

# ESO Operational Transparency Forum

8 Sep 2021

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please ensure your cameras are turned off

## Introduction | Sli.do code #OTF

**Following your feedback, we are continuing to use Slido and Microsoft Teams. Please visit [www.sli.do](https://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

- Transparency – 6 September

## Questions outstanding from last week

**Q: For SP 26 on Sunday, there was a forward trade made by NG with a price of £50.49 but it had 0 volume – what was the issue here?**

A: There was a bid sent to us with 0 volume. It was spotted and cancelled so we are unsure why there is a record still in the system and on the data portal. The trade should not exist. We are looking in it and will update the portal accordingly.

**Q: How long is the outage in the south east supposed to last**

A: The outage is expected to last until mid-October

**Q: Initial estimates suggest August might have been the most expensive month ever. Is this likely to be a trend of increasing costs of that magnitude?**

A: It won't be the most expensive month ever but it is a higher cost month. We will be looking into this and providing narrative in our [RIIO-2 Performance Reporting](#) later in the month. We do not anticipate enduring increases in costs though we are seeing sustained higher levels of cost due to the changes in the energy market.

**Q: Eleclink, is there an ETA on when its outturn will start being published? Currently it is unmetered.**

A: We have been working with Eleclink to ensure active power testing remains on track whilst putting in place the require IT systems – we anticipate that IT to enable metered output to be published will be 14/15 September.

## Questions outstanding from last week

**Q: The Didcot "energy" bid down, and corresponding offsetting offers required to balance that out now have a £150-160/MWh delta between them, with the costs of these actions impacting everyone through increased BSUoS. Is a resolution to the need for this being looked into? (100MW being taken at £5/MWh despite system being short all morning)**

A: Different plant have different response efficiencies (amount of LF response vs amount of pullback from MEL) and there are further complexities when you consider what type of response you need (primary vs. secondary). We look at the total cost of the actions that we take. On a very tight system, the lowest overall cost solution for finding 100MW of response may be to take 100MW bids at a very efficient unit for response and then replace that 100MW of energy. Alternatively, the optimal solution may be to accept a greater volume of more attractively priced bids on a unit that has a lower response efficiency and use that cash to offset the cost of the extra offers required. The system on 1 September was very tight and so the cost of buying energy was relatively high. There were periods where accepting bids at Didcot and requiring less offer volume to replace the energy elsewhere was the best overall solution at the time.

**Q: The £150/MWh cost of bidding Didcot down for FR is insanely expensive. Really don't understand how this is the most economic route to securing FR. Feels like the GSR027 economics have completely changed?**

A: We are continually looking at and assessing our overall response costs and our drive to create new markets for new services. The introduction of the Dynamic Containment (DC) as a service has increased our overall response holding and volume that used to provide FFR is now providing DC to meet this requirement. This has resulted in more Mandatory Frequency Response (MFR) actions being used to ensure that we can meet our response requirements with the services and tools available. While these markets are growing we expect the prices for these services to remain quite high, but we anticipate that the prices will drop once the market has grown to a suitable level at which point we will be able to procure sufficient response through our markets and MFR will be utilised less.

