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# ESO Operational Transparency Forum

22 Sep 2021

nationalgridESO

# Introduction | Sli.do code #OTF

**Following your feedback, we are continuing to use Slido and Microsoft Teams. 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. You can also ask questions using the normal chat function.

These slides, event recordings and further information about the webinars can be found at the following location:
https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials

## Regular Topics

- Questions from last week
- Business continuity
- Demand review and outlook
- Costs for last week
- Constraints

## Additional topics for this week

- Deep dive into system flags criteria and response efficiency
- Trading transparency update

# Questions outstanding from last week

**Q: How do you account for batteries in the SOP?**

A: All small BMUs are included in the System Operating Plan (SOP) in the same way as any other BMU. They are scheduled and dispatched in economic order.

**Q: The expenditure estimate for September in the BSUoS forecast published yesterday is significantly higher than that in the August forecast but there is no explanation. Will it be re-issued with an explanation?**

A: We publish the BSUoS forecast ahead of the month in question, ie. the September forecast is for October onwards. The September figures published last Tuesday 14 September include actual data for all the days processed so far. For details on the costs incurred so far in September please see the daily reports published on the portal.

**Q: At what point do you expect to vary DC LF demand by EFA block? I understand that you are preparing a transition plan as announced in previous balancing update newsletter.**

A: This is in progress and under review at NGESO. The next market information report (MIR) is due to be released on 24th September which will contain more information on DC volumes

**Q: Is there a source for seeing planned NorthSeaCable flows? I.e. can we see somewhere what the flows for the rest of today and/or tomorrow?**

A: Yes this they put their planning commission flows on REMIT section of BMRS.

**Q: Is there any mechanism that prevents final PNs being withdrawn and those same generators not being permitted to operate in the same period for which the PN related to?**

A: PNs can be changed anytime up to gate closure. After that, any change in MW output will need to be reflected in MEL submissions.

# Questions outstanding from last week

**Q: Could you explain what led to yesterday (Tuesday 14 September) being a high cost day? (~£22m in the BM)**

A: This was a similar story to the system issues faced during the previous week. Tight margins and high cost actions required to be taken to meet our operating margin and reserve levels.

**Q: September BSUOS outturn for September is up almost 25% on expected. Does the current BSUOS forecast account for the impact of high gas prices for the rest of the winter?**

A: Yes, the BSUoS forecast published last Tuesday 14 September has taken account of the high prices that we have been seeing. Further work to improve our forecasts is underway

**Q: Could you tell me please which units (or type) were used to provide the Reserve power sent to help Ireland? Were they large thermal or smaller units?**

A: The marginal unit at the time was the unit used to meet the trades we took with Ireland. On the day this was one of the West Burton units.

**Q: If there is margin via cold coal units that National Grid doesn't warm, and then there are subsequent trips tightening the system can a CMN be issued even if the margin would have been fine if the coal units were warmed and offered on?**

A: Yes the calculation only includes availability that can still be accessed at that lead time, so if the time has passed to warm a unit and bring it on, then its MEL contribution would not be included and could lead to a CMN being triggered if the margin calculation was then below 500MW.

# Questions outstanding from last week

**Q: In the margin example, would the CMN not be issued at 4 hours out rather than 1 hour as suggested in the text box & arrows?**

A: Yes thank you - it would be issued at the point where the calculated margin was below 500MW at 4HA, so in the example, it's where the dotted line crosses the 4HA lead time. We've corrected the arrow and updated the slide pack on the portal.

**Q: We've seen several changes to system warnings over recent years. Is it time to stop tweaking the warnings to suit wider market understanding, and just concentrate on improving wider market understanding (as Richard has just done)?**

A: We are not planning any changes to the system warnings at the current time, and are focussing on improving wider market understanding and communications.

**Q: Has the new DC auction gone as planned?**

A: Yes, the first auction has gone as planned on 15th September with no issues. NGESO have also posted the market results on the data portal. EPEX will now run the DC auction on a daily basis at 10:00 each day, with full market results posted by NGESO each day no later than 14:30

**Q: On 10/09, BSAD volumes up to £1,570 were bought by NGESO on HH14-24 and tagged as STOR providers. Can you provide more information about these?**

A: These are non-BM STOR actions used to meet our reserve requirements in real-time.

# Questions outstanding from last week

**Q: Q. for SP18 today (15.09). ESO are accepting quite a lot of BSADs offers these days. Example: SP18 today, where 124MW of BSADs offers has been accepted. Who are providing these offers? Why publishing after the end of SP? Can we be informed about these actions during the SP in delivery?**

A: BSAD data is sent to Elexon in line with the timescales detailed in the Balancing and Settlement Code, section Q. The offers referred to will have been Fast Reserve or STOR and these are instructed post gate closure. As these are instructed for an open-ended time these can only be notified once the end of the settlement period has finished and the duration they are used for is known. As an example, an instruction may be sent at 09:54, the control room may then cease the instruction at 10:15. Only at this point is the duration of the instruction known in order to provide the data.

**Q: What's happened to the real-time inertia project that was due to go live in Aug. from the two service providers (Reactive and GE)? Can the ESO provide an update and also on the FRCR update to operate at lower than 140GVAs?**

A: Both tools are due to commission by the end of October after delays due to hardware issues. Both tools are first of their kind installations having arisen out of innovation projects, we therefore need a period of time to assess the data being measured by both to understand the accuracy. We anticipate the tools being operationally available by April 2022. At this point we will focus on data publication externally. As part of FRCR 2022 we are planning to review the impact of lower minimum inertia levels below the current 140GVA.s level. This will take into account other factors and constraints that impact the minimum level of inertia the system can operate at.

**Q: At what point does expected flows to IRL associated with the TSO trades feed into forecast demand?**

A: This will feed into the Transmission System Demand as soon as the trades are agreed between the system operators and a new reference programme detailing the flows is received. This is an automated process managed in the BM systems.

# Future forum topics

**While we want to remain flexible to provide insight on operational challenges when they happen, we appreciate you want to know when we will cover topics.**

**We have the following deep dives planned:**

Deep dive into how Carbon Intensity is calculated - 29 September 2021

**You also requested the following updates and we have provided links here to the latest information:**

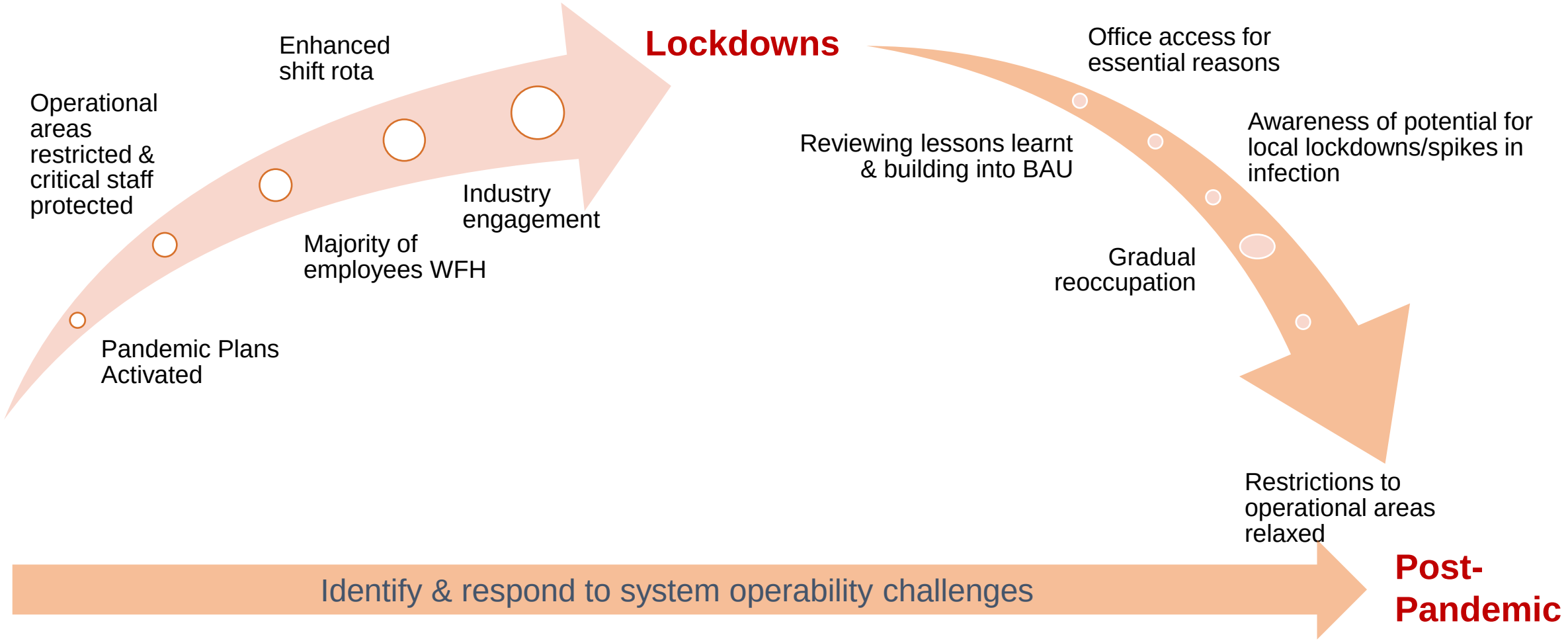
Stability Pathfinder Phase 2 update

The feasibility study stage for phase 2 concluded in August 2021. As per our tender timeline, the TO connections review is currently ongoing. We aim to publish the Invitation to Tender pack during October or November 2021.

