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

ESO Operational Transparency Forum

6 April 2022

nationalgridESO

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:
https://data.nationalgrideso.com/plans-reports-analysis/covid-19-preparedness-materials

Regular Topics

Questions from last week
Business continuity
Demand review
Costs for last week
Constraints

Focus Areas

Future System Operator Update
Stability Pathfinder Phase 2 results
Changes to the Dynamic Containment Buy Curve
Balancing Capability Strategic Review

Updates

Manifest Error

3 April 2022 - Settlement period 40 (half hour ending 20:00)
A BOA was sent in error to REHI-4 at a BOA price of £9,999/MWh.
This is now being processed as a Manifest Error

System Disturbance

NGESO noticed a system disturbance which started at around 17:09 hours on 4th April 2022. This small magnitude of the system frequency fluctuation has stopped at around 17:31 hours. The investigation is ongoing into the cause of the event and we will bring an update to this forum when possible.

Submission of BM information

As a reminder, dynamic data should only be updated via EDL when there is a requirement that affects the next four hours.
Redeclarations affecting the timeframe beyond this should be submitted by EDT.
Submitting large volumes of redeclarations for the same unit through EDL can cause errors in data acceptance and the BM systems slowing down and potentially crashing as has happened in recent weeks.

Business Continuity

Maintaining our business continuity and contingency plans remains a priority for us and is continually monitored. At this point in time we have removed the standard slide from this pack but we will continue to update you with our continuity operations as required.

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:

Managing constraints in real-time – voltage
rearranged to next week
Managing constraints in real-time – inertia, RoCoF

Questions outstanding from previous weeks

Q: Is B6 Maximum boundary capacity 5.3GW? ETYS says B6 capability is 6.1GW (thermal constraint) considering ETYS FES data. Why this is different?

A: We have reviewed the B6 max limit and with an intact network a limit of 5.6GW is possible. The charts will be updated to reflect this. The difference between the ETYS limit of 6.1GW and the current max limit of 5.6GW is due to differences in the generation background, the generation that is available now compared with what was forecast when the EYTS studies were done.

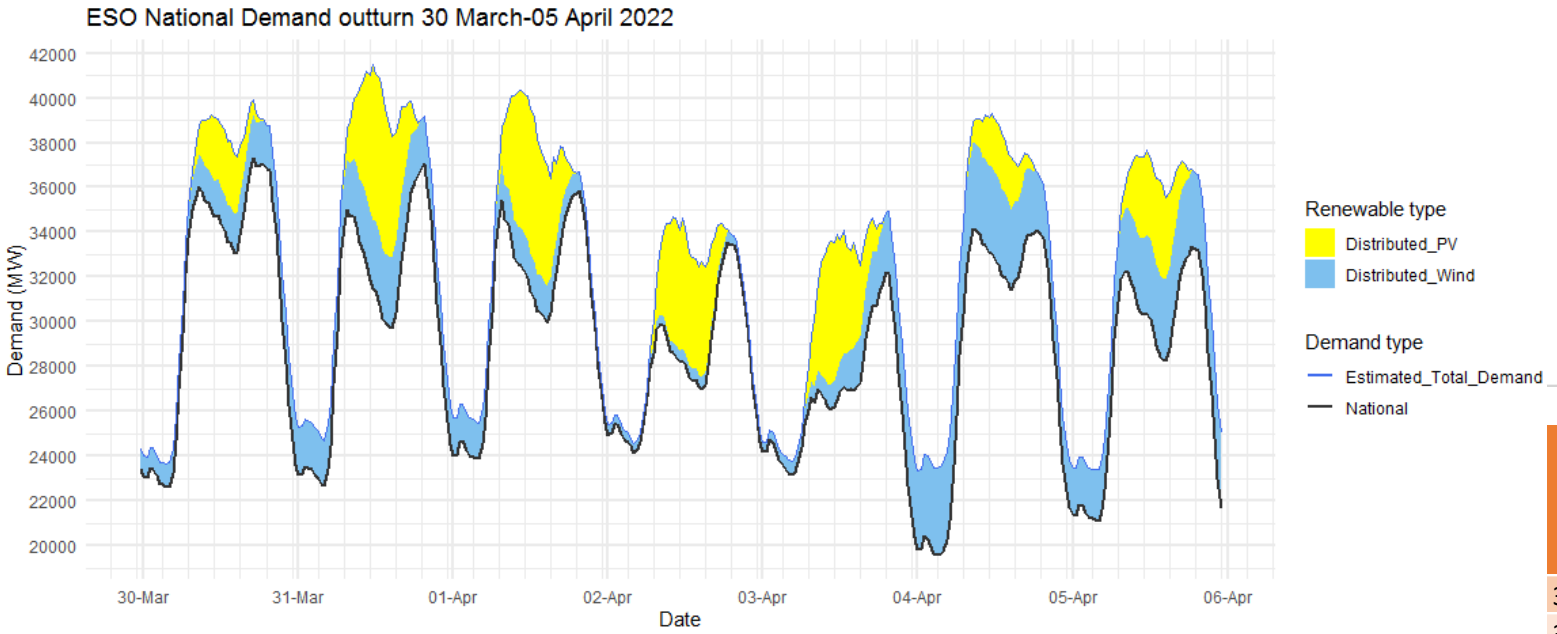
Outstanding questions we are still working on

