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’
To ask questions live and provide us with post event feedback go to Sli.do and join event code #OTF.

- **Ask your questions as early as possible** as our experts may need time to ensure a correct answer can be given live.
- **Please provide your name or organisation.** This is an operational forum for industry participants therefore questions from unidentified parties will not be answered live. If you have reasons to remain anonymous to the wider forum please use the advance question or email options given on the next slide.
- **Questions will be answered in the upvoted order whenever possible.** We will take questions from further down the list when: the answer is not ready; we need to take the question away or the topic is outside of the scope of the OTF.
- **Sli.do will remain open until 12:00**, even when the call closes earlier, to provide the maximum opportunity for you to ask questions.
- **All questions will be recorded and published.** Questions which are not answered on the day will be included, with answers, in the slide pack for the next OTF.

Stay up to date on our webpage: [https://www.nationalgrideso.com/OTF](https://www.nationalgrideso.com/OTF)
Future deep dive / focus topics

Today
Transmission Network Development – 25th October – this will cover questions not covered in the constraints focus topic

Future
Margins overview – 1st November
Scottish Oscillations – 8th November

If you have suggestions for future deep dives or focus topics please send them to us at: box.NC.customer@nationalgrideso.com and we will consider including them in a future forum
Enduring Auction Capability

The EAC platform officially launched on Thursday 19th October at 08:00, this is when the gate for bid submissions opened ahead of the first auction taking place on Thursday 2nd November at 14:00.
ESO Markets Forum - Reminder

Please don’t forget to sign up for a space at our upcoming Markets Forum. The day will include an optional breakout session on transmission charging aimed at people new to the industry, followed by the main event on our key priorities with breakout sessions and an industry panel in the afternoon.

**Date:** 8th November (in person event only)

**9am: Breakfast session (optional)** - Building blocks of transmission charging

**10am-4pm: Main event** - An overview of our key market priorities, collaborative breakout sessions, industry panel session, Q&A concluding with optional post event networking

**Location:** Park Plaza Hotel, Westminster Bridge, London

We are delighted to confirm our industry panel for the session in the afternoon (further guest to be confirmed).

Bridgit Hartland-Johnson  
Chief Specialist for System Integration at Orsted

Karl Byrne  
Director of the Climate Infrastructure Group at BlackRock

Rebecca Sedler  
Managing Director at National Grid Ventures

Merlin Hyman  
Chief Executive of Regen

Dr Robyn Lucas  
Director of Analytics at Modo Energy
EBR Article 18 Consultation for Balancing Reserve

Please note that the EBR Article 18 Consultation for Balancing Reserve closes at **17:00 this Thursday 26 October 2023**.

Balancing Reserve consultation documents can be found on our website via the link / button below:

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

Other supporting documentation is also provided.

Please review the documentation and provide your responses using the Consultation Proforma. Your response should be sent to: box.futureofbalancingservices@nationalgrideso.com, and please use ‘Balancing Reserve Consultation Response’ in the return subject line.
Focus on Enhancing Energy Storage in the Balancing Mechanism

On 16 October, we welcomed over 75 stakeholders from across the energy industry to our ‘Enhancing Energy Storage in the Balancing Mechanism’ event where we outlined our plan to enhance the use of storage assets in our balancing activities and the timelines to achieve this.

A key focus of the event was to explore, in strong collaboration with industry, how to co-create and develop the capabilities and future market design solutions that will enable efficient dispatch of all assets in the Balancing Mechanism, in line with our net-zero ambitions.

We also discussed the need for enhanced dispatch transparency and to achieve a ‘common language’ with industry in this regard. To support the creation of this, we’ve commissioned LCP Delta, an independent expert, to help us build an enhanced dispatch transparency dataset that will provide a deeper understanding of operational actions in the control room and drive improvement opportunities.

To view the full timeline of our balancing activities, and view the event slides and Q&A, visit:

Enhancing Energy Storage in the Balancing Mechanism | ESO (nationalgrideso.com)

How to keep informed

The feedback we received from stakeholders will be used to continue developing our plans. Look out for our follow-up event in December where you can hear the outputs and next steps from LCP Delta’s analysis.
Focus on Enhancing Energy Storage in the Balancing Mechanism

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Dispatch Data Transparency
Using independent expert analysis, we will build an enhanced Dispatch Transparency Data Set to provide a deeper understanding of operational actions in the control room and drive improvement opportunities in collaboration with industry – December 23 (analysis and methodology)

Enhanced system and process capabilities
In line with the transition to our new Open Balancing Platform (OBP), we will review and enhance our control room processes and training to enable greater use of Storage assets in our balancing activities – December 23

Enable new Energy Storage parameters
We will facilitate the industry agreement of new parameters to enhance use of storage in the (Balancing Mechanism) BM and will deliver the integration of these in our systems and processes – April 24 (SCADA) and December 24 (EDL/EDT)

Co-create future capability and market solutions
We will work with you to co-create a plan to develop the capability and future market design solutions that will enable efficient dispatch of all assets in the BM - Starts today (ongoing review with industry)

A follow-up event will be held in December and details will be confirmed once this has been arranged.