## 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.**

**In response to questions and asks from previous weeks, we have the following deep dives planned in:**

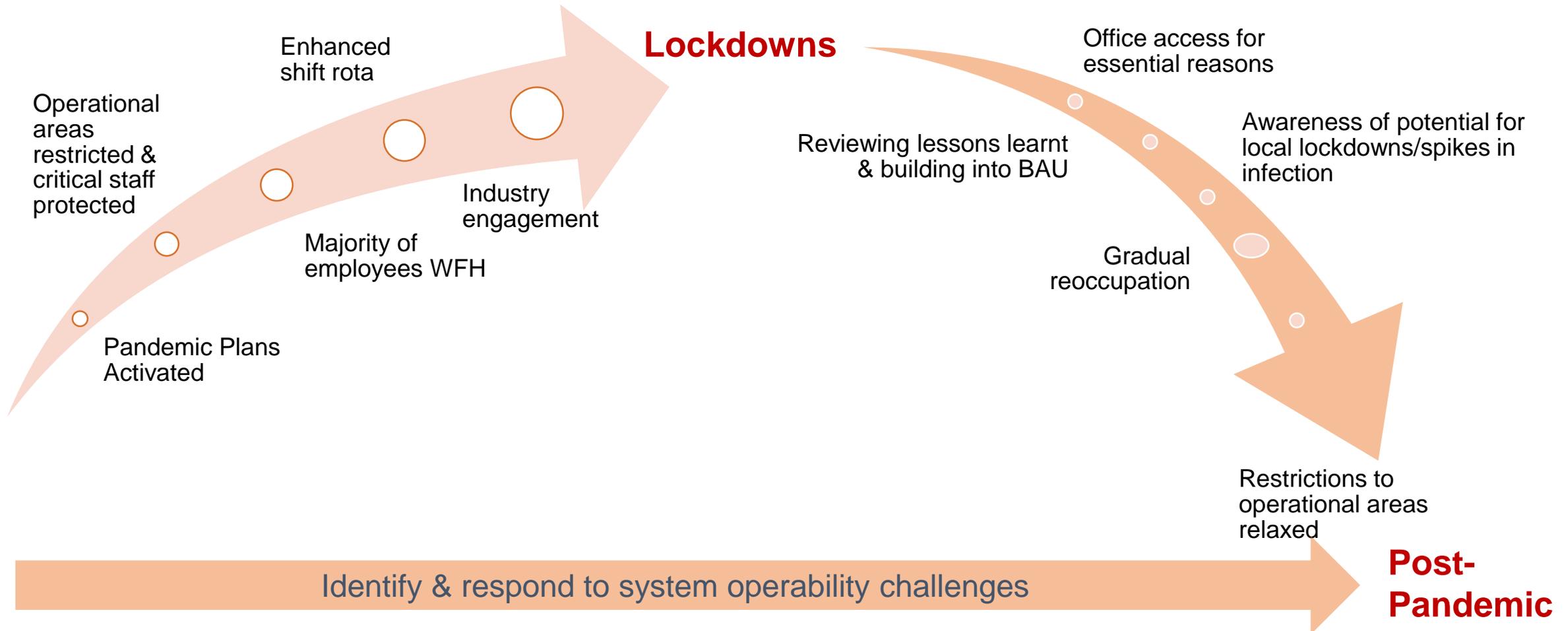
Market signals deep dive – 15 September

**You have also requested the following:**

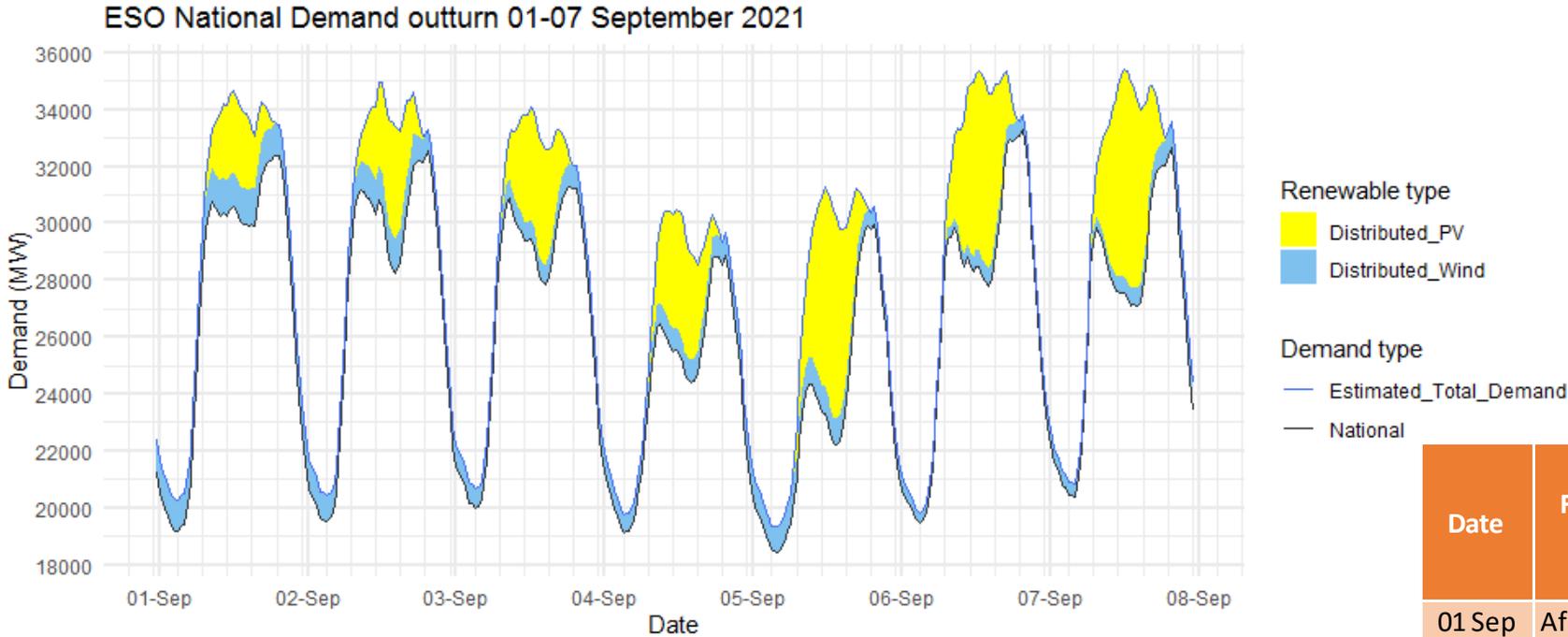
Stability pathfinder update

Deep dive into how Carbon Intensity is calculated

# Protecting critical staff to maintain critical operations



# Demand | Last 7 days outturn

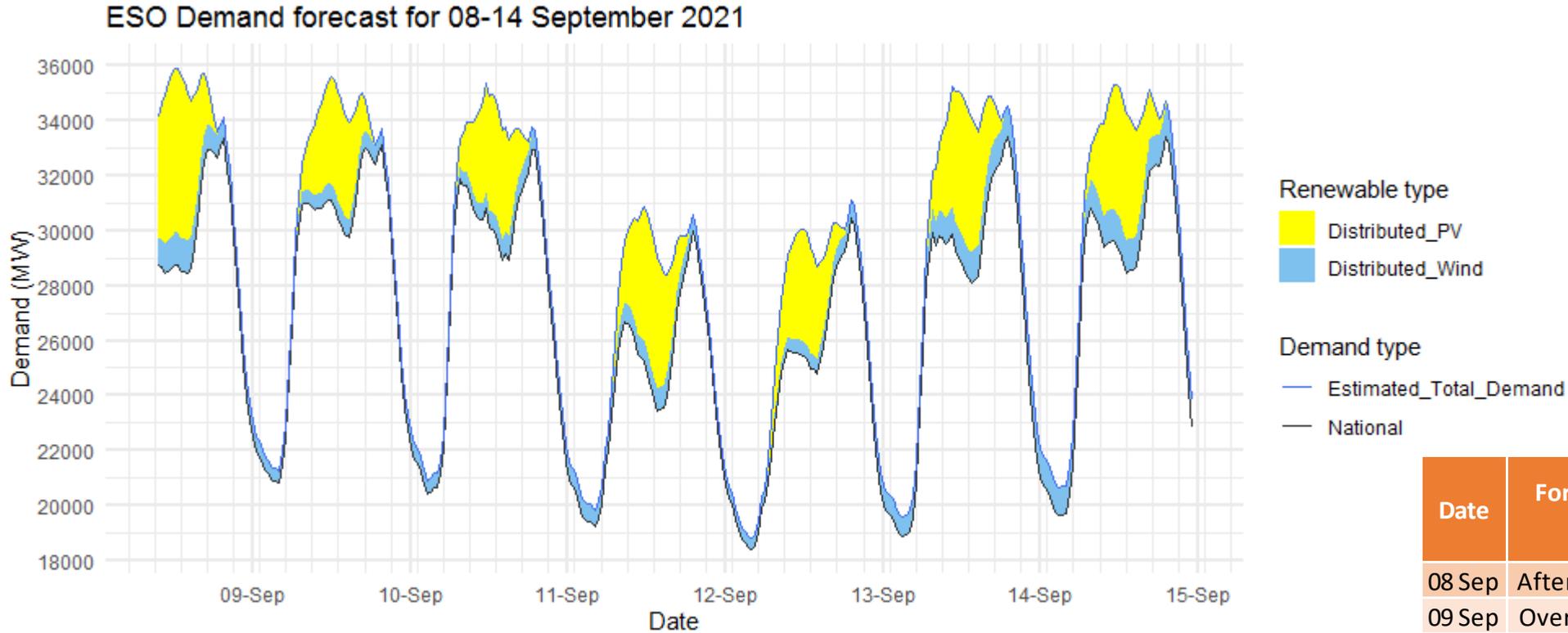


The black line (National Demand) is the measure of portion of total GB customer demand that is supplied by the transmission network.

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.