Q: So it sounds like the LCM will result in costs to bid back generation but you still haven't addressed why you don't bid pumped storage to pump, often at lower cost than e.g. bidding back wind?

Key messages

- The ESO, including **all of its existing roles,** will be at the heart of the new future system operator
- This new organisation will be in the **public sector**, with independence from government
- The Future System Operator will expand over time to look at the **whole energy system**. An important first step will see it take on new activities in gas network planning, gas market strategy and long term gas forecasting
- The Future System Operator could be established by or in 2024, with new roles and capability being introduced in a **phased approach**
- We are pleased to have signed a multi-party statement with BEIS, Ofgem and National Grid Plc. This statement shows our **collective commitment** to progressing the establishment of the Future System Operator.

Demand | Last week demand out-turn



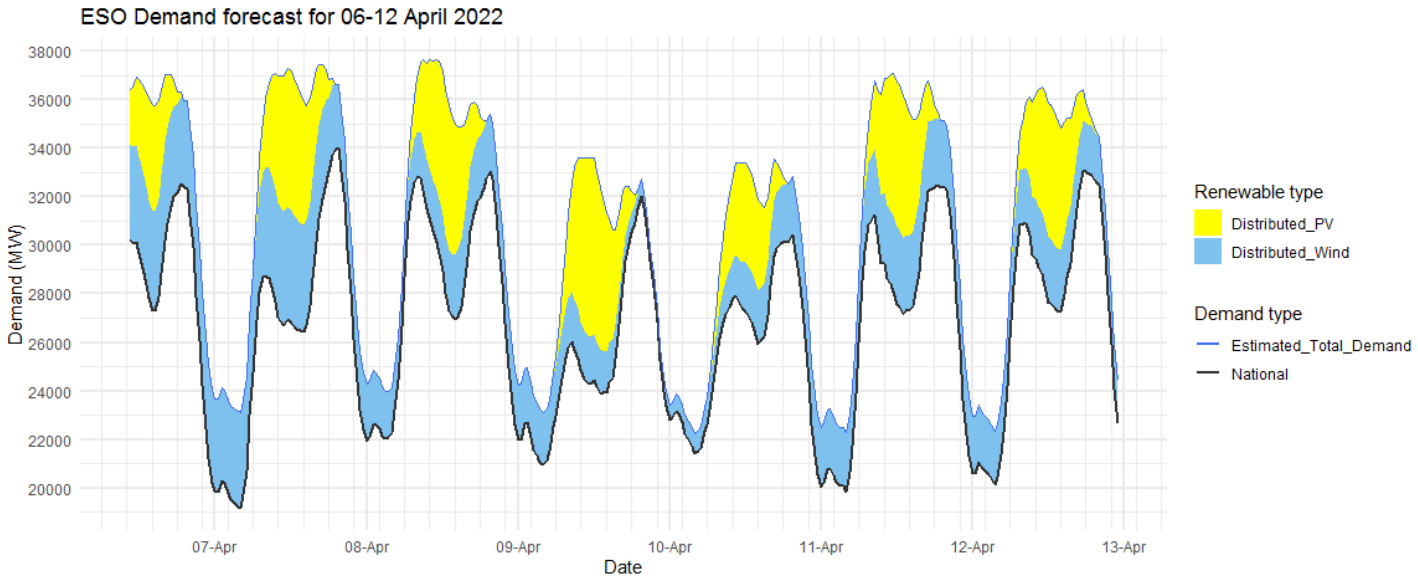
		FORECAST (Wed 30 Mar)		OUTTURN	
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	National Demand (GW)	Dist. wind (GW)
30 Mar 2022	Evening Peak	36.3	2.3	37.3	2.0
31 Mar 2022	Overnight Min	22.7	2.0	22.7	2.0
31 Mar 2022	Evening Peak	36.8	2.2	36.5	2.2
01 Apr 2022	Overnight Min	23.7	1.6	23.9	1.7
01 Apr 2022	Evening Peak	36.0	1.1	35.6	1.0
02 Apr 2022	Overnight Min	23.6	0.7	24.2	0.4
02 Apr 2022	Evening Peak	34.2	0.7	33.5	0.5
03 Apr 2022	Overnight Min	22.7	0.6	23.2	0.6
03 Apr 2022	Evening Peak	33.5	1.4	31.6	2.6
04 Apr 2022	Overnight Min	21.9	1.7	19.6	3.9
04 Apr 2022	Evening Peak	36.3	2.3	34.1	2.6
05 Apr 2022	Overnight Min	22.1	2.1	21.1	2.3
05 Apr 2022	Evening Peak	35.2	2.4	33.4	3.4

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.