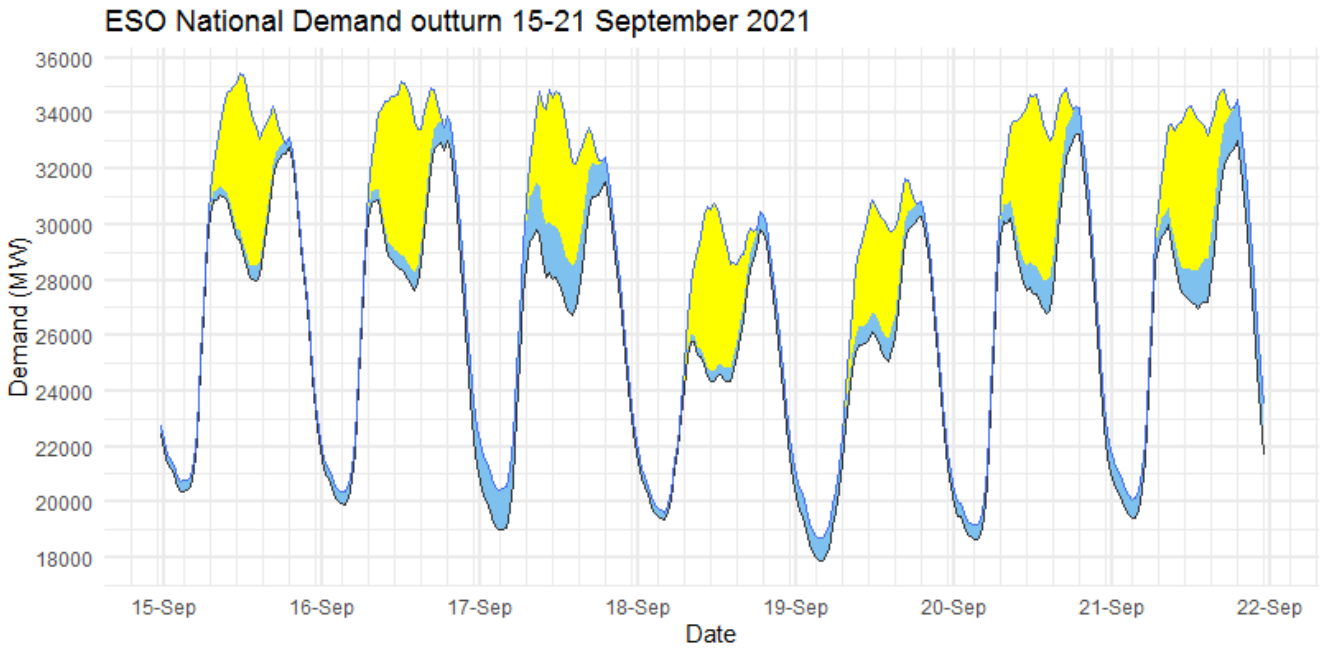
Stability Pathfinder Phase 3 update

We have launched the NOA Pathfinder Stability Phase 3 pre-tender information and are seeking both feedback and expressions of interest from the market.

# Protecting critical staff to maintain critical operations



# Demand | Last 7 days outturn



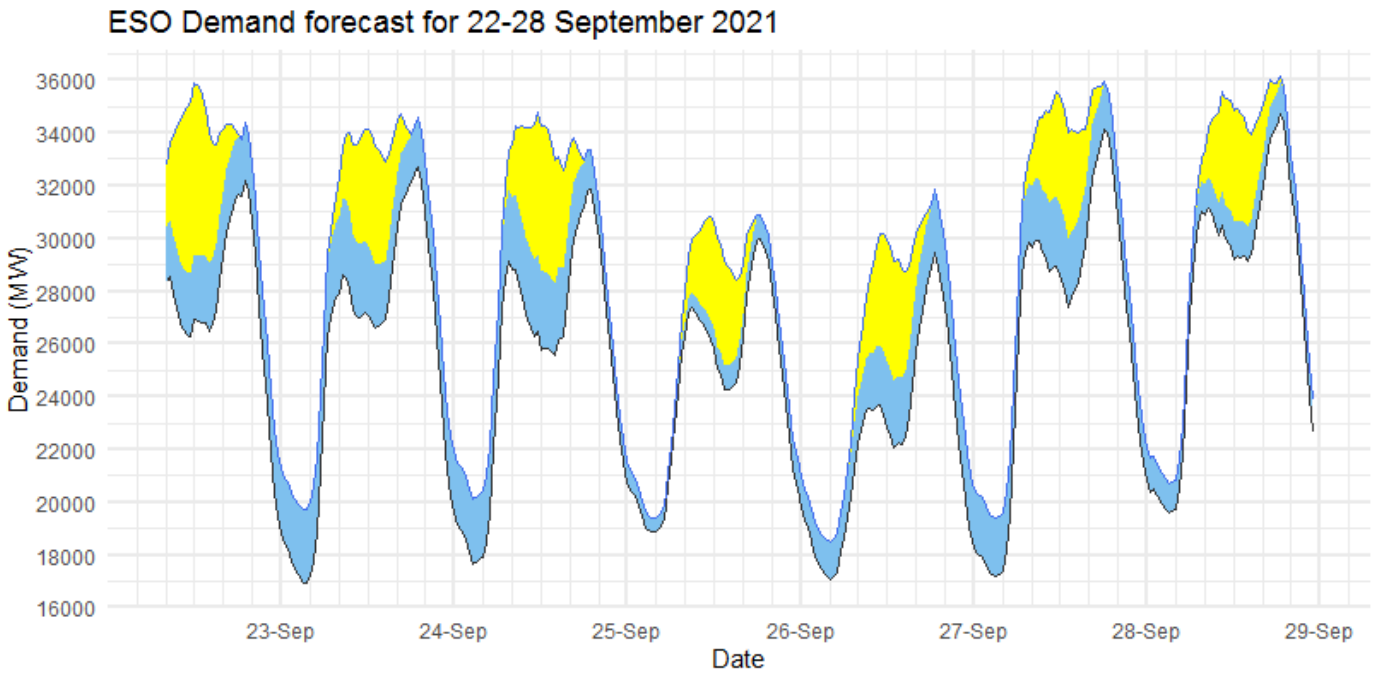

The black line (National Demand) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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 15 Sep) | | | OUTTURN | | |
|---|---|---|---|---|---|---|---|
| Date | Forecasting Point | National Demand (GW) | Dist. wind (GW) | Dist. PV (GW) | National Demand (GW) | Dist. wind (GW) | Dist. PV (GW) |
| 15 Sep | Afternoon Min | 29.2 | 0.4 | 4.8 | 28.0 | 0.5 | 5.0 |
| 16 Sep | Overnight Min | 19.9 | 0.4 | 0.0 | 19.9 | 0.4 | 0.0 |
| 16 Sep | Afternoon Min | 29.0 | 0.5 | 4.7 | 27.6 | 0.7 | 5.4 |
| 17 Sep | Overnight Min | 19.3 | 1.4 | 0.0 | 19.0 | 1.5 | 0.0 |
| 17 Sep | Afternoon Min | 27.3 | 2.0 | 3.4 | 26.7 | 1.8 | 3.8 |
| 18 Sep | Overnight Min | 18.9 | 0.9 | 0.0 | 19.3 | 0.3 | 0.0 |
| 18 Sep | Afternoon Min | 23.0 | 1.0 | 3.8 | 24.3 | 0.5 | 3.7 |
| 19 Sep | Overnight Min | 17.5 | 1.3 | 0.0 | 17.9 | 0.8 | 0.0 |
| 19 Sep | Afternoon Min | 23.2 | 1.6 | 3.8 | 25.1 | 0.8 | 3.9 |
| 20 Sep | Overnight Min | 18.3 | 1.3 | 0.0 | 18.7 | 0.5 | 0.0 |
| 20 Sep | Afternoon Min | 27.3 | 2.0 | 4.2 | 26.8 | 1.2 | 5.3 |
| 21 Sep | Overnight Min | 19.1 | 1.7 | 0.0 | 19.4 | 0.7 | 0.0 |