Date	Forecasting Point	FORECAST (Wed 01)			OUTTURN		
		National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
01 Sep	Afternoon Min	28.9	1.2	3.7	29.9	1.3	2.5
02 Sep	Overnight Min	19.5	0.8	0.0	19.5	0.9	0.0
02 Sep	Afternoon Min	27.6	1.0	4.6	28.2	1.2	3.9
03 Sep	Overnight Min	20.0	0.5	0.0	20.0	0.7	0.0
03 Sep	Afternoon Min	26.7	0.6	5.0	27.8	0.7	4.1
04 Sep	Overnight Min	18.9	0.6	0.0	19.2	0.6	0.0
04 Sep	Afternoon Min	22.2	1.1	5.0	24.4	0.8	3.7
05 Sep	Overnight Min	16.9	1.6	0.0	18.4	0.9	0.0
05 Sep	Afternoon Min	22.4	2.6	3.8	22.2	0.9	7.0
06 Sep	Overnight Min	17.3	2.0	0.0	19.5	0.4	0.0
06 Sep	Afternoon Min	27.6	1.9	4.6	27.8	0.7	6.1
07 Sep	Overnight Min	19.4	1.1	0.0	20.4	0.4	0.0
07 Sep	Afternoon Min	28.2	1.4	4.0	27.1	0.7	6.6

