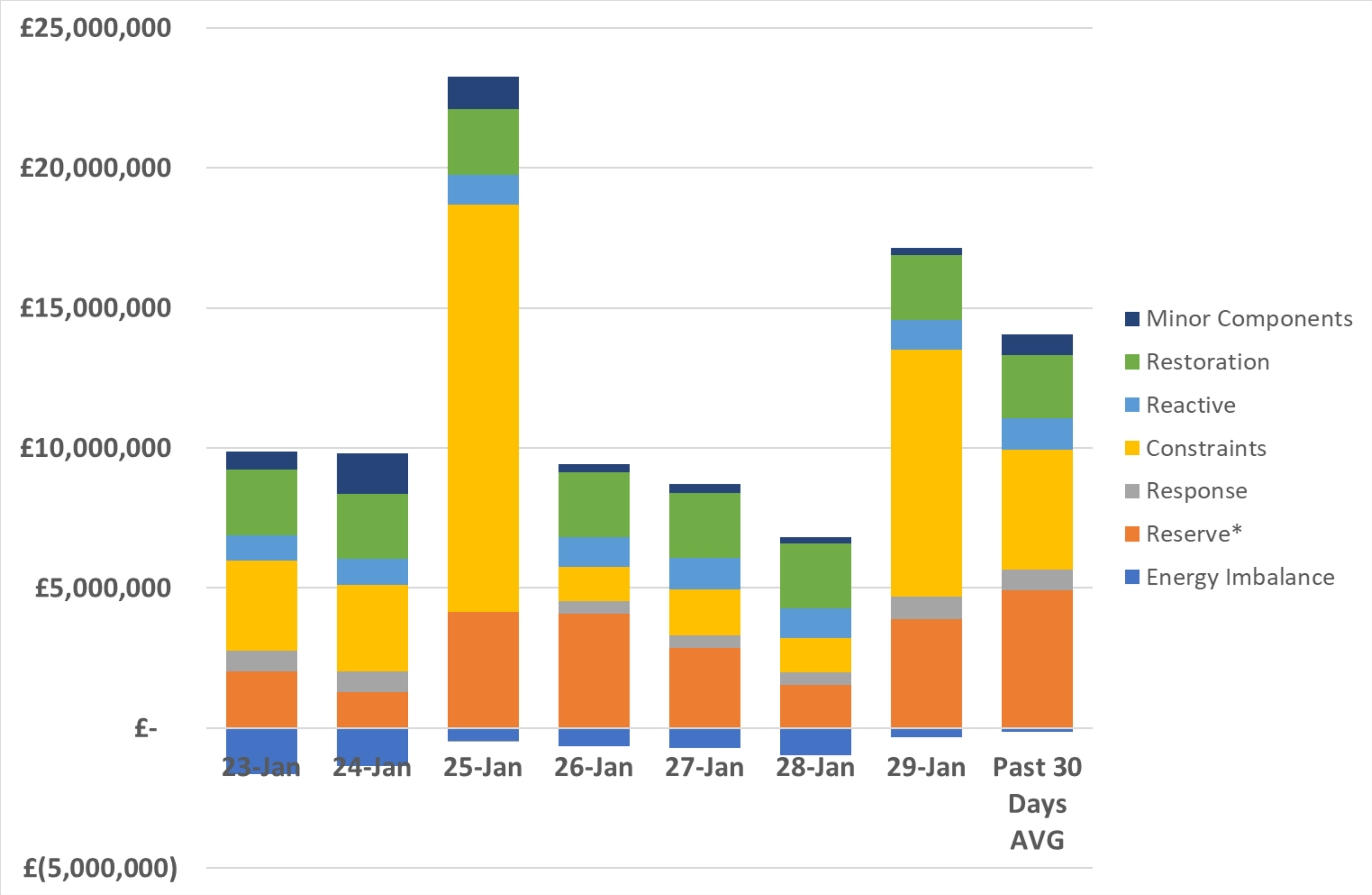
Day	Date	Notified Generation (MW)	Wind (MW)	IC Flows* (MW)	Peak demand (MW)	Indicative surplus (MW)
Thu	02/02/2023	40738	17140	4400	40090	15350
Fri	03/02/2023	40470	13540	4400	38280	14970
Sat	04/02/2023	39950	14150	4400	34900	17240
Sun	05/02/2023	41175	4120	4400	38330	6830
Mon	06/02/2023	41026	5740	4400	41440	5220
Tue	07/02/2023	41326	4850	4400	41760	4290
Wed	08/02/2023	41326	10120	3820	41920	8580