Sli.do code #OTF

# Demand | Week Ahead

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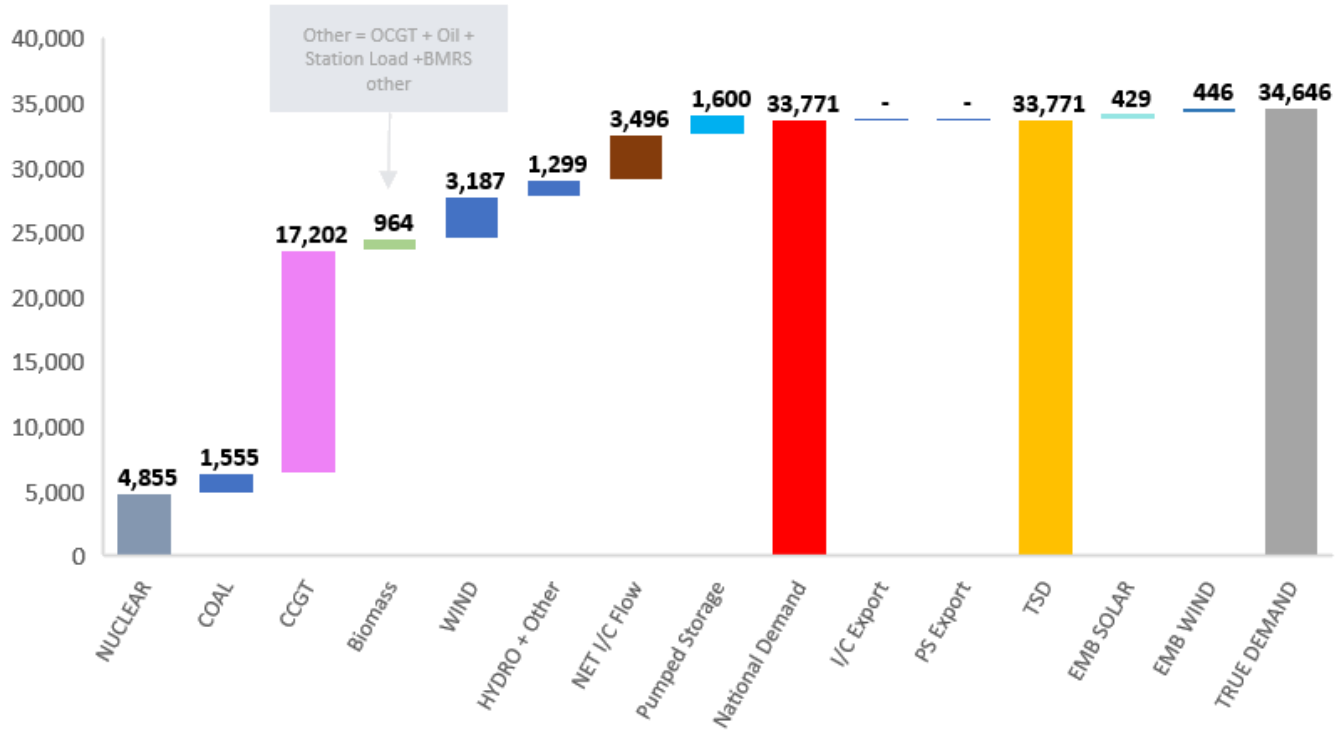
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it does not include demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

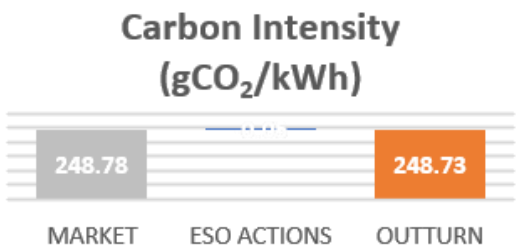
| | | FORECAST (Wed 22 Sep) | | |
|---|---|---|---|---|
| Date | Forecasting Point | National Demand (GW) | Dist. wind (GW) | Dist. PV (GW) |
| 22 Sep | Evening Peak | 31.7 | 2.2 | 0.1 |
| 23 Sep | Overnight Min | 16.9 | 2.8 | 0.0 |
| 23 Sep | Evening Peak | 32.4 | 1.8 | 0.0 |
| 24 Sep | Overnight Min | 17.7 | 2.5 | 0.0 |
| 24 Sep | Evening Peak | 31.8 | 1.6 | 0.0 |
| 25 Sep | Overnight Min | 18.9 | 0.6 | 0.0 |
| 25 Sep | Evening Peak | 30.0 | 0.9 | 0.0 |
| 26 Sep | Overnight Min | 17.1 | 1.4 | 0.0 |
| 26 Sep | Evening Peak | 29.5 | 2.4 | 0.0 |
| 27 Sep | Overnight Min | 17.2 | 2.2 | 0.0 |
| 27 Sep | Evening Peak | 34.1 | 1.8 | 0.1 |
| 28 Sep | Overnight Min | 19.6 | 1.1 | 0.0 |
| 28 Sep | Evening Peak | 34.7 | 1.2 | 0.2 |

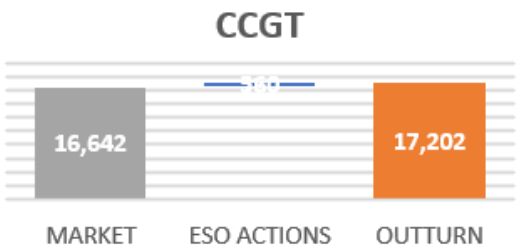
# ESO Actions | Tuesday 14 September Peak