# Demand | Week Ahead



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

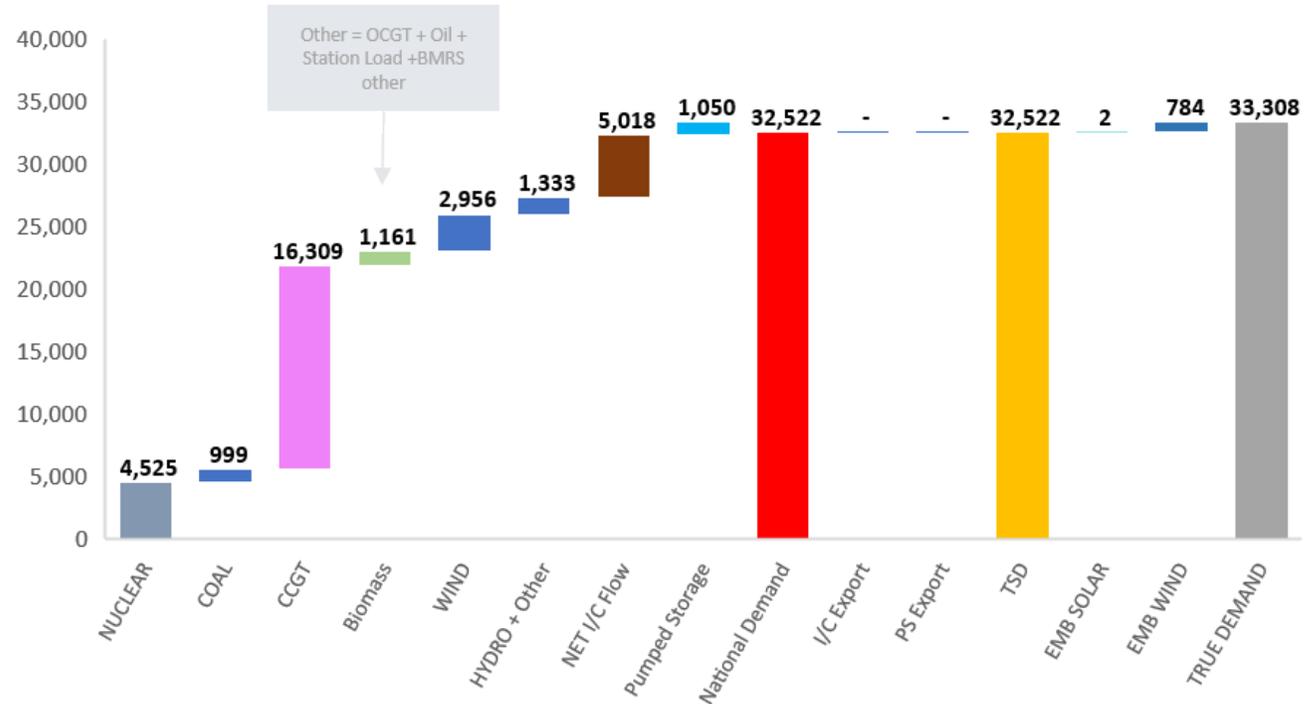
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it does not include demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

		FORECAST (Wed 08 Sep)		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
08 Sep	Afternoon Min	28.4	1.2	5.4
09 Sep	Overnight Min	20.8	0.5	0.0
09 Sep	Afternoon Min	29.7	0.7	3.5
10 Sep	Overnight Min	20.4	0.5	0.0
10 Sep	Afternoon Min	28.9	0.8	4.0
11 Sep	Overnight Min	19.2	0.6	0.0
11 Sep	Afternoon Min	23.4	0.8	4.8
12 Sep	Overnight Min	18.4	0.4	0.0
12 Sep	Afternoon Min	24.8	0.5	3.4
13 Sep	Overnight Min	18.9	0.7	0.0
13 Sep	Afternoon Min	28.1	1.1	4.8
14 Sep	Overnight Min	19.6	1.0	0.0
14 Sep	Afternoon Min	28.4	1.2	4.6

# ESO Actions | Thursday 2 September Peak

Date: 02/09/2021

SP: 41



Carbon Intensity (gCO<sub>2</sub>/kWh)



CCGT



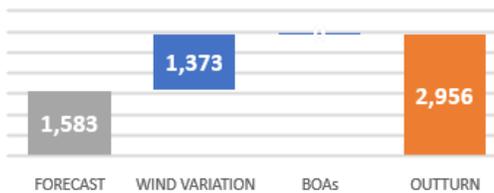
Biomass



I/C



WIND



# ESO Actions | Monday 30 August Minimum

Date: 30/08/2021

SP: 9

Carbon Intensity (gCO<sub>2</sub>/kWh)