*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



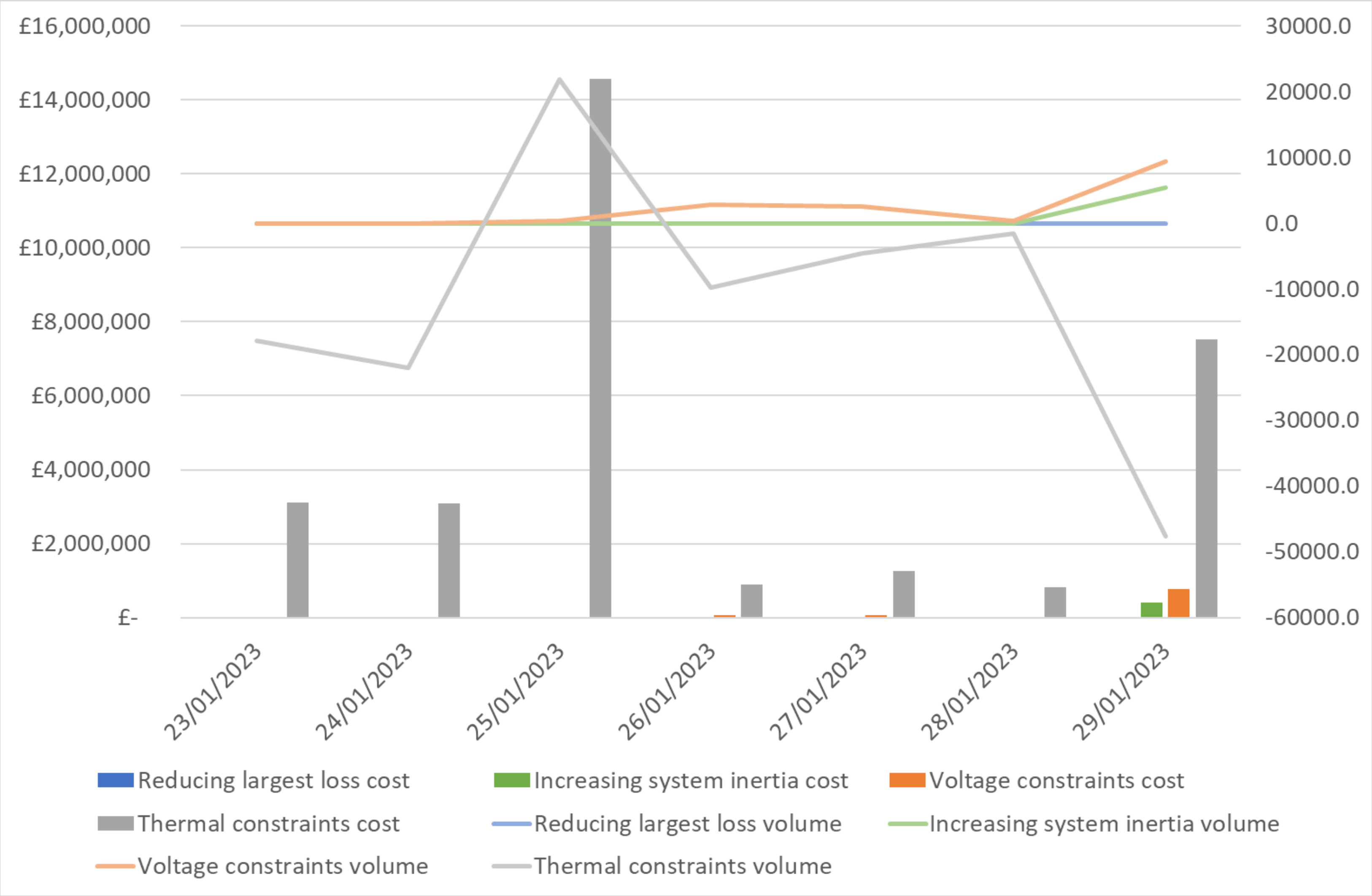
Date	Total (£m)
23/01/2023	8.2
24/01/2023	8.5
25/01/2023	22.7
26/01/2023	8.8
27/01/2023	8.0
28/01/2023	5.8
29/01/2023	16.8
Weekly Total	78.9

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



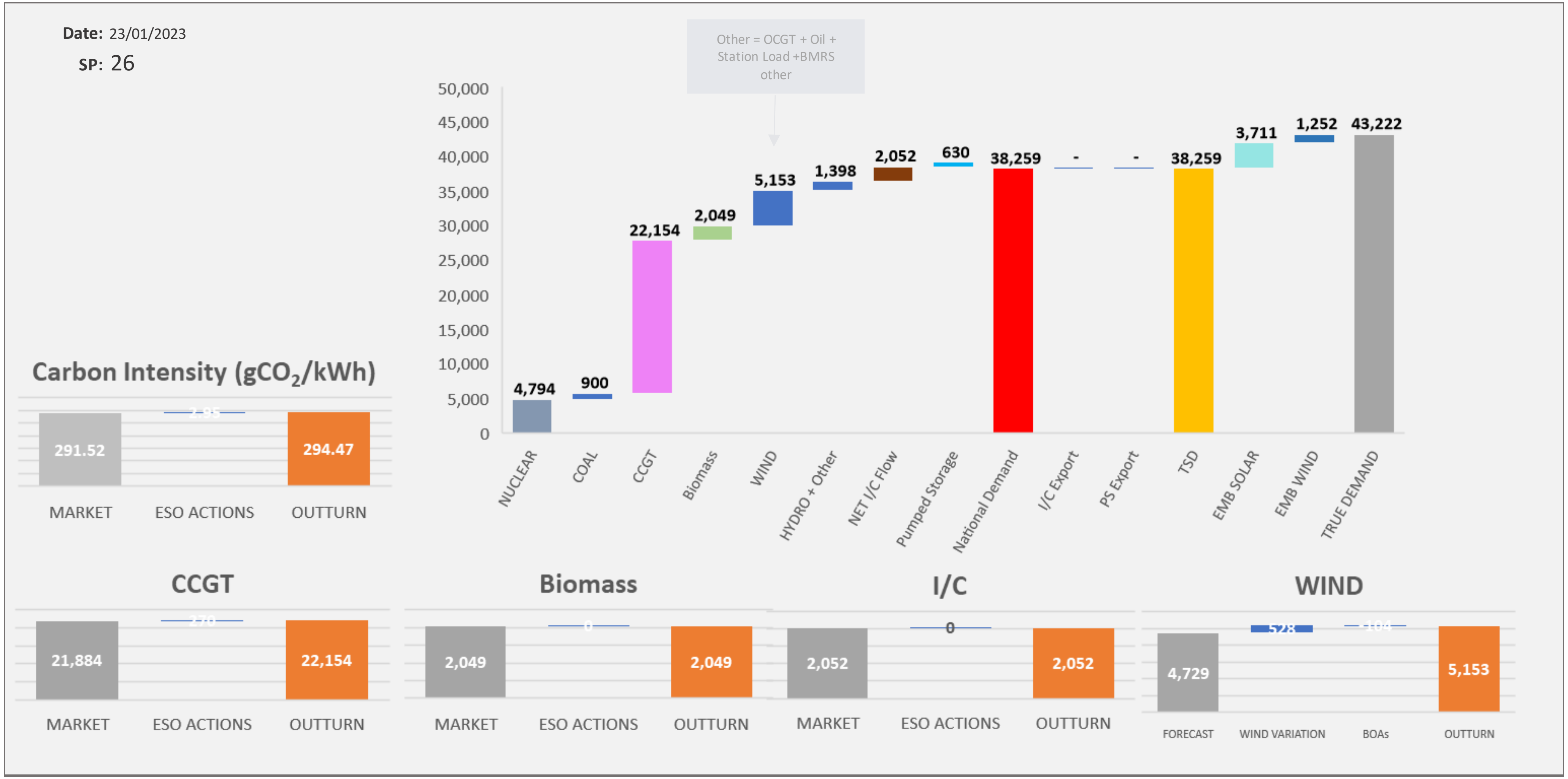
Thermal – network congestion
Actions required to manage Thermal Constraints throughout the week, with highest costs on Wednesday.