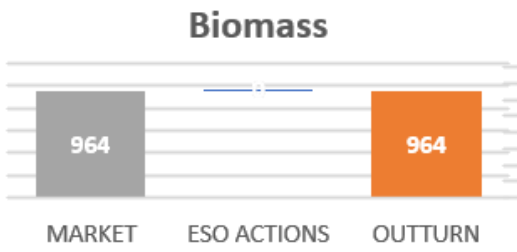
**Date:** 14/09/2021

**SP:** 37

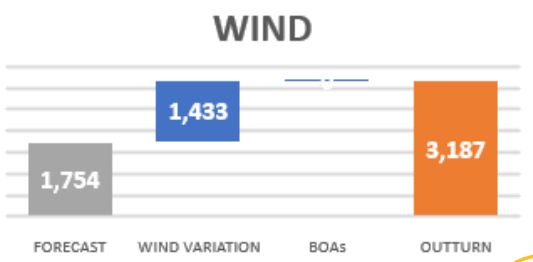




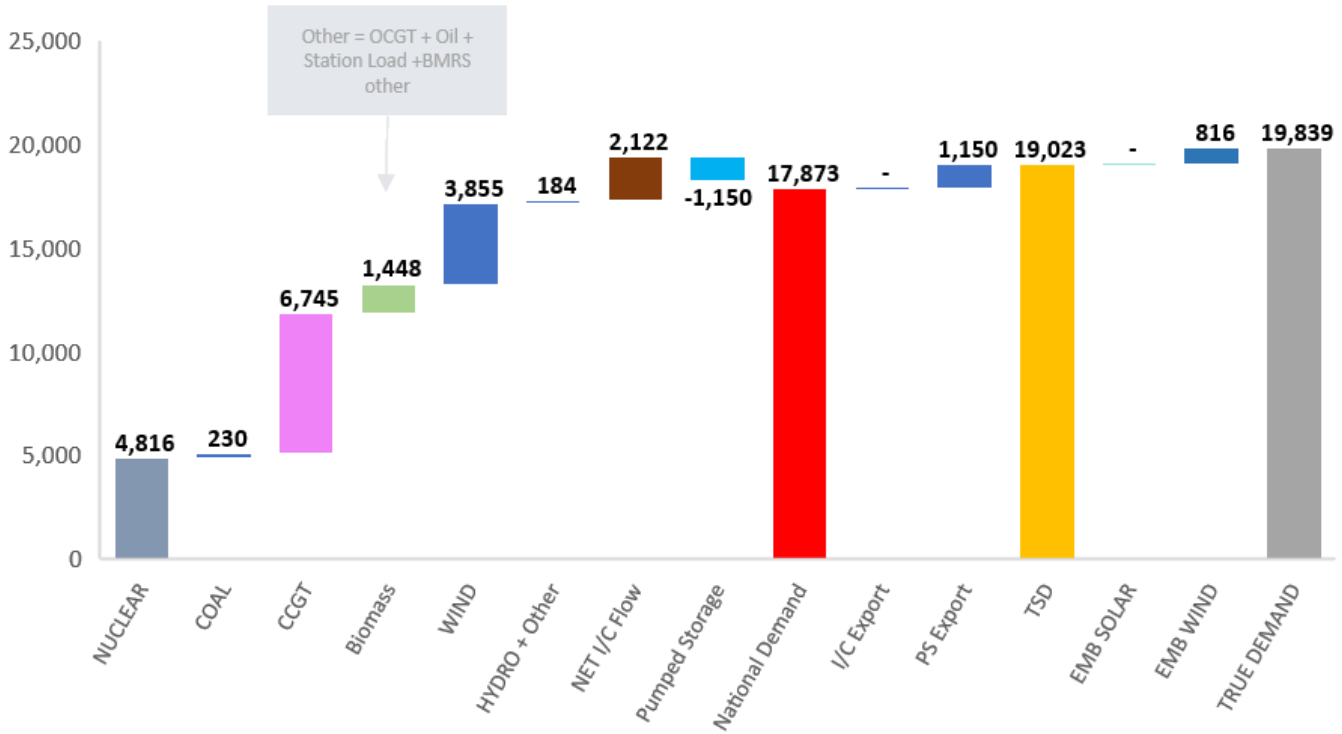


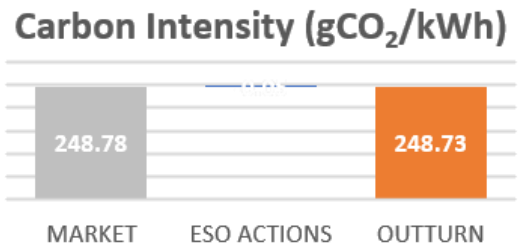

Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

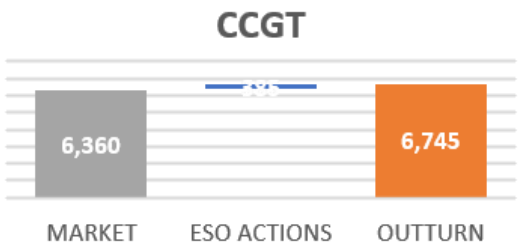
# ESO Actions | Sunday 19 September Minimum

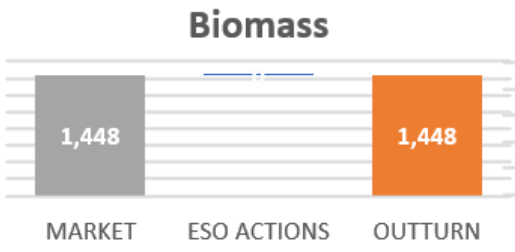
**Date:** 19/09/2021

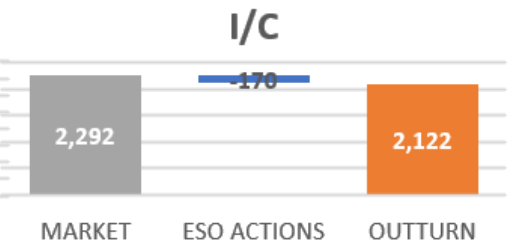
**SP:** 9

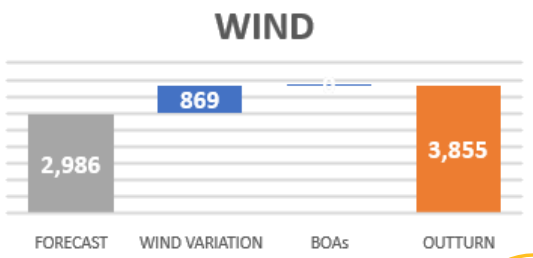


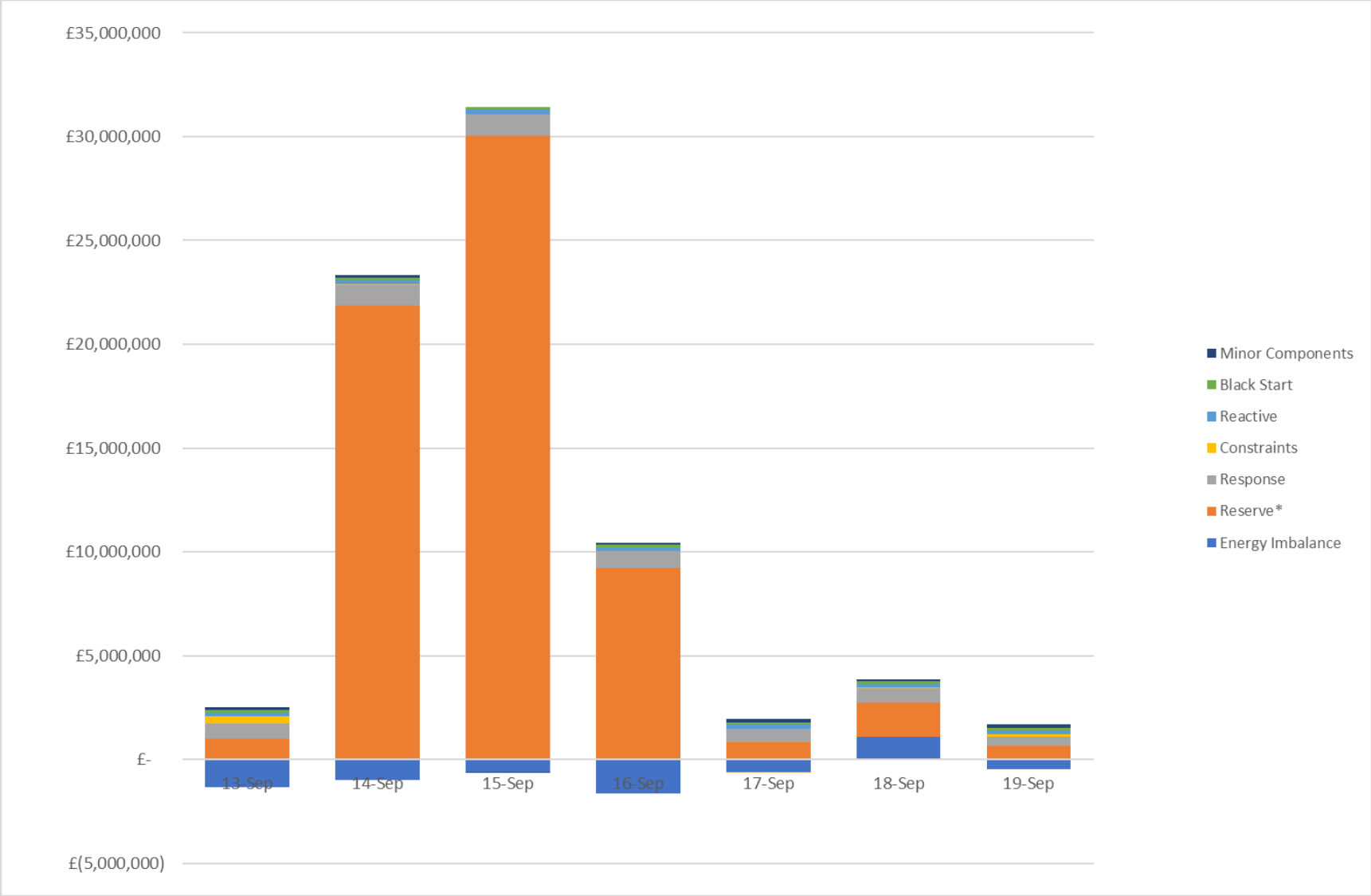




Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

# Transparency | Costs for the last week




**Reserve**

Tight but adequate margins through the early part of the week, exacerbated by the fault on the IFA interconnector, led to high balancing costs, particularly for Tuesday, Wednesday and Thursday. High priced offers submitted by market participants were taken to ensure operating margin and reserve requirements were met.