CCGT



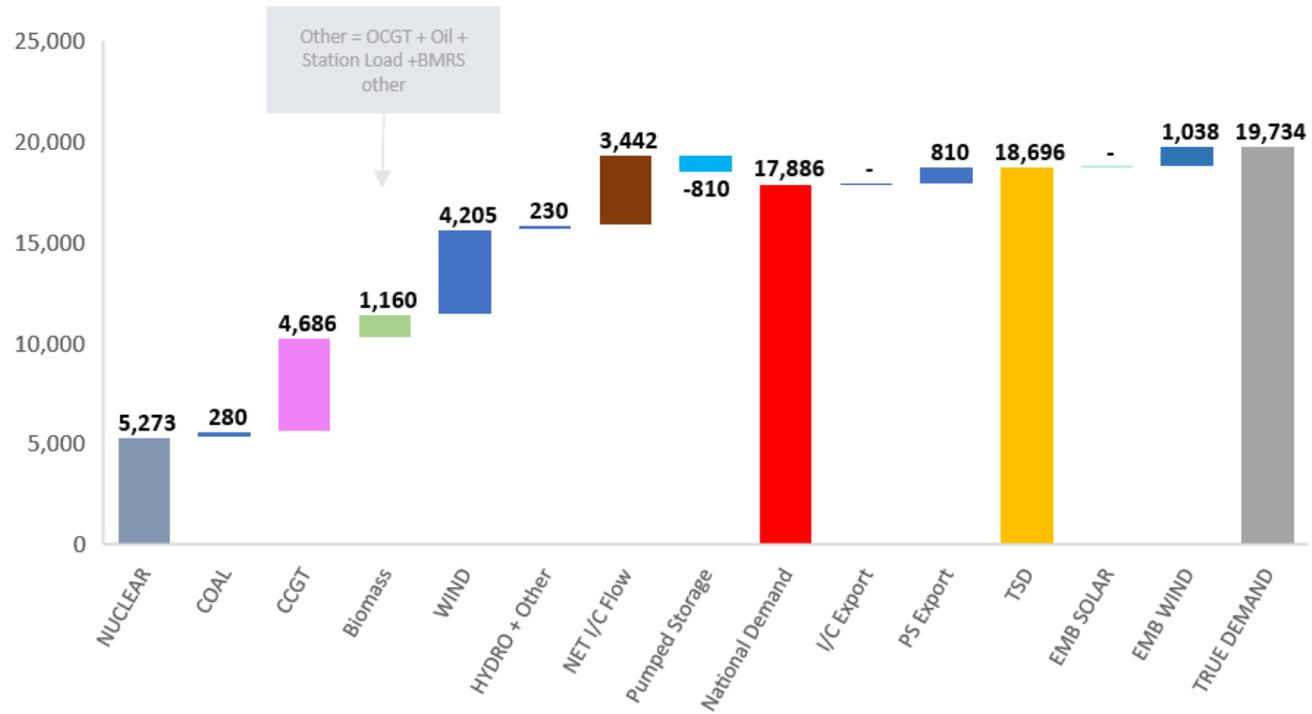
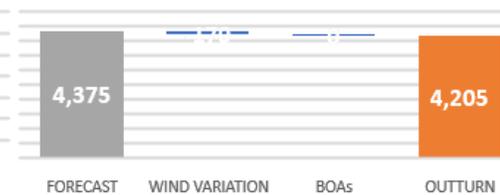
Biomass



I/C

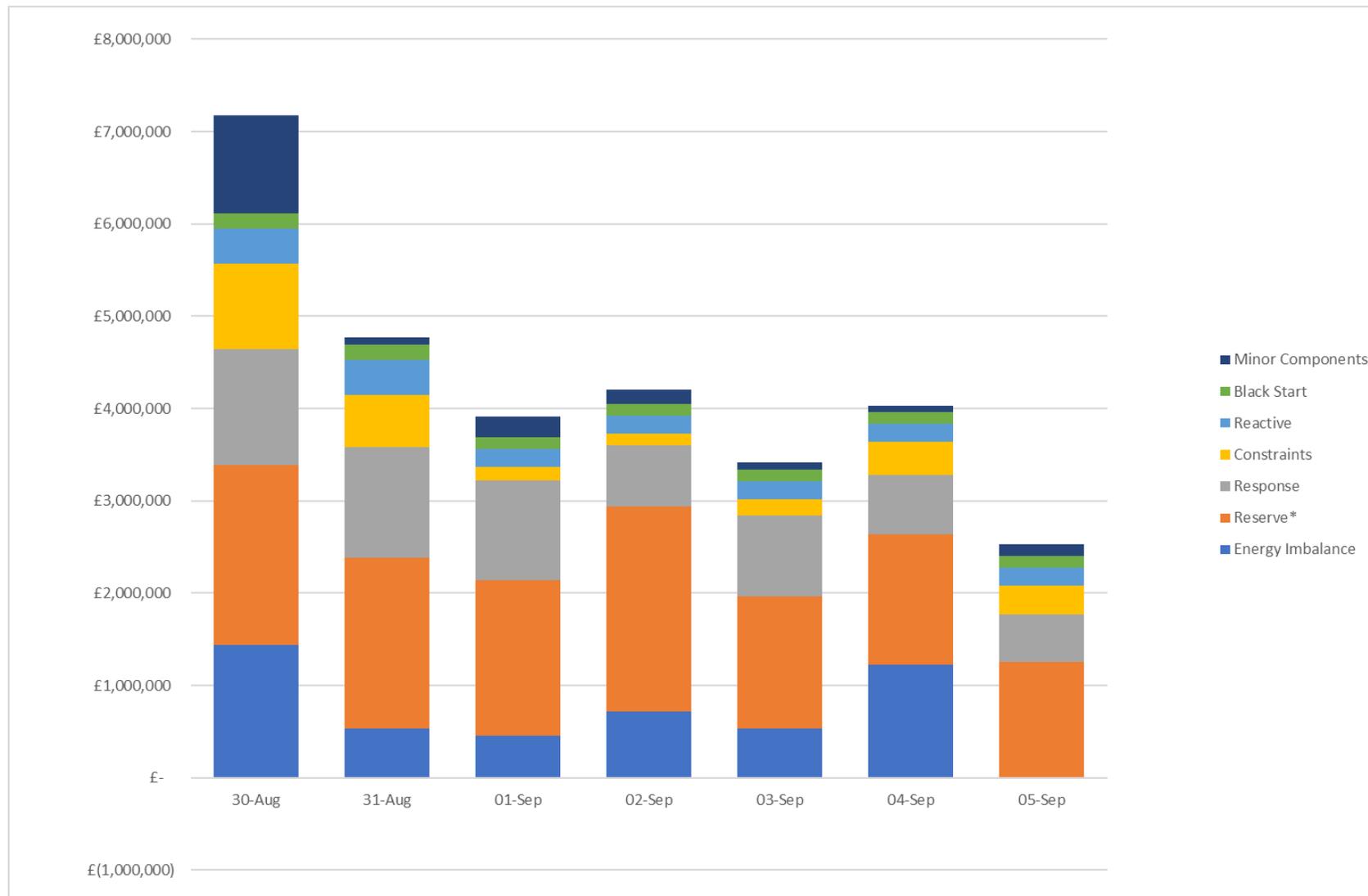


WIND



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

## Transparency | Costs for the last week



### Reserve

Reserve costs varied slightly through the week but remained fairly high. An often short market required more intervention