Contact the team at box.futureofbalancingservices@nationalgrideso.com

View the slides and Q&A
Progress Update: Local Constraint Market Scotland

The LCM was established to save overall costs for the consumer on actions at one of the Boundaries with highest total spend.

LCM Trials have invited bids since April – >50 Competitions run; 1 MW tendered (average levels) Thank you to our Stakeholders for all the valued feedback.

- **LCM Aims at lower cost** vs. the balancing mechanism (BM). *This update is about cost savings*
- **LCM is used** when wider operational data shows it could be operationally safe and effective
  Some BM units pay ESO to turn down - many more low priced (>1GW below -£50 /MWh)
  In practice, LCMs need prices below the BM VWA price (Limited by confidential trading cap)
- **LCM Providers** so far tendered volume at > -£170 /MWh on average (-£60 to over -£300)
- **October**: moved to Operational Pricing trials: bids that makes savings vs. BM can be accepted

*Today’s update* is responding to stakeholder feedback asking for ESO to say more about the price of BM volumes which would be considered as the competition that LCM needs to beat to save cost.

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

Ahead of implementing longer-term Regional Development Programmes (RDP) across Scotland, a tactical solution may ease rising constraint costs on GB’s most congested boundary, if it can use Distributed Energy Resources (DER). Anglo-Scottish (B6) boundaries show some of the highest constraints of any GB boundary and these are set to increase. LCM specifically targets B6 constraint costs as an interim solution.. and may be help at B4 too.
What’s new?

LCM transparency about Price data

- **LCM new report** - sharing sample data about BM prices

- **Aimed at LCM Stakeholders** & questions about LCM prices to-date:
  BM data can be hard to analyse.. What prices do our assets try to beat?
  Can you clarify what ESO needs to be able to make consumer savings?

- **ESO has responded**, publishing an [FAQ and a sample of BM prices](https://www.nationalgrideso.com/industry-information/balancing-services/local-constraint-market), selected on days since 2020 when B6/B4 constraints were more active

- As a trusted partner we want to sustain **open dialogue** with providers, for inviting distributed assets to deliver real cost savings at key constraints

Feedback and ESO updates on a constraint-saving service in Scotland can be via this website:

[https://www.nationalgrideso.com/industry-information/balancing-services/local-constraint-market](https://www.nationalgrideso.com/industry-information/balancing-services/local-constraint-market)
Planning a Network for the Future
Paul Wakeley
The GB Network has facilitated the transition to a high quantity of low carbon generation well over the last decade. However, the network now has some significant ‘pinch points’ where there is not enough capacity to flow the network the market would like to.

1. Generation location is a customer choice
2. Connect and Manage, explicit choice to connect ahead of wider works
3. Time to build wider transmission network is generally longer than build generation
How we historically consider future network

1. Collect input from FES
2. Identify future transmission capability requirements
3. TOs identify future transmission solutions
4. Conduct technical studies and Cost Benefit Analysis of options
5. Select recommended options and assess for competition
6. Publish the NOA report
7. TOs deliver assets, with Regulatory approval
8. Publish the ETYS report
But the world is changing fast....

The UK Government has an ambition for 50GW offshore wind by 2030. 100GW + maybe needed to achieve net zero by 2050.

Source: National Grid ESO Future Energy Scenarios, July 2023
The Holistic Network Design is a first and significant step in centralised strategic network planning

• The holistic network design helps get Great Britain towards achieving the ambition of **50 GW of offshore wind by 2030**.

• **A first of its kind, integrated approach** for connecting 18 in scope offshore wind farms (23 GW) to Great Britain and transporting the electricity generated to where it will be used.

• **Balances the four objectives** of cost to consumers, deliverability and operability and impact on the environment and on communities.

• Includes **£54 billion network investment** onshore (£22bn) and offshore (£32bn).

• The HND Follow Up Exercise is considering an additional **21 GW of ScotWind**, which was not in scope for the initial phase.