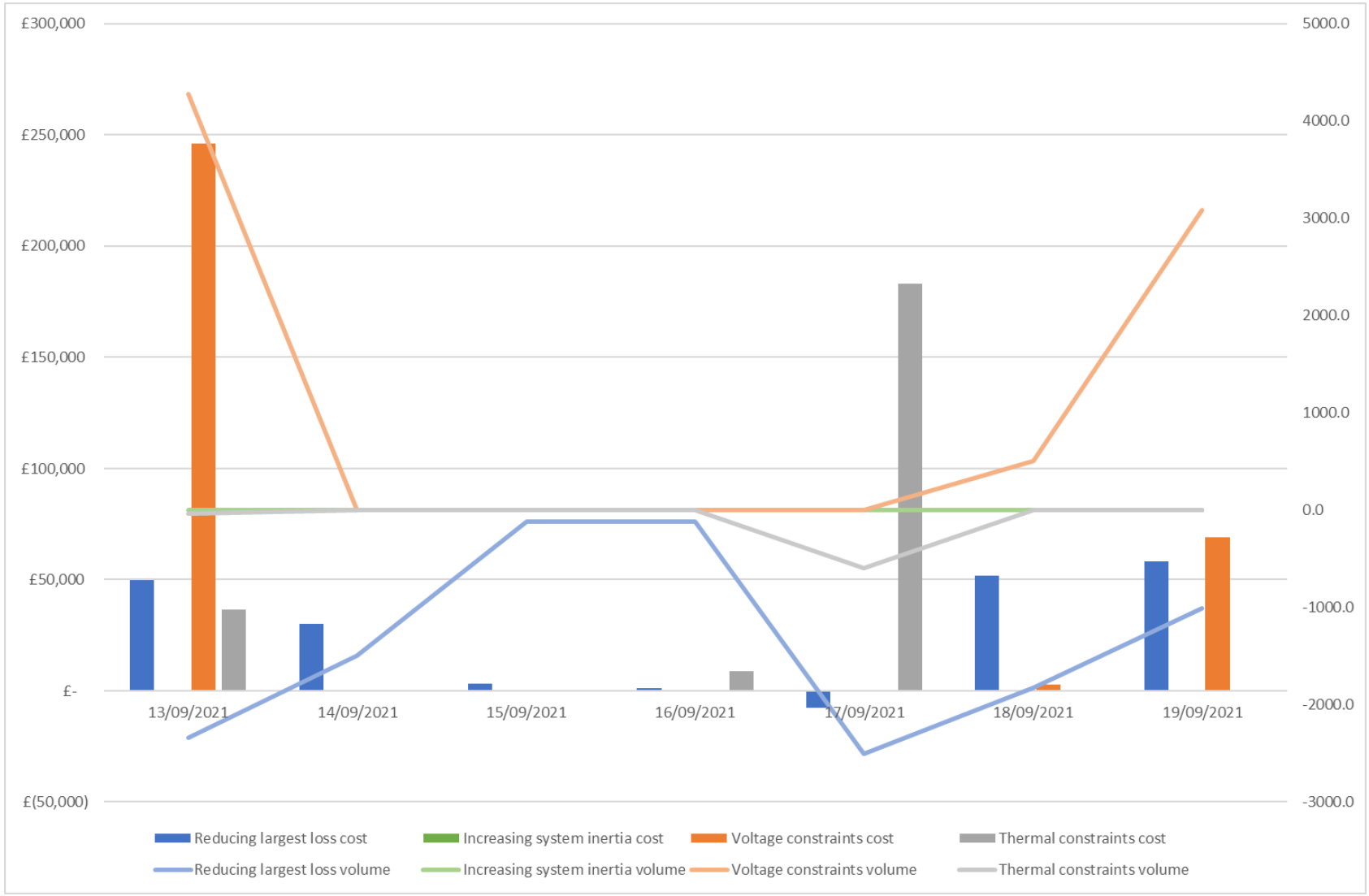
**Response**

Response costs remain quite a large component of spend. This is driven by the large volumes of response required to manage the system and the high submitted prices at which this response is procured.

**Constraints**

Low wind throughout the week contributed to lower constraint costs

# Transparency | Constraint cost breakdown




**Voltage**
Some action required to synchronise generation to meet our voltage requirements on Monday, Saturday and Sunday.

**Thermal**
Small volume of action required to manage on Monday, Thursday and Friday.

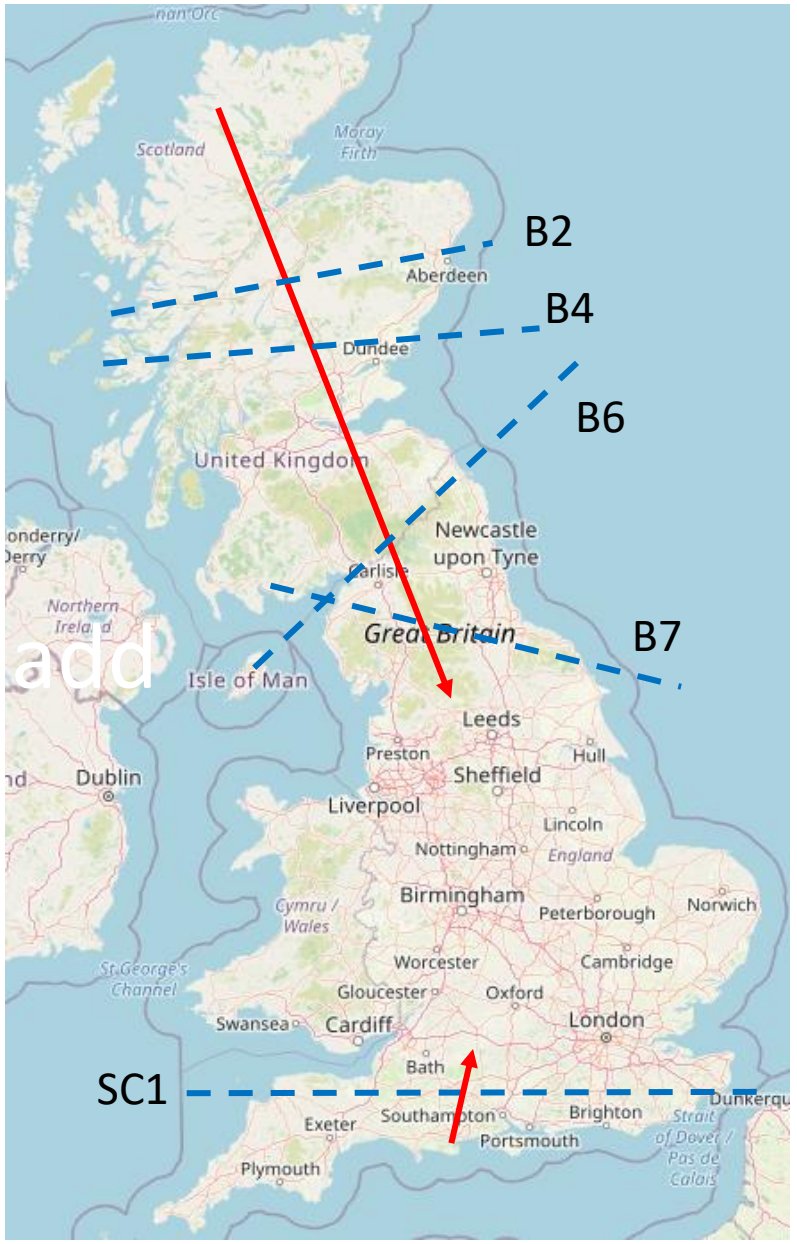
**Managing largest loss for RoCoF**
Action required to manage largest loss on interconnectors throughout the week. Varies due to varied inertia levels on the system and interconnector flows.

**Increasing inertia**
No units synchronised for inertia during the week.

https://data.nationalgrideso.com/balancing/constraint-breakdown

# Transparency | Constraint Capacity



# System Management Action Flagging & Frequency Response

**What is system flagging?**

Balancing actions taken for system management reasons are flagged to avoid distorting the imbalance price.

**What are system management actions?** Ref: SMAF Methodology Statement

1. To resolve a transmission system constraint (thermal, volts or stability)
2. To manage RoCoF or fault levels
3. To avoid adverse effects of significant load profile changes (via system-to-system services)
4. To provide a system-to-system service instigated by another TSO
5. Activation of Low Frequency Demand Disconnection (LFDD)

**What is not system management?**

General balancing, frequency control actions (fast BOAs), repositioning for frequency response, offers above SEL on a unit synchronised for system reasons such a voltage control or inertia.