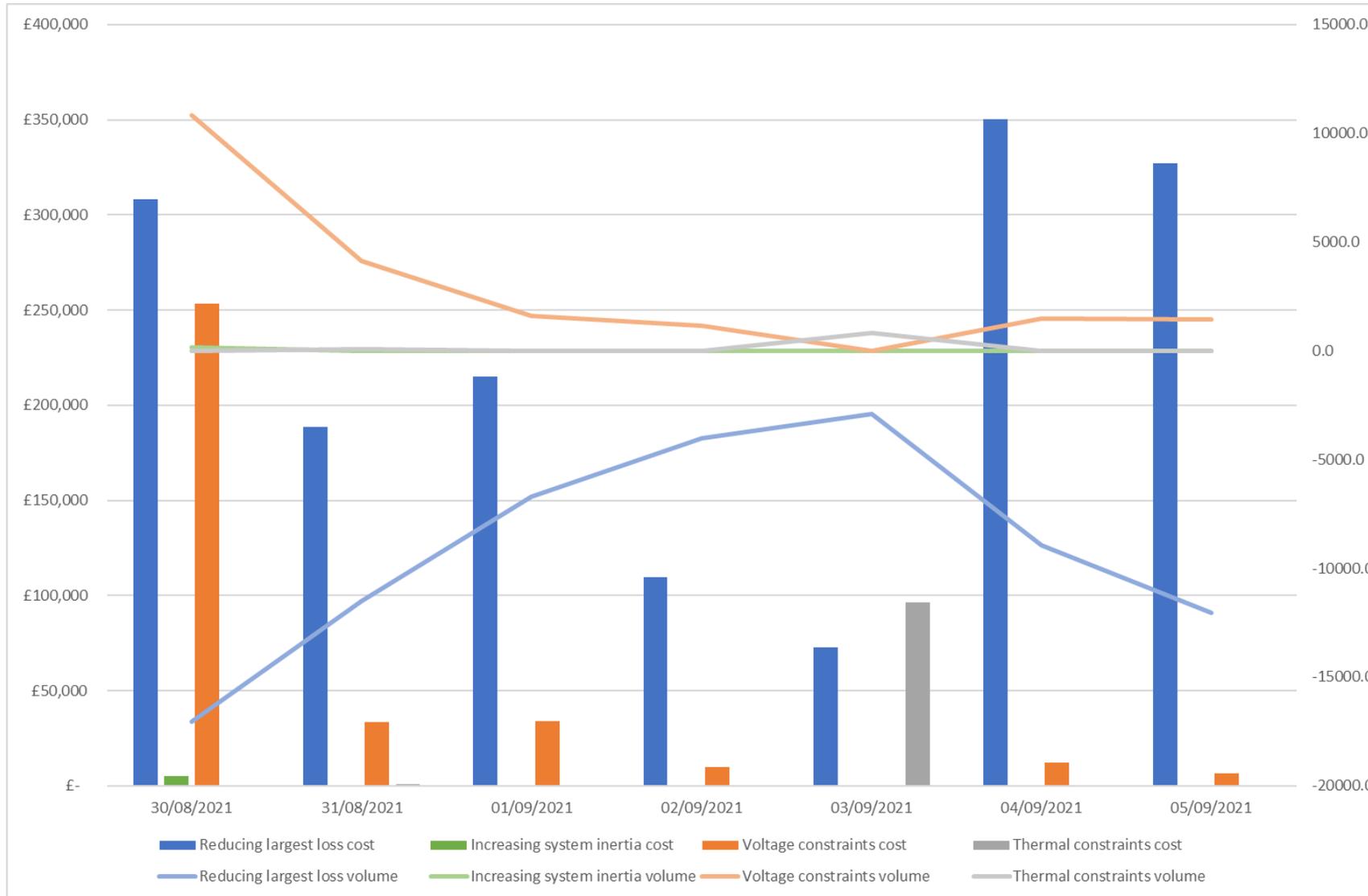
### Response

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

Lower demand on bank holiday meant fewer synchronous generators self-dispatched and more intervention required to meet voltage requirements