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



		FORECAST (Wed 06 Apr)		
Date	Forecasting Point	National Demand (GW)	Dist. wind (GW)	Dist. PV (GW)
06 Apr 2022	Afternoon Min	27.3	4.1	4.4
07 Apr 2022	Overnight Min	19.2	3.9	0.0
07 Apr 2022	Afternoon Min	26.4	4.4	5.1
08 Apr 2022	Overnight Min	21.9	2.3	0.0
08 Apr 2022	Afternoon Min	26.9	2.7	5.4
09 Apr 2022	Overnight Min	21.0	2.2	0.0
09 Apr 2022	Afternoon Min	23.9	1.8	6.7
10 Apr 2022	Overnight Min	21.4	0.8	0.0
10 Apr 2022	Afternoon Min	25.9	2.2	3.8
11 Apr 2022	Overnight Min	19.8	2.4	0.0
11 Apr 2022	Afternoon Min	27.1	3.2	5.8
12 Apr 2022	Overnight Min	20.2	2.2	0.0
12 Apr 2022	Afternoon Min	27.2	2.6	5.3

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

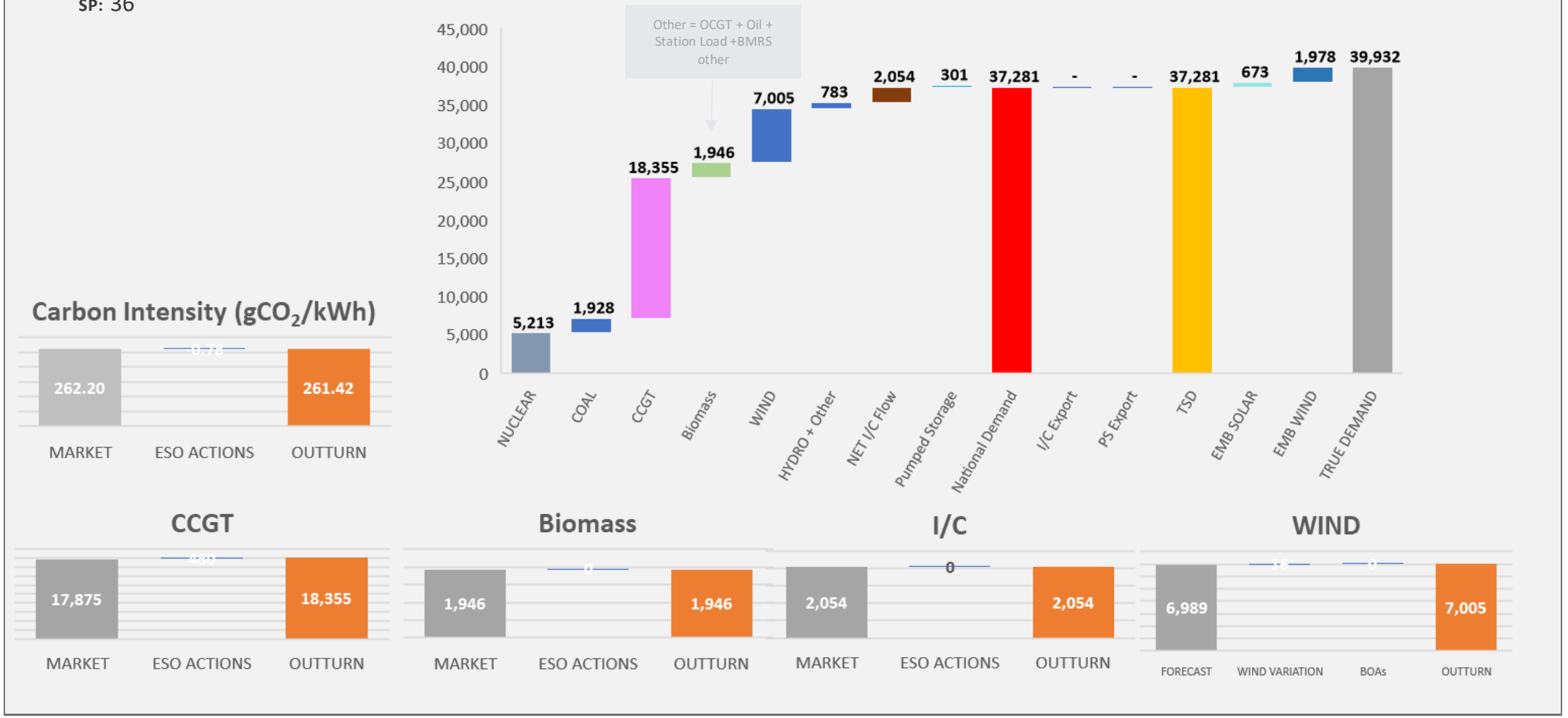
Blue line serves as a proxy for total GB customer demand. It includes demand supplied by the distributed wind and solar sources, but it does not include demand supplied by non-weather driven sources at the distributed network for which ESO has no real time data.