# Example 1 - Thermal

## Conditions

SCOTEX limit: 5000 MW

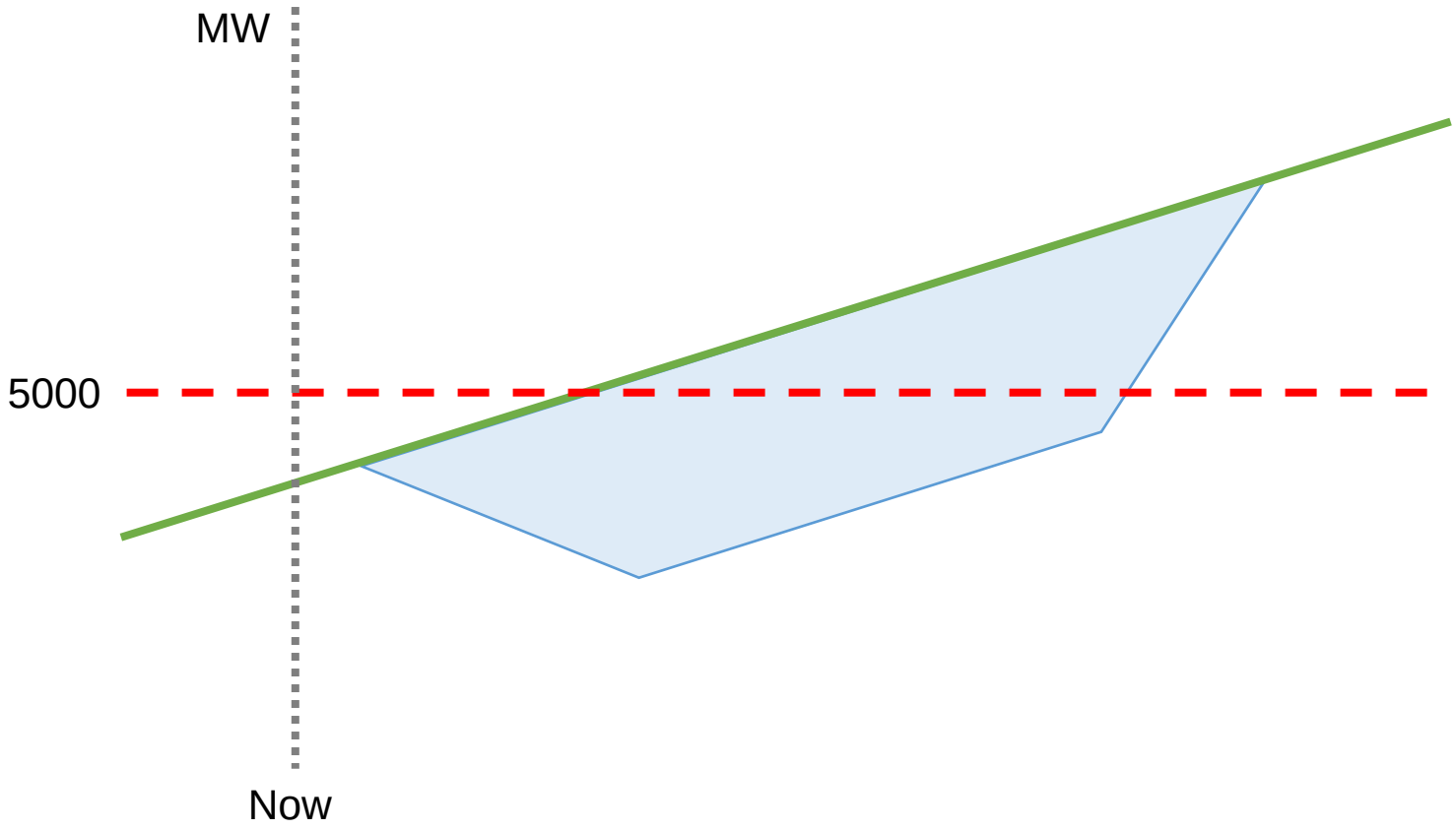
SCOTEX transfer

Now: 4900 MW

+10 m: 5100 MW

## Action

Accept 150 MW bid




# System – resolve transmission constraint

# Example 2 - RoCoF

## Conditions

ZUNITOFF limit: 1300 MW

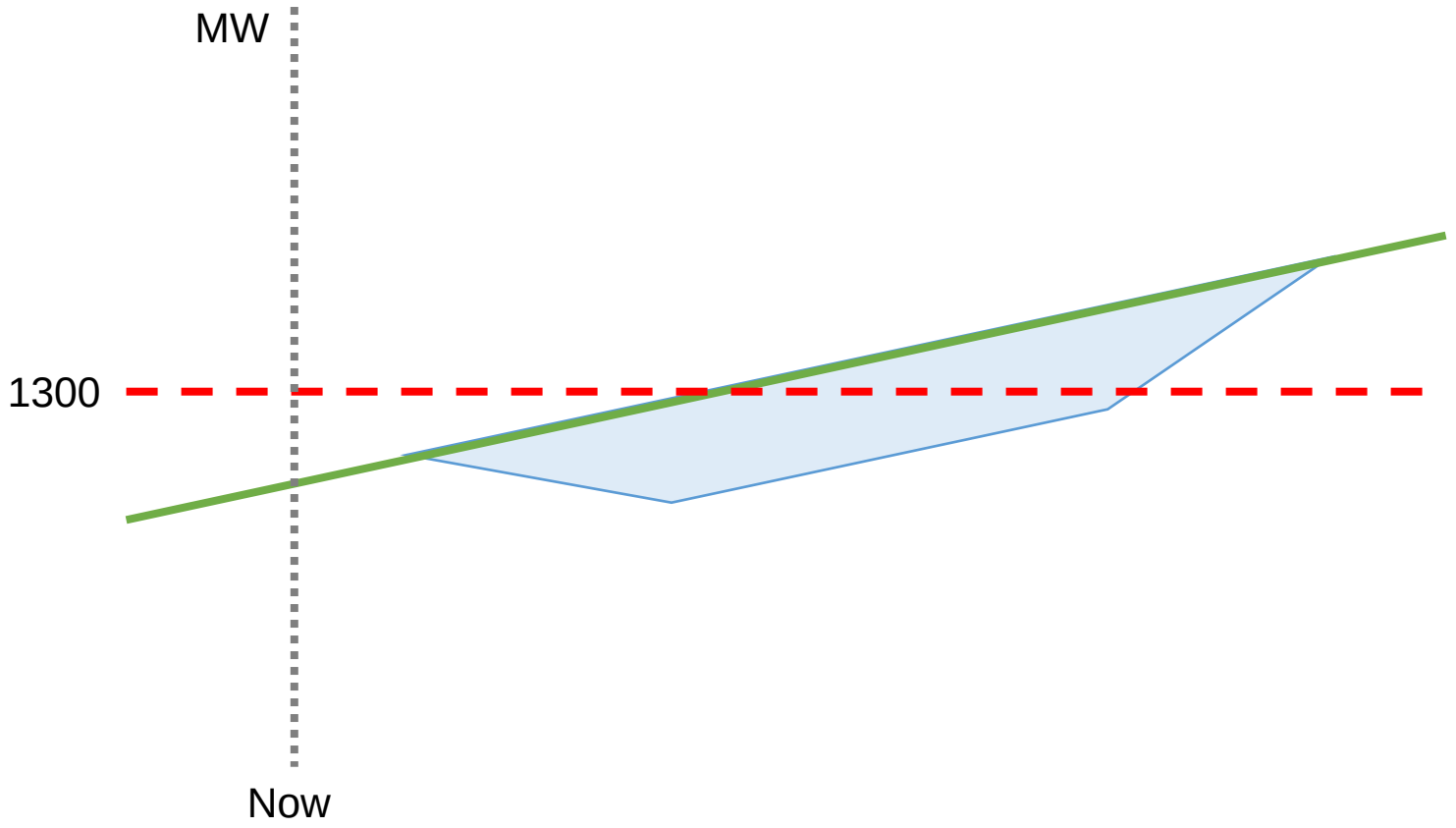
ZUNITOFF transfer

Now: 1250 MW

+10 m: 1350 MW

## Action

Accept 100 MW bid




# System – Manage RoCoF constraint

# Example 3 - Inertia

## Conditions

Minimum inertia limit: 140 GVA.s

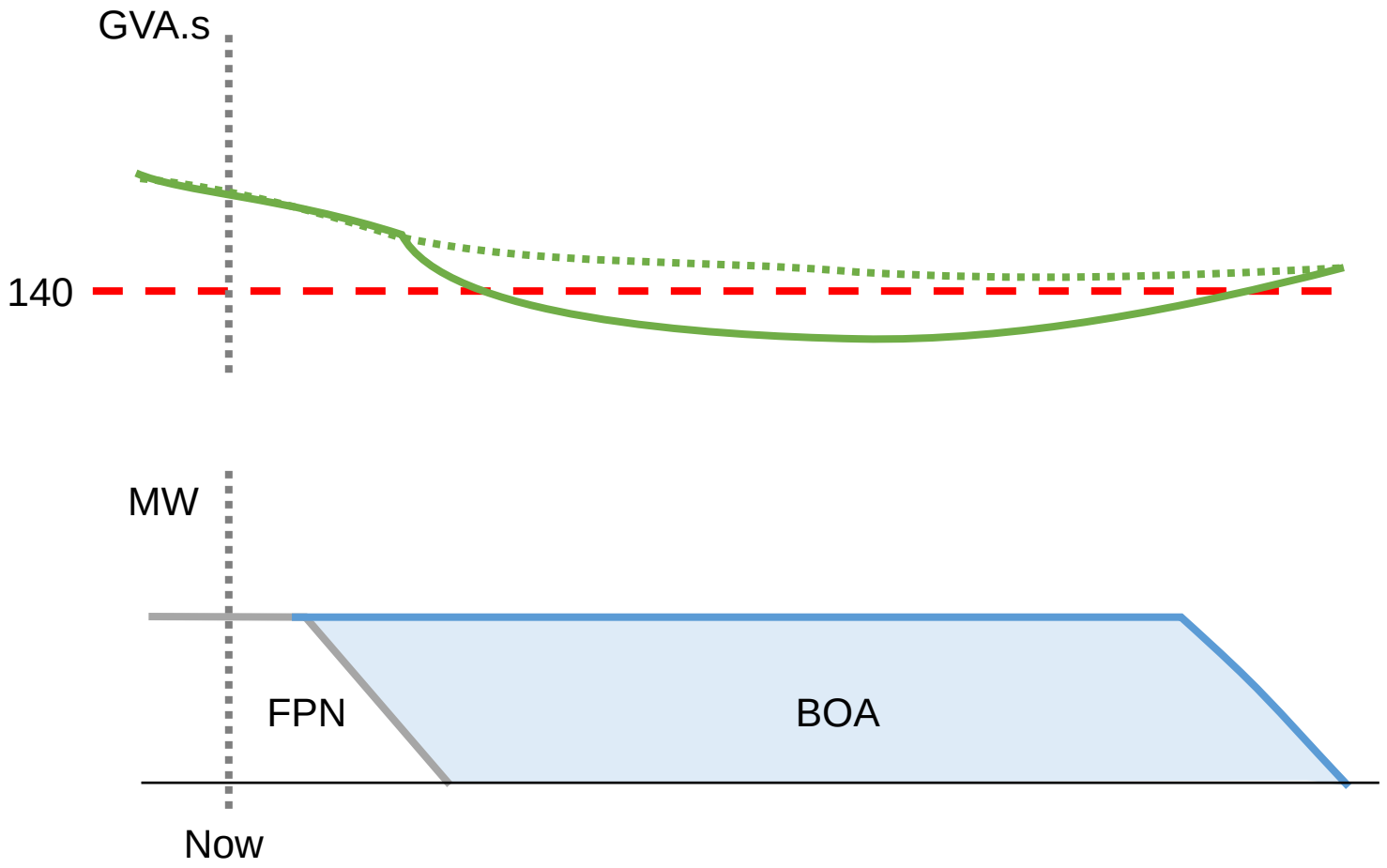
Expected inertia

Now: 150 GVA.s

+30 m: 135 GVA.s

## Action

Accept 250 MW offer (to SEL)