• It is also considering an **additional 4GW of floating offshore wind projects** anticipated in the **Celtic Sea**

2030 Indicative Grid
Future network planning will be met by a ‘Centralised Strategic Network Plan’ (CSNP)

Identify and progress ‘strategic investments’ linked to Net Zero

Ensure onshore and offshore networks (including interconnection), are planned together

Environmental and community factors earlier in planning process alongside economic

Third parties and non-network solutions assessed fairly and transparently against network solutions
Independent recommendations from the UK’s Electricity Networks Commissioner, Nick Winser, on how to accelerate the deployment of electricity transmission infrastructure. Government response expected later this year confirming what they are taking forward and how

Accelerating electricity transmission network deployment

Key recommendation areas to reduce deployment of network from around 14 to 7 years:

• Enhanced planning with spatial strategic energy plan (including large generation and demand), and centralised strategic network planning
• Standardisation and automation of assets and designs
• Reform of the planning process, onshore and offshore
• Improved data sharing
• Improved outage planning
• Review of skills and jobs
• More oversight and accountability in delivery
Thank You
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.
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Constraints and Reserve costs were the key cost component for the week.

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

**Data issue:** Please note that due to a data issue on a few days over the last few months, the Minor Components line in Non-Constraint Costs is capturing some costs on those days which should be attributed to different categories. It has been identified that a significant portion of these costs should be allocated to the Operating Reserve Category. Although the categorisation of costs is not correct, we are confident that the total costs are correct in all months. We continue to investigate and will advise when we have a resolution.
ESO Actions | Constraint Cost Breakdown

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

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

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

Increasing inertia
Intervention was required to manage System Inertia throughout the week except on Monday.
ESO Actions | Monday 16 October – Peak Demand – SP spend ~£268k

ESO Actions | Friday 20 October – Minimum Demand – SP Spend ~£412k

Date: 20/10/2023
SP: 9

ESO Actions | Saturday 21 October – Highest SP Spend ~£512k

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
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<tr>
<th>Boundary</th>
<th>Max. Capacity (MW)</th>
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<tr>
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<tr>
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<td>SC</td>
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</tbody>
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Day ahead flows and limits, and the 24-month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management
Previously Asked Questions

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

A: Across 2023 to date (5th October), export constraint management costs of approx. £600M have been incurred, of which 20% was the direct costs of BM acceptance to reduce output on units and 80% was the ‘efficient price’ to increase output (‘turn on’ costs) on other units. No action is directly attributed to replacement of energy for the turn down action itself given the nature of system requirements where the net imbalance position post system actions is what needs to be resolved.

It is true that both cost elements include components which would flow through into the efficient cost of energy delivery irrespective of BM intervention. For turn-down actions, subsidy payments based upon metered output (where this turn down is on subsidised units) do not occur, net reducing the cost of the decrease action compared with the BM price itself, and for the increase actions, had the energy not been delivered by the resource, so the increased unit price would have been paid in a forward market.

Reported figures aim to show the total additional costs incurred from the system constraint existing rather than a counterfactual to the market resolving the issue. Therefore, it is important to use the direct BM costs or the total cost (both of which are reported in the MBSS) appropriately according to your use case.
Previously Asked Questions

Q: What are the api endpoints for the new EAC auction results?

A: These are the end points but they will not work until the first action is run on 2nd November and results made available.

https://api.nationalgrideso.com/api/3/action/datapackage_show?id=eac-auction-results

EAC ESO Results Summary 2023 - 2024

https://api.nationalgrideso.com/datastore/dump/596f29ac-0387-4ba4-a6d3-95c243140707

EAC ESO Sell Orders 2023-2024

https://api.nationalgrideso.com/datastore/dump/13b511df-d6ec-4143-afb1-0ecc6fd19810

EAC ESO Buy Orders 2023-2024

https://api.nationalgrideso.com/datastore/dump/1cf68f59-8eb8-4f1d-bccf-11b5a47b24e5

EAC ESO Results By Unit 2023-2024

https://api.nationalgrideso.com/datastore/dump/a63ab354-7e68-44c2-ad96-c6f920c30e85
Previously Asked Questions

Q: Why does ESO bid wind for energy at -£152, opposed to using batteries, who may be priced £0 to -£50? Even if only for an hour, it would save a significant amount if they were utilised. This often results in imbalance prices being far lower than battery's bid prices, this shouldn't happen.