Voltage
Intervention was required to manage voltage levels on Thursday, Friday and Sunday.

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

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

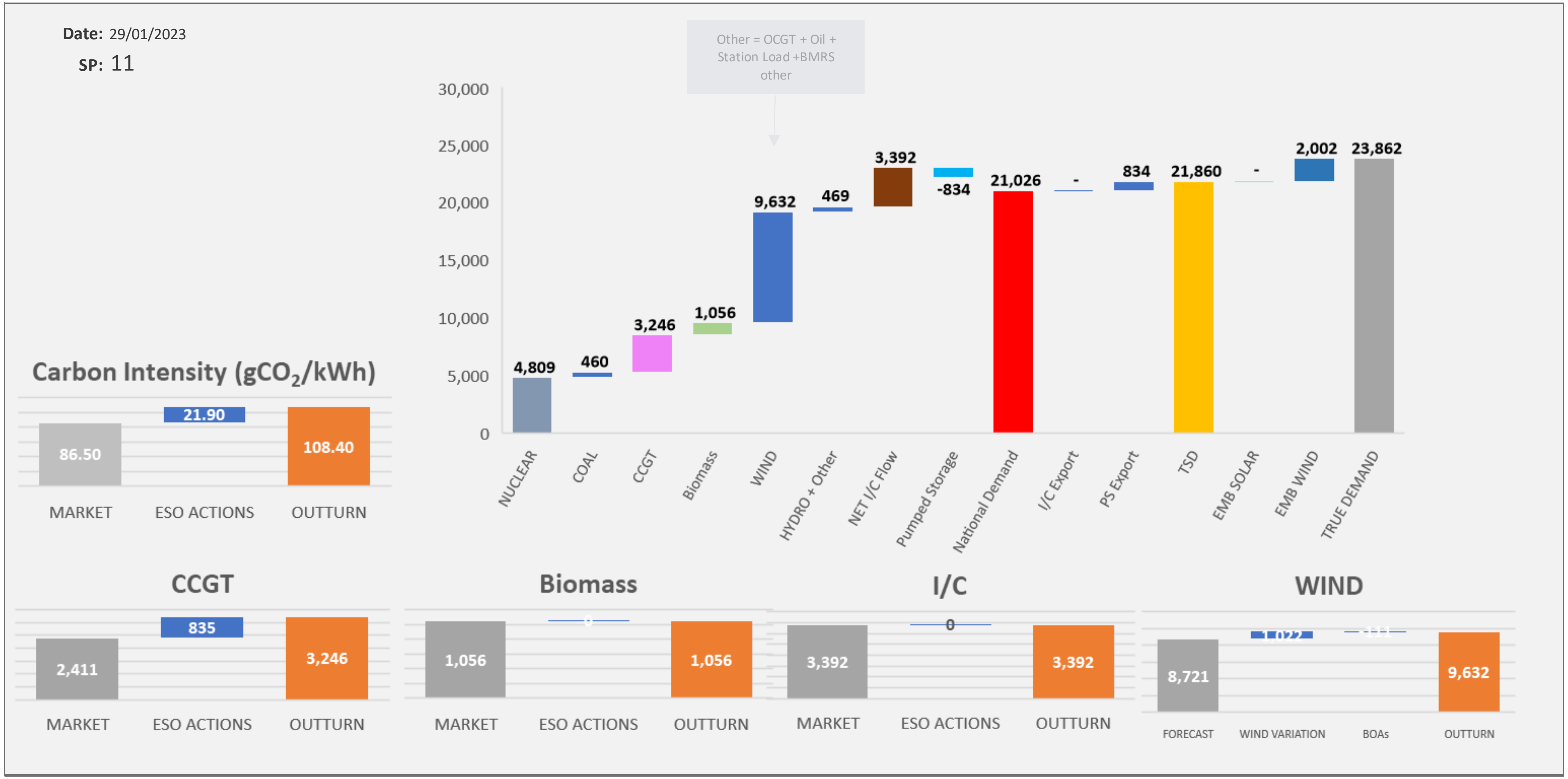
ESO Actions | Monday 23 January – Peak Demand – SP spend ~£17k