# System – Manage RoCoF constraint

# Example 4 – Offer above SEL on a System Flagged Unit

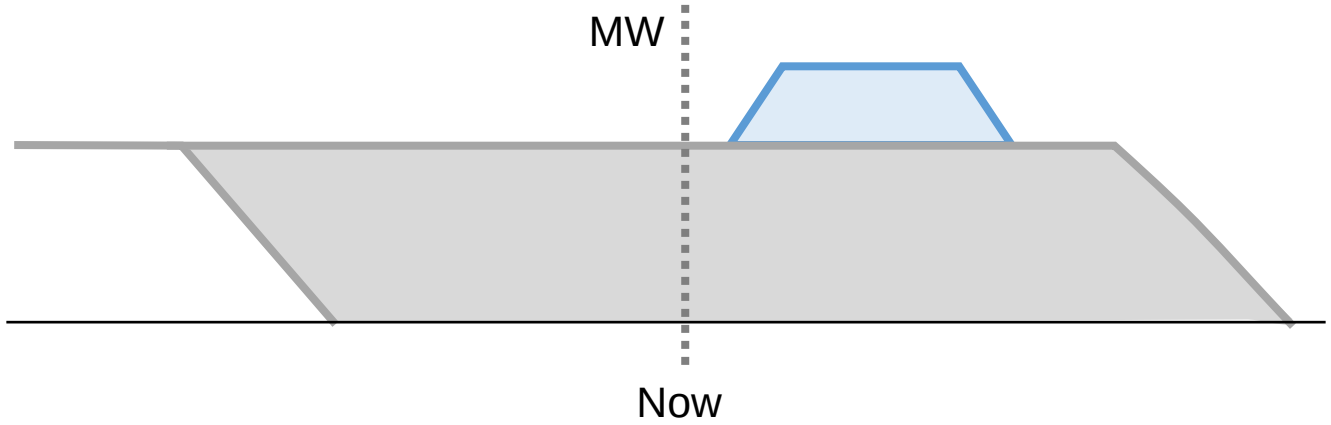
**Conditions**

Continued from Example 3

Energy is required to balance supply and demand

**Action**

Accept 100 MW offer (above SEL)




## Energy – No ‘system management’ requirement

# Example 5 – Frequency Response

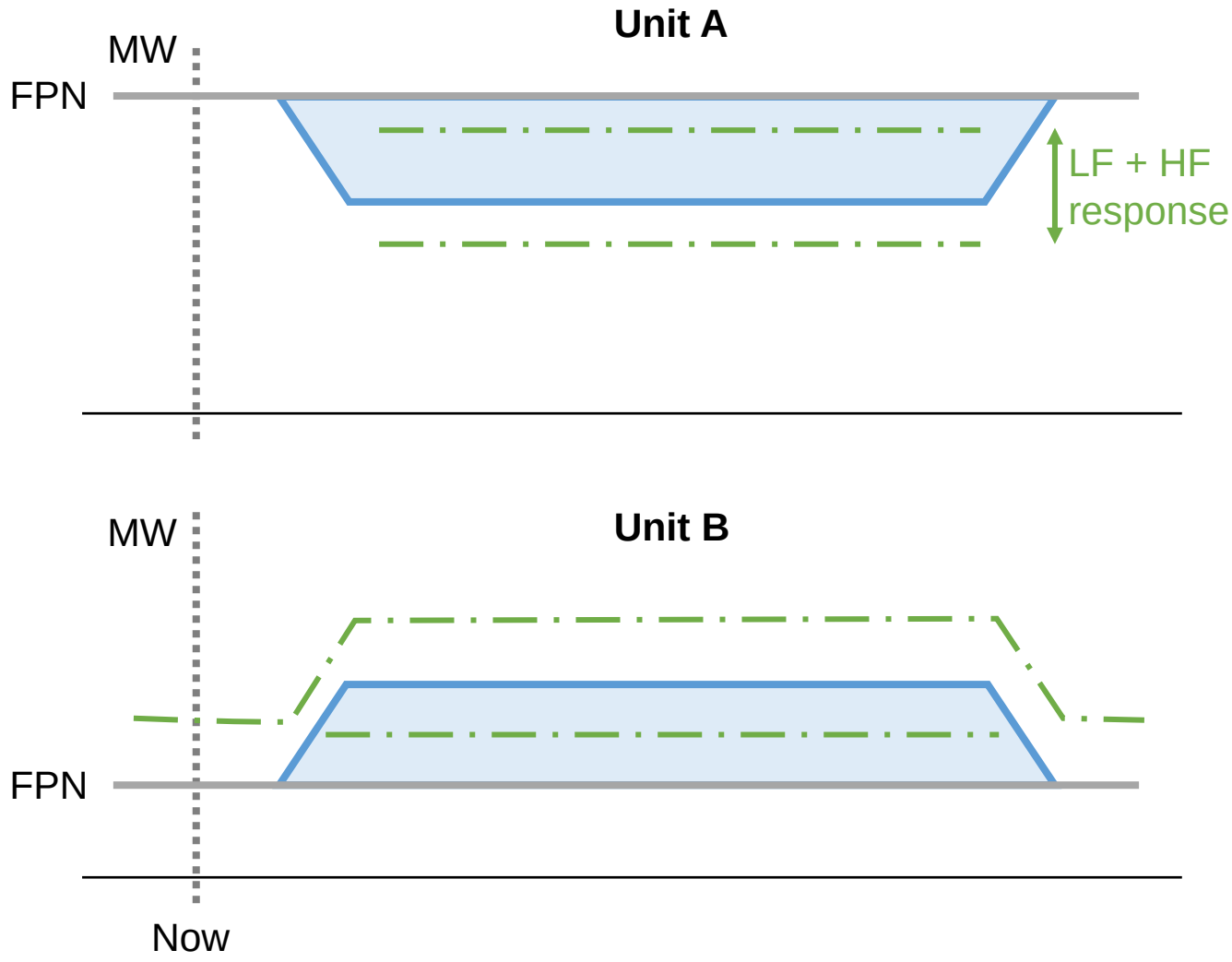
**Conditions**

100 MW low frequency response required
(Primary & Secondary)

Unit A is running at MEL
Unit B is running at SEL and is already providing response

**Actions**

Accept 120 MW bid on Unit A
Accept 120 MW offer on Unit B
Instruct Unit A to provide response