## Thermal

Small volume of action required to manage on Thursday

## Managing largest loss for RoCoF

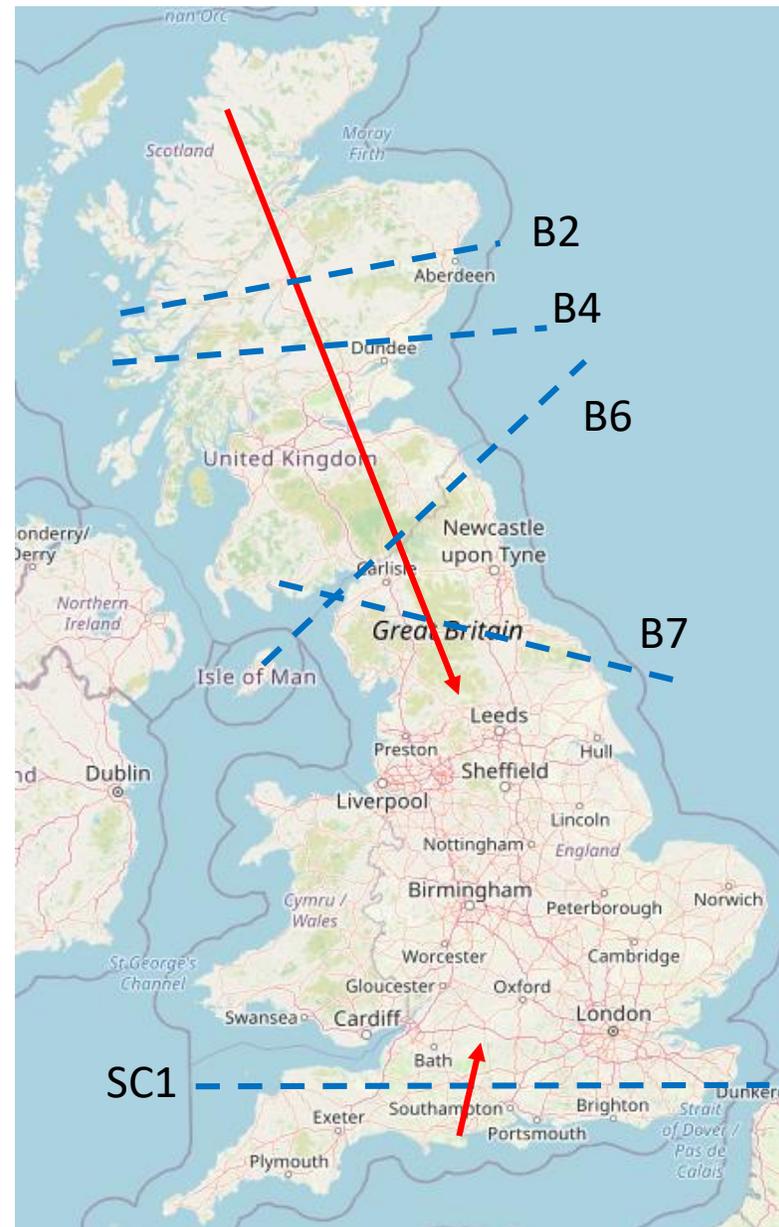
Action required to manage largest loss on interconnectors throughout the week. Varies due to varied inertia levels on the system and interconnector flows.

## Increasing inertia

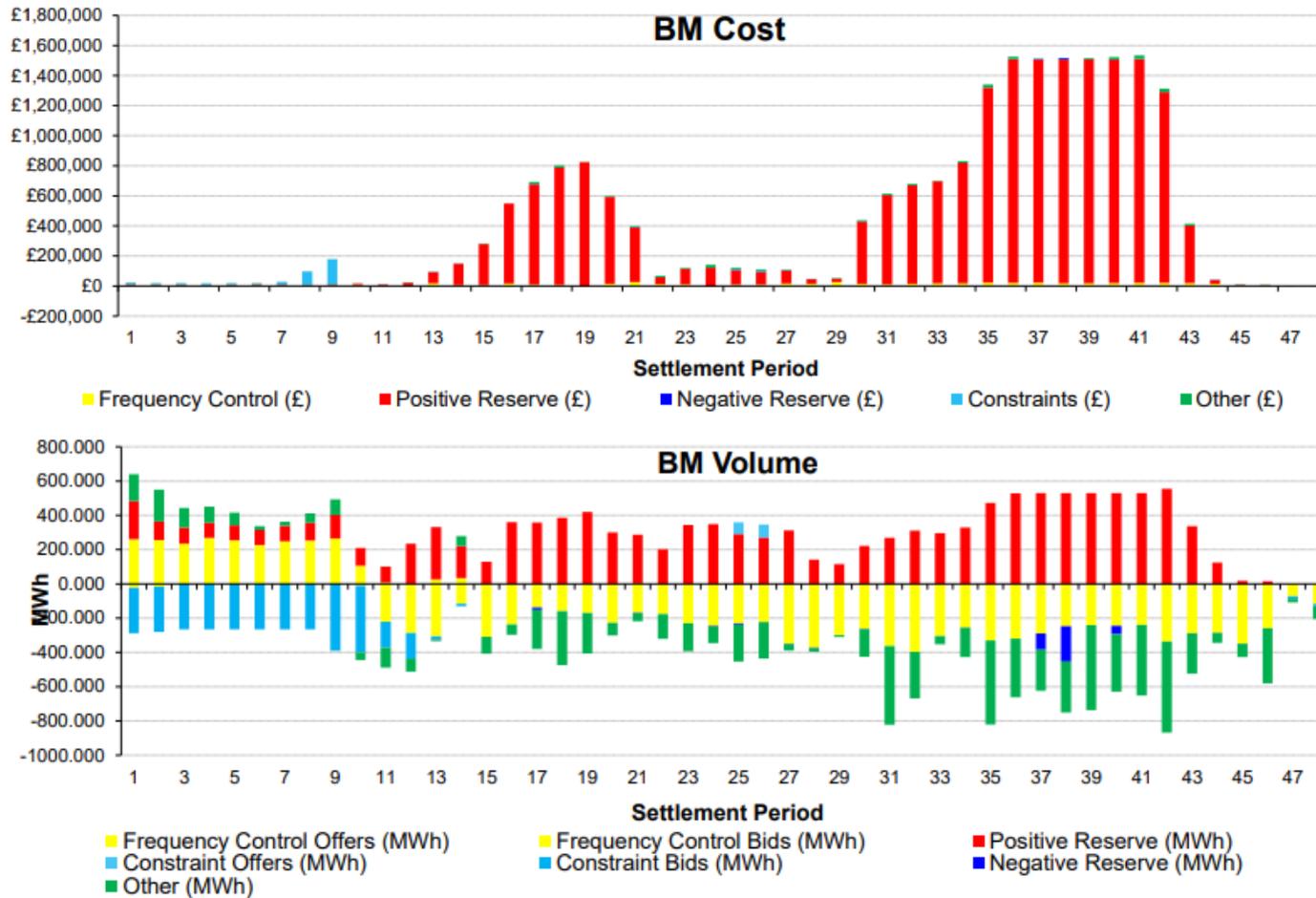
Small volume of action required to synchronise unit for inertia