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

Sli.do code #OTF

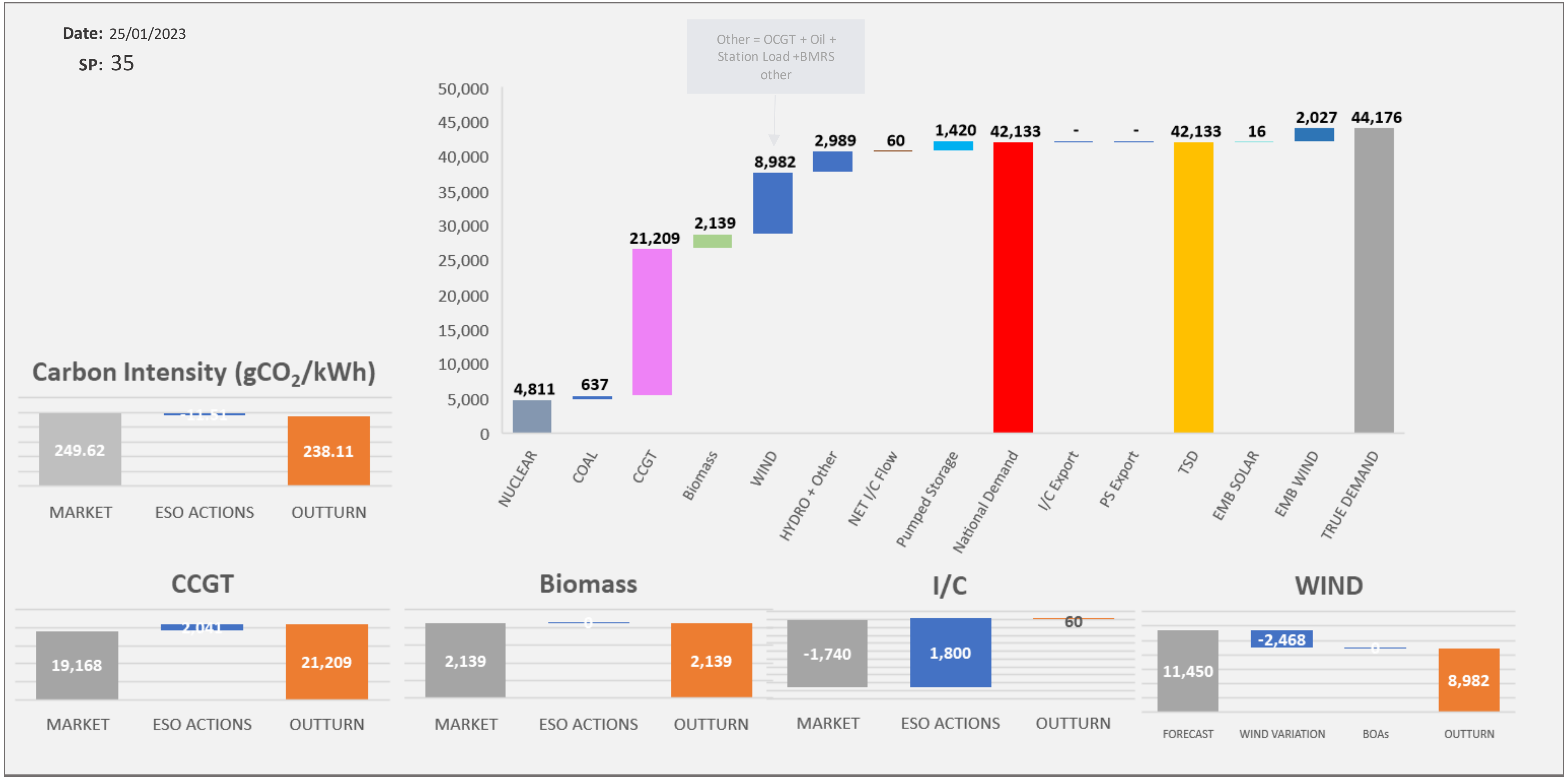
ESO Actions | Sunday 29 January – Minimum Demand – SP Spend ~£131k



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

Sli.do code #OTF

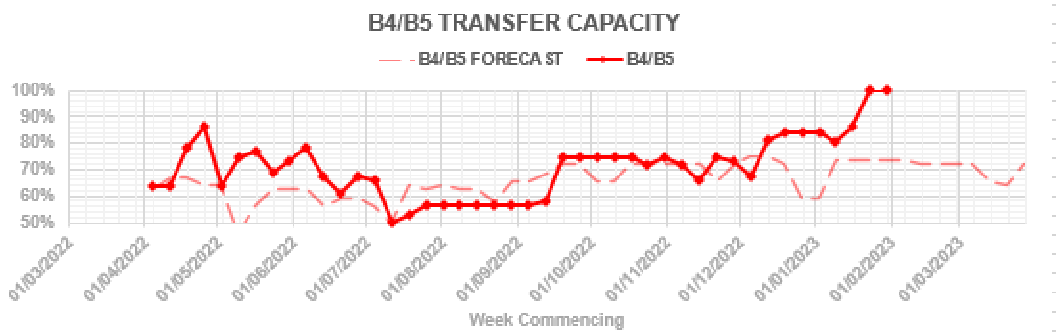
ESO Actions | Wednesday 25 January – Highest SP Spend ~£1.4M

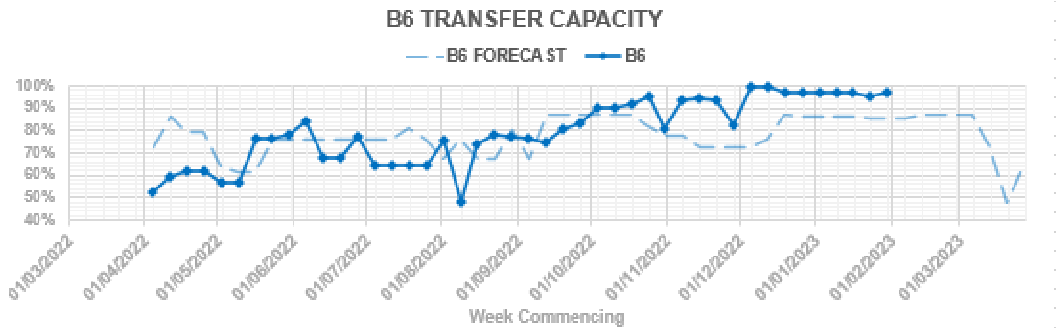


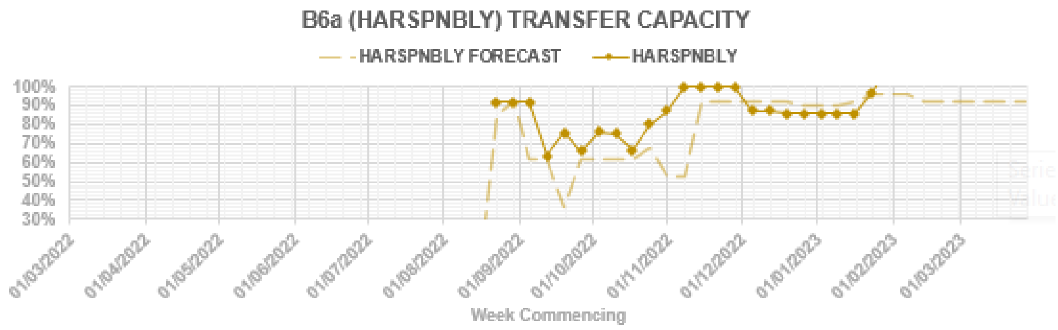
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO

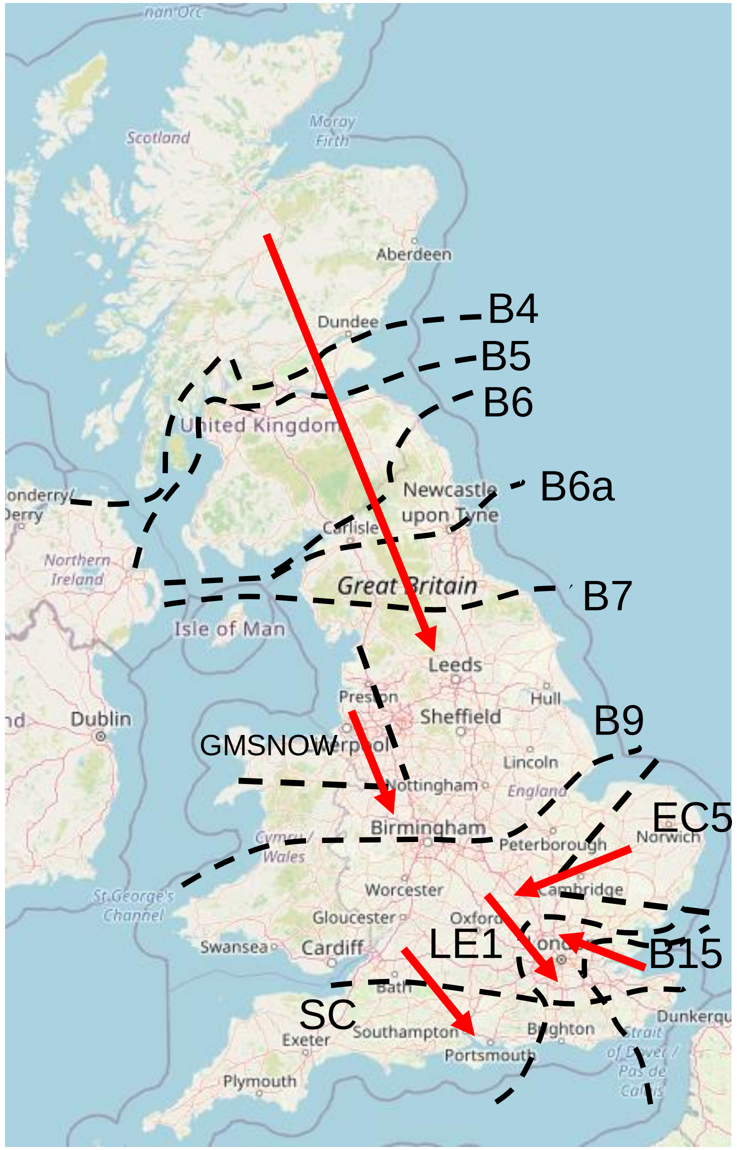
Transparency | Network Congestion





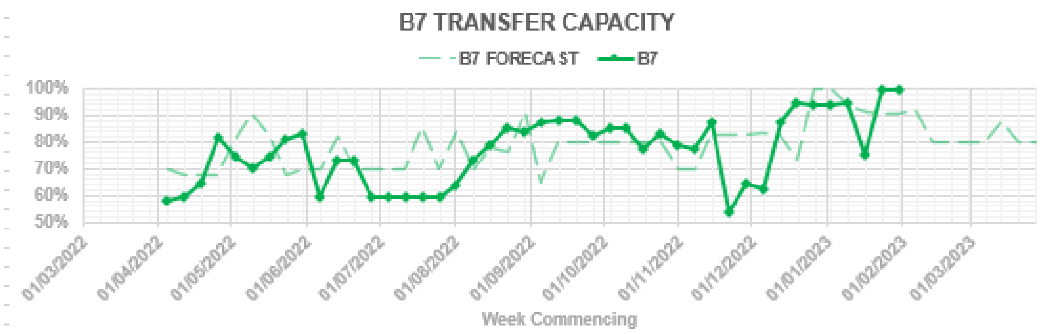


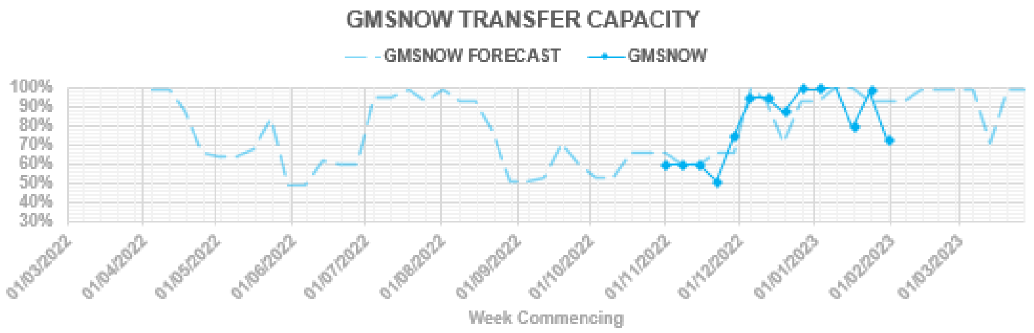
Boundary	Max. Capacity (MW)
B4/B5	3200
B6	6200
B6a	6300
B7	9300
GMSNOW	4550
B9	11000
EC5	5000
LE1	8500
B15	7500
SC	7000