## Energy – No ‘system management’ requirement

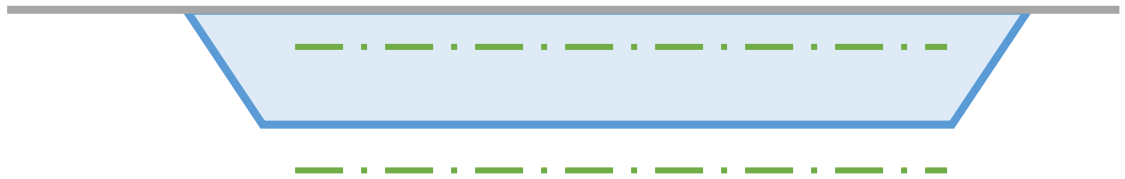
# Frequency Response Efficiency Optimisation

Total cost = (bid vol x bid price){A} +
(offer vol x offer price){B} +
(response holding prices {P,S,H} x response holding capacities {P,S,H}){A,B}

MW £/MW/h MW £/MW/h

(120MW x £5/MWh) + (120MW * £250/MWh) + ( {100, 80, 70} * {1.9, 2, 4} + {90, 85, 60} * {1.3, 2, 2})

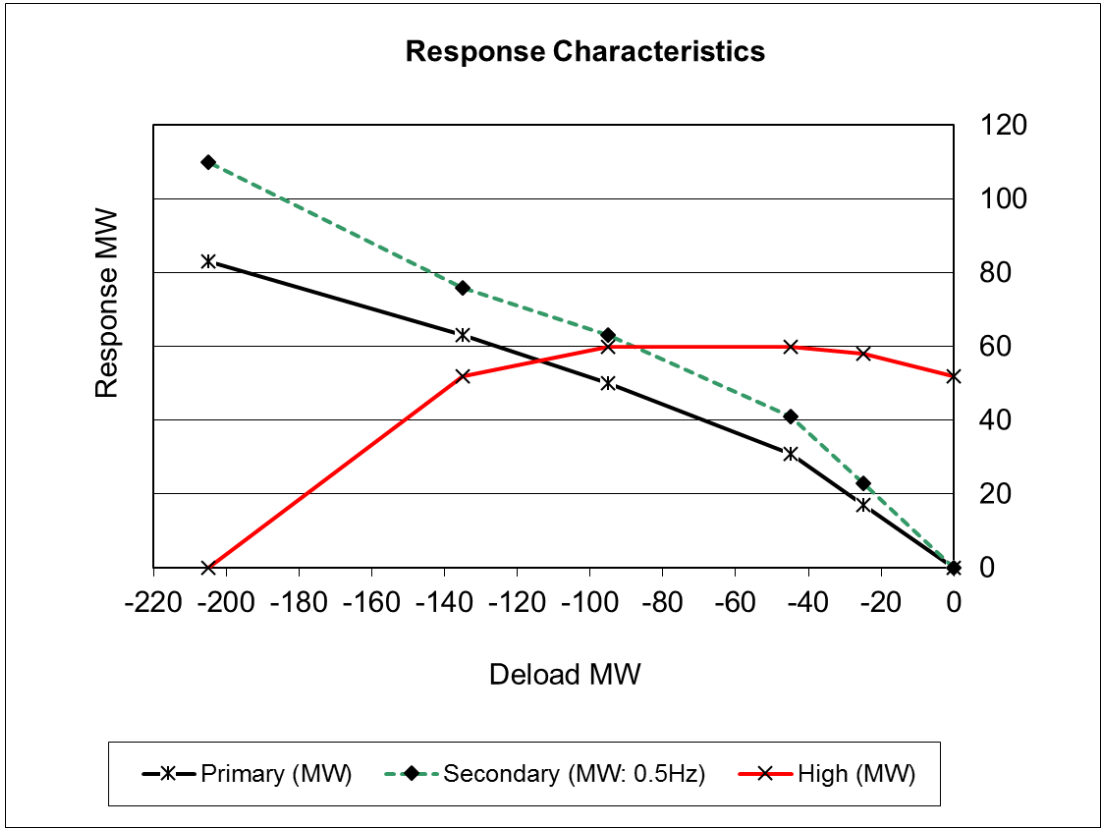
**Unit A**

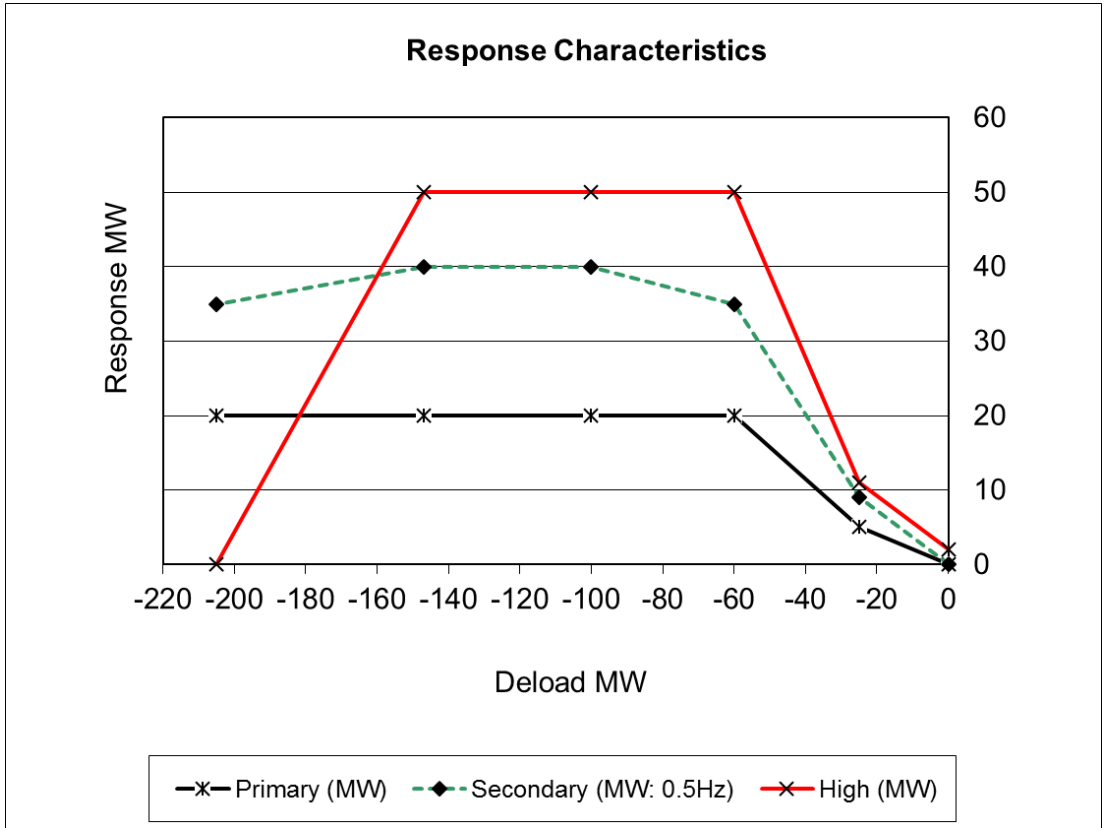


**Unit B**

Now

# Comparing Response Characteristics



# Energy Trading – Data Transparency

## Trading Data Transparency Survey

Trading data transparency survey is live - https://nationalgrideso.fra1.qualtrics.com/jfe/form/SV_5vx5DW4sjB5MtMi

The survey feedback will support our ambition to continuously improve the data we are providing to industry to ensure all our actions are transparent to the market. The survey may also provide you with insight into further information that we are publishing. We encourage you to complete the survey as soon as possible and please forward onto any teams within your business who would like to provide feedback. RESPONSES BY 1 October PLEASE

## Decommissioning of existing trade reporting website

Due to the work that has been completed on the NGESO data portal the upcoming trades weblink https://trades.nationalgrideso.com/ will be decommissioned in October. This information can now be found on the NGESO data portal with a whole host of other data sets.

**Data Portal** https://data.nationalgrideso.com/.

## Data Portal outage ESO Data Portal: Planned Changes and Issues Log - Dataset| National Grid Electricity System Operator (nationalgrideso.com)

We will be carrying our maintenance on 24 September between 6 AM and 7 AM GMT+1. During this time, the Data Portal will not be available to access data. We apologise for any inconvenience caused.

# Q&A

**After the webinar, you will receive a link to a survey. We welcome feedback to understand what we are doing well and how we can improve the event ongoing.**

Please ask any questions via Slido (code #OTF) and we will try to answer as many as possible now. If we are unable to answer your question today, then we will take it away and answer it at a later webinar.

Please continue to use your normal communication channels with ESO.

If you have any questions after the event, please contact the following email address:
box.NC.Customer@nationalgrideso.com

slido

# Audience Q&A Session

ⓘ Start presenting to display the audience questions on this slide.

# Q&A

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