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

# Transparency | Constraint Capacity



# Transparency | 6 September



High costs on Monday driven by Positive Reserve category.

Relatively stable volume of actions throughout the day. Large variances in cost of these actions driven by high accepted offer prices on a number of units.

## The picture of the day

Very low wind through the day

Demand outturned in line with forecast

>20 large, non-wind units on outage

Additional 6 large, non-wind units returning from outage on the day

Margins were tight throughout the day, particularly for the peak demand period in the morning and in the evening

No constraints were active

## Transparency | 6 September morning peak

Unit	Status at final SOP	Price
WBUPS-1	Warmed and in the plan	£3950/MWh
WBUPS-2	Warmed and in the plan	£3950/MWh
GRAI-6	In the plan	£4950/MWh
Didcot GTs	Contingency	£495/MWh
KILLPG-2	Contingency	£1995/MWh
RYHPS-1	Contingency	£3900/MWh
CRUA-1/2/3/4	Contingency	£4000/MWh
DRAX-5	Not warm	£4000/MWh
DRAX-6	Not warm	£4000/MWh

### Total cost vs. price

Chosen option: WBUPS-1 total run cost for 450MW was £3.2m

Alternative option: RHYPS-1 total run cost for 420MW was £5.7m

### Changes in/ as we approached real-time

Grain-6 was planned to synchronise at 03:15 and was sent a BOA. The unit redeclared their MEL to 0MW at 03:22. The shortfall in MWs in this situation is exactly the reason for holding contingency reserve. The shortfall would have been covered using one of the remaining contingency plants, such as a combination of pumped storage units or other fast acting unit.

Note: Table shows all the large and non-wind units available in the stack. Focus remains on these large units when seeking these volumes of operating margin.

## Transparency | 6 September evening peak

Unit	Status at final SOP	Price
WBUPS-1	Running on PN	-
WBUPS-2	Running on PN	-
DRAXX-5	Warmed and in the plan	£4000/MWh
RYHPS-1	In the plan	£3750/MWh
Didcot GTs	In the plan	£495/MWh
SHBA-1	Contingency	£3950/MWh
SHBA-2	Contingency	£2450/MWh
SEAB-1	Contingency	£2250/MWh
CRUA-1/2/3/4	Contingency	£4000/MWh
DRAXX-6	-	£4050/MWh
GRAI-6	-	£5995/MWh

Note: Table shows all the large and non-wind units available in the stack. Focus remains on these large units when seeking these volumes of operating margin.

### Total cost vs. price

Chosen option: DRAXX-5 total run cost for 645MW was £4.4m

Alternative options:

SEAB-1 total run cost for 721MW was £6.4m, or;

SHBA-1 & use KILLPG-1 to make positive residual “positive” but this option would have left us with virtually no contingency reserve.

### Changes in/ as we approached real-time

Didcot GTs were not run in order to maintain STOR levels in real-time.

WBUPS-2 submitted a desynchronization PN at 17:00 and were sent a BOA [£3475/MWh] to keep them running for the evening peak operating margin.

SEAB-1, SHBA-1 and SHBA-2 all pushed their MEL back and were therefore not available for the evening peak. This shows why holding contingency is important.

### Other notes

Emergency Assistance from GB to France was reduced to 500MW between 16:00 and 21:00.

Close cooperation between SONI and NGESE was maintained throughout the day to balance the needs of the Irish and GB systems. SONI were concerned about needing to load shed over the evening peak and sought assistance. Once the DRAXX-5 unit was up to full load NGESE were able to provide Emergency Assistance.

## 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](mailto: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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