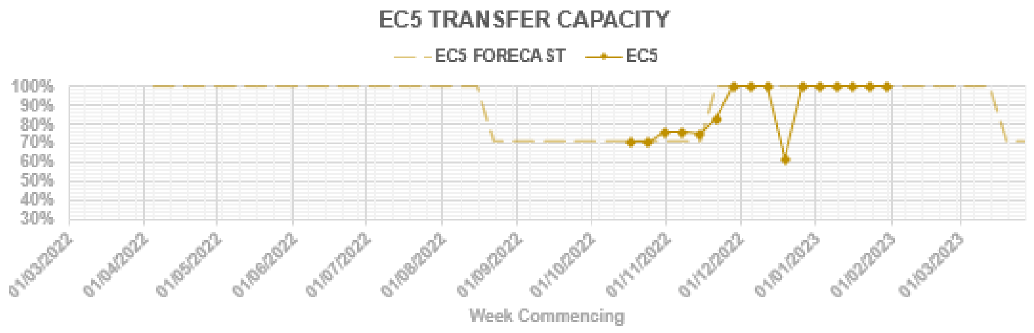


Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

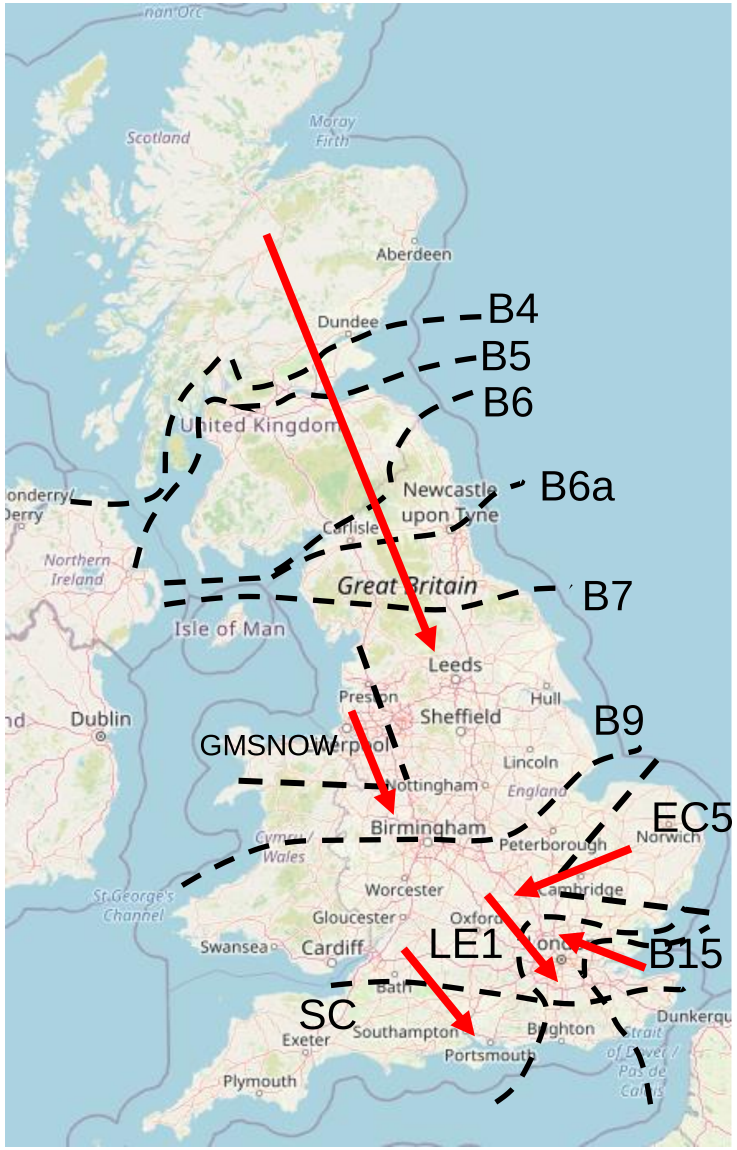
Transparency | Network Congestion







Boundary	Max. Capacity (MW)
B4/B5	3200
B6	6200
B6a	6300
B7	9300
GMSNOW	4550
B9	11000
EC5	5000
LE1	8500
B15	7500
SC	7000



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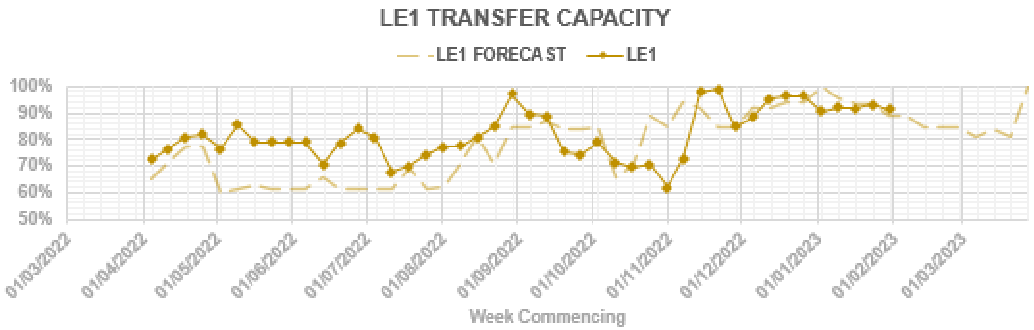