A: Thank you for this question. It would be helpful to have an example of a specific occasion we can look at to ensure we provide you with a full answer. Please email us at box.NC.customer@nationalgrideso.com referencing this question and we will ensure the answer is included at a future OTF.
Advanced Questions

Q: On 17th October at 13:22 a BMRS System Warning was published informing the market that the ESO had requested a TO to discontinue an outage within the relevant Emergency Return to Service time. Which boundary constraint was this instruction intended to relieve, how much extra boundary transfer capacity was it hoped it would provide and when did the extra boundary transfer capacity become available?

A: ESO does not publish information on specific constraints and there are currently no plans for this to change.

Q: Can you explain why INDQ-1, PETEM1 and CHICK-1 were all rejected in STOR for the 25/10/2023 despite their availability prices being substantially lower (£0-£0.20 availability price) than that of other competitors in the market (£2.34 clearing price)?

(This question was received after the deadline for advanced questions and will be included in next week’s pack)
Outstanding questions

Q: Is DC, DR and DM provision performance routinely checked based on the data you receive as part of the service terms, can you provide a summary of the overall performance? Thanks Christopher

A: We have received clarification on this question this morning and will provide an answer in a future OTF.

Q: The DC procurement forecast history (and probably other) dataset has recently been given two different date formats. Could NGESO consolidate on one date/datetime format? It would make data handling with your date much easier. Thank you:

A: We have reached out via email as we cannot see any differences in formatting in the dataset we believe are you referring to.

Q: you are buying more and more inertia which is understandable with so much a-synchronous plant replacing sync. gen on the system. But how much of this is from the Stability PF contracts & how much BM? You said you'd publish these contracts/utilisation and are they in your total weekly Bal. cost?

A: We have referred this question to the appropriate team and will provide a response in a future OTF.

Q: Friday 13th October there was around 2GW to 5GW of pumped/peakers/hydro units priced around £150 to £300 utilised in the BM from 3pm until midnight (totalling over 20GWh). Batteries were priced around £20-140, at times even creating arbitrage opportunities. Yet were never utilised. Why?

A: We are currently investigating this and will provide an answer at a future OTF.
Reminder about answering questions at the ESO OTF

- **Questions from unidentified parties will not be answered live.** If you have reasons to remain anonymous to the wider forum please use the advance question or email options. Details in the appendix to the pack.

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- **Takeaway questions** – these questions will be included in the pack for the next OTF, we may ask you to contact us by email in order to clarify or confirm details for the question.

- **Out of scope questions** will be forwarded to the appropriate ESO expert or team for a direct response. We may ask you to contact us by email to ensure we have the correct contact details for the response. These questions will not be managed through the OTF, and we are unable to forward questions without correct contact details. Information about the OTF purpose and scope can be found in the appendix of this slide pack.
Audience Q&A Session
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
Purpose

The Operational Transparency Forum runs once a week to provide updated information on and insight into the operational challenges faced by the control room in the recent past (1-2 weeks) and short term future (1-2 weeks). The OTF will also signpost other ESO events, provide deep dives into focus topics, and allow industry to ask questions.

Scope

Aligns with purpose, see examples below:

In Scope of OTF

- Material presented i.e.: regular content, deep dives, focus topics
- ESO operational approach & challenges
- ESO published data

Out of Scope of OTF

- Data owned and/or published by other parties e.g.: BMRS is published by Elexon
- Processes including consultations operated by other parties e.g.: Elexon, Ofgem, DESNZ
- Data owned by other parties
- Details of ESO Control Room actions & decision making
- Activities & operations of particular market participants
- ESO policy & strategic decision making
- Formal consultations e.g.: Code Changes, Business Planning, Market development
Managing questions at the ESO Operational Transparency Forum

- OTF participants can ask questions in the following ways:
  - Live via Sli.do code #OTF
  - In advance (before 12:00 on Monday) at https://forms.office.com/r/k0AEfKnai3
  - At any time to box.NC.Customer@nationalgrideso.com

- All questions asked through Sli.do will be recorded and published, with answers, in the Operational Transparency Forum Q&A on the webpage: Operational Transparency Forum | ESO (nationalgrideso.com)

- Advance questions will be included, with answers, in the slide pack for the next OTF and published in the OTF Q&A as above.

- Email questions which specifically request inclusion in the OTF will be treated as Advance questions, otherwise we will only reply direct to the sender.

- Takeaway questions – we may ask you to contact us by email in order to clarify or confirm details for the question.

- Out of scope questions will be forwarded to the appropriate ESO expert or team for a direct response. We may ask you to contact us by email to ensure we have the correct contact details for the response. These questions will not be managed through the OTF, and we are unable to forward questions without correct contact details. Information about the OTF purpose and scope can be found in the appendix of this slide pack.