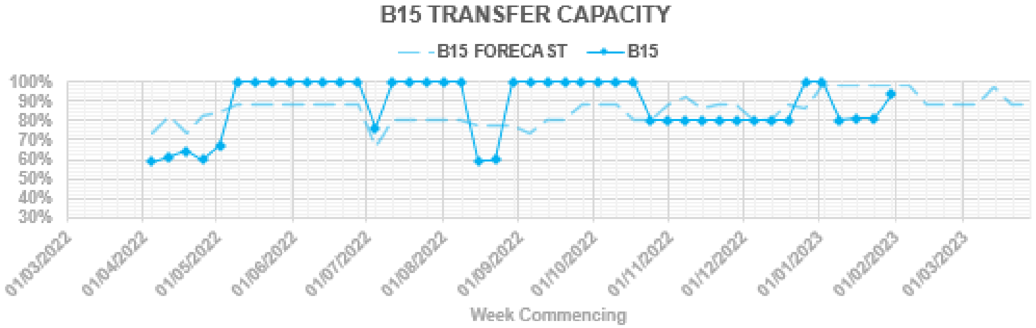

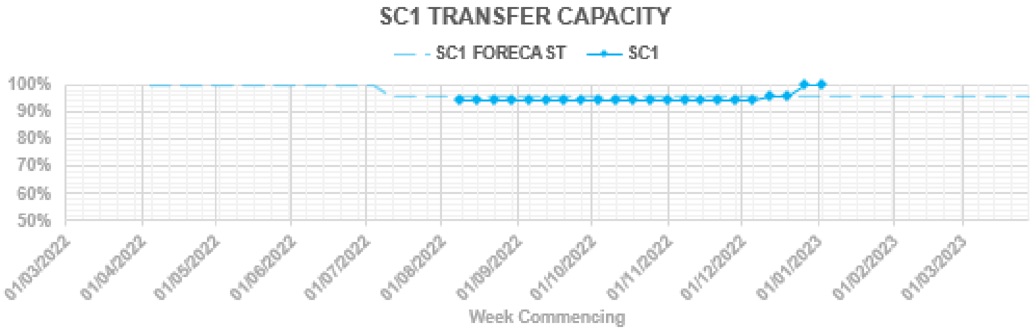

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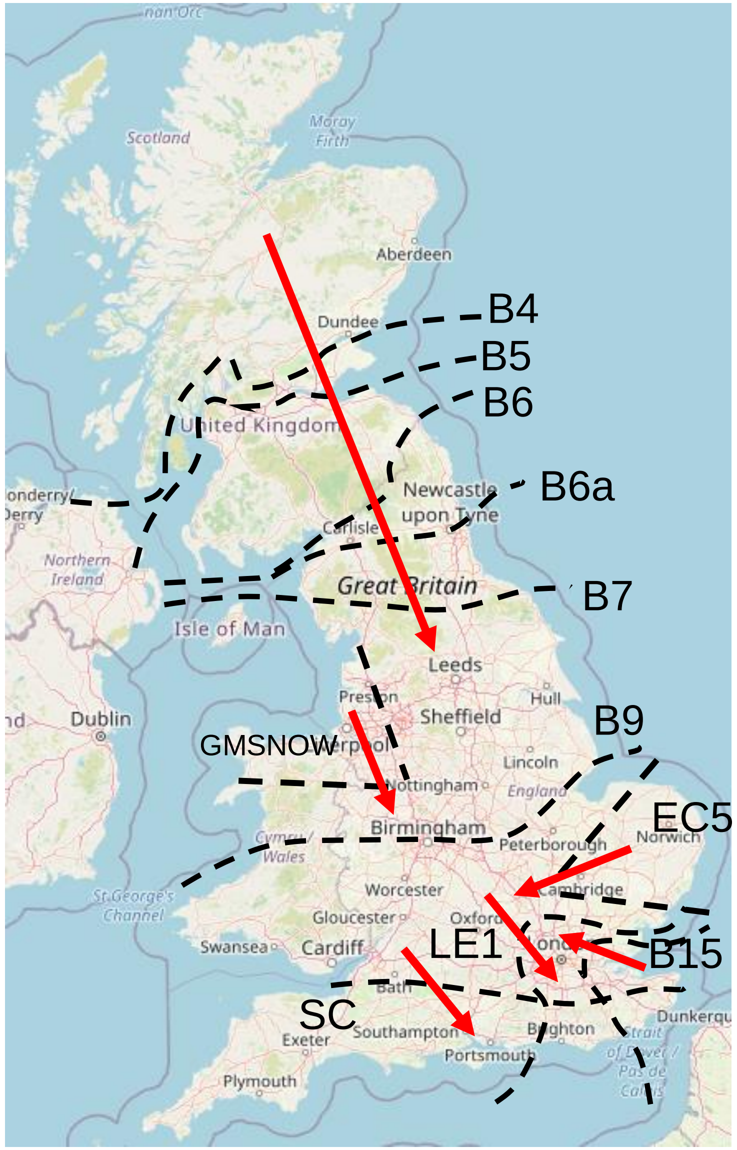

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https://data.nationalgrideso.com/data-groups/constraint-management

Previously asked questions

Q: Please can I request a deep dive into Quick Response and Slow Response services that are due to roll out later this year?

A: Thank you for this feedback – we have reprioritised our market reform delivery plans due to winter readiness and operational activities. We will return back to the OTF with an update on reserve reform in the future.

Q: I am not asking specifically about a unit - am asking where we can find data to show an interconnector is about to deviate from its FPN's in the space of time between gate closure and market closure.

A: ESO trades are all made ahead of the IC nomination gates (which are 1h and 10mins ahead of real time). All the trades that we make are published on BMRA and the data portal in trades and upcoming trades.

Any changes in interconnector positions within gate that are driven by the ESO would be control using EI or EA. Information about EI and EA is published on BMRS system warnings.

Deviations made by an interconnector away from an FPN that are not driven by ESO control actions are not known to us until they happen.

Previously asked questions

Q: 23, and Tues 24 Jan, reports were that ESO instructed the demand turn down service. Please could you share an estimate of the MW demand reduction that was observed?

A: Yes, ESO plans to update our DFS Live Utilisation Report on the Data Portal once data becomes available. Measurement and delivery data for Settlement purposes is shared with the ESO on a weekly basis. Generally, the data for a service week should be sent by the second Monday following the end of the service week (i.e., 8 calendar days after the Sunday).

Q: If DFS has such long lead-times that it leads to locking in significantly higher costs than the BM, then how is this an improvement?

A: The lead time for DFS is one aspect of the service design we have had to compromise on in order to create this route to market for this winter; it would be one of the key aspects of the service that would require improvement should such a service become part of our every day actions. The DFS service is a contingency product that was developed at pace to ensure we maintain security of supply.

Previously asked questions: Demand forecast updates

Q: Ref 2-52 week demand forecast, the forecast for weeks 13 and 14 were recently revised down significantly and are now 4-5 GW below last year's outturn. The forecast for week 14 is also lower than week 20 which is at odds with the historic data. What was the reason for this change?

We observed impact of electricity prices and the cost of living pressure on the demand levels in the winter months. Further to this we needed more information about support schemes introduced by the government and Ofgem's price cap.

We have also, as we always do at this time year, completed work on summer demand forecasting models (BST 2023).

This new information is incorporated in our 11 weeks ahead forecast, published once a week. It is a refresh of [2-52 data] capturing data between week 2 and 11. We are in the process of revising the complete data up to 52 weeks ahead.

The last update of the full data set of 2-52 week ahead demand forecast was published before Christmas. It covered time period up to December 2023.

The 2-11 week ahead available on 26/01/2023 captured time period up to the end of week 14, i.e. 03-09 April 2023. This data used the latest forecast models and demand levels expected in the summer 2023.

Data beyond week 15 was same as per Demand publication.

Energy Forecasting team is going to publish reviewed full data set of 2-52 week ahead this week.

Advance questions

Q: In your Operability Strategy Report you state Damhead Creek 2 is a candidate for largest in feed loss, the project is made of multiple (3) gas and steam turbines, what makes it the largest in-feed loss unlike other larger CCGTs? Eurolink is another candidate, how does being a multi-purpose interconnector affect the calculation of largest in feed loss?

A: In the OSR we have shown a timeline of the yearly largest loss connecting to the network. There may be several losses of that magnitude connecting, but to simplify the timeline we have chosen to show one for each year.

Whether a connection is classed as a credible loss or not depends on the connection to the network and configuring of the station. Damhead Creek two will likely have a connection agreement that means we could lose 1800MW for a certain network fault. Eurolink will likely be one of several large losses connecting in 2029. Eurolink is a multi-purpose interconnector, but regardless of where the generation is coming from (another country or generation connecting to the interconnector directly), we will still see a maximum transfer of 1800MW. Therefore, if a certain fault occurs that disconnects Eurolink then we will experience a loss of up to 1800MW in either import or export direction. This would make Eurolink the joint largest loss on the network, alongside Damhead Creek two and potentially other new large connections.

Questions we are still working on

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.

Questions we are still working on

Q: NG value flexibility, but don't necessarily pay for it.eg flexible assets left as reserve on a tight day. what is being done to address this?

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.

Dispatch Transparency Event Q&A Update – Answered Questions

Q: Please can you share these slides

A: The slides have been uploaded here: https://www.nationalgrideso.com/document/273316/download

Q: Please could dates when functionality that will become part of OBP be deployed in ORT/SPICE be published so we can look for step change changes in behaviour?

A: Details of the Balancing Programme delivery timeline are shared as part of the regular quarterly engagement events where we update the industry on what our Balancing Programme have been delivering. More details are available at: https://www.nationalgrideso.com/industry-information/balancing-services/balancing-programme

Q: Do you foresee adding more tags for non-system actions that allow market participants to understand the reason behind an out-of-merit BOA?

A: There are no plans at present to change the tagging categories

Q: Can we increase the question character limit please? Not many characters for a complex topic!

A: Unfortunately, we are constrained by the limitations of Sli.do. We will look in to whether it is possible to increase the character limit for future events. We welcome your suggestions for alternative tools we could use

Dispatch Transparency Event Q&A Update – Answered Questions

Q: How does the current lack of live knowledge around state of charge of battery storage impact how batteries are used in BM compared to other assets?

A: Not a significant impact at the moment, which is facilitated by the 15-minute MEL rule. As growth of storage of all types continues to grow, efficient dispatch is likely to require more information about the state of energy.

To support this the Balancing Programme is working with their Storage Stakeholder group. They will welcome your input to ensure we develop plans that are ambitious, achievable, and have considered the priorities of our stakeholders. If you would like to join us, please email us at: box.balancingprogramme@nationalgrideso.com

Q: Live question around MFR contracts – have we armed small units?

We publish information about all instructed MFR volumes every month on our website Mandatory response services | National Grid ESO

Q: How will N-side and the new EAC impact small asset dispatch and optimisation?

A: The new Enduring Auction Capability developed with N-Side will allow the ESO to optimise procurement of response and reserve, and simplify the submission process for providers as they will not need to choose which market to enter but will be able to submit prices for all eligible co-optimised markets. This will change the procurement process of ancillary services, and minimise the chance of service requirements not being filled, but won't impact the size of participants in the market and so we don't see this having a direct impact on the dispatch of small assets.

Q: Batteries aren't always expensive! Some batteries actively price ahead of the pumps

A: Yes – we are working on the tools available to the energy team to make the most use of this capacity.

Dispatch Transparency Event Q&A Update – Answered Questions

Q: Are all system flagged actions set aside? Within a constraint, actions should still be economic and not skipped.

A: System flagged actions are taken in an economic order.

Within an active constraint, available units are not skipped by default of being within that constraint, but decisions on taking actions need to consider the impact on managing the constraint and the total costs including any additional actions required. There are seceral times of constraint, not just thermal export ones – so the actions required, and subsequent cost, will depend on this.

We would caution using the Dispatch Transparency tool in isolation for determining this - the available data does not support reliable interpretation of this situation and should be considered with wider data inputs for a full view.

Q: Which of the scenarios discussed by Jean are expected to be answered by Bulk Dispatch?

A: Our first release of Bulk Dispatch will allow multiple instructions, in one step, to be sent to small BMUs. This will alleviate control room workload. These instructions are optimised while obeying dynamic parameters.

Before the release of Bulk Dispatch, we are also making changes to existing tools to reduce workload.

Q: Is the distributed resource desk still in operation?

A: We believe this question refers to a desk to manage despatch of small BMU units. If that’s the case, this was a temporary measure (put in place a number of years ago) for us to gain more understanding of the despatch of small units.

Our understanding has increased since then, as have the number of assets and while we don’t have this as a permanent resource, we do assign additional resource for days which are forecast to be more operationally challenging for a number of reasons.

Dispatch Transparency Event Q&A Update – Answered Questions

Q: Running a unit at sel for mnzt/delay desynch is an option payment for reserve. Payments unavailable to flex with better dynamics. Is this a market design flaw?

A: NGESO is currently developing the Balancing Reserve service which will allow us to buy the reserve capacity currently accessed in real time through the Balancing Mechanism at day ahead instead. As energy instructions are therefore not needed to position the plant to be able to deliver the reserve, we expect that this service will allow flexible providers to be valued through availability payments.

Q: How are you going to measure the performance of the new dispatch tools? Shouldn't this be done by a third party?

A: Before we go live, we are carrying out extensive testing of new tools by comparing to our existing algorithms. To date we have taken a number of historic days and carried out a comparison but before we go live, we will be running new tools in “shadow” mode so that we can compare the tools over an extended period.

Q: If a unit has found to have been truly ‘skipped’ should it be entitled to compensation?

A: Events like today are crucial to give us insight into the industry’s view on our activities and many of the discussions today have come down to the understanding of “skips” and “true skips”.

We introduced the dispatch transparency dataset to allocate reasons to those actions not taken in merit order and the reasons for this. We know that at times we can’t allocate a reason to these skips and the dataset shows this is consistently below 1% of the actions taken in any month.

We do not determine whether a skip is “true” for each day (given the a small percentage of reason unallocated actions), however assurances around our despatch and BM processes are given through the Balancing Principles Statement and Balancing Mechanism Audits.

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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