Forecast of the embedded solar & wind generation for the next 14 days can be found on the ESO Data Portal in the following data set: Embedded Solar and Wind Forecast

ESO Actions | Wednesday 30 March Peak

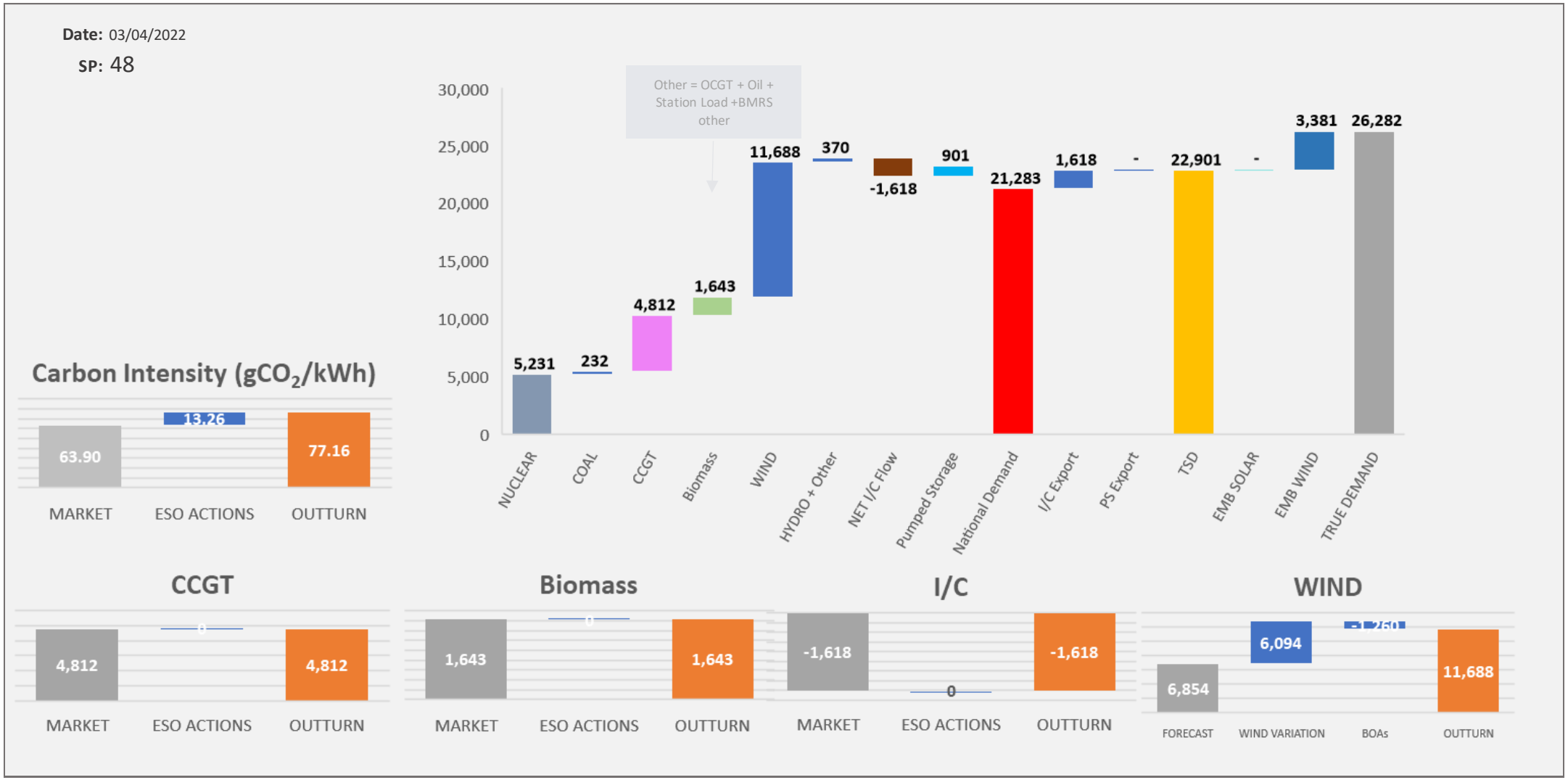
Date: 30/03/2022

SP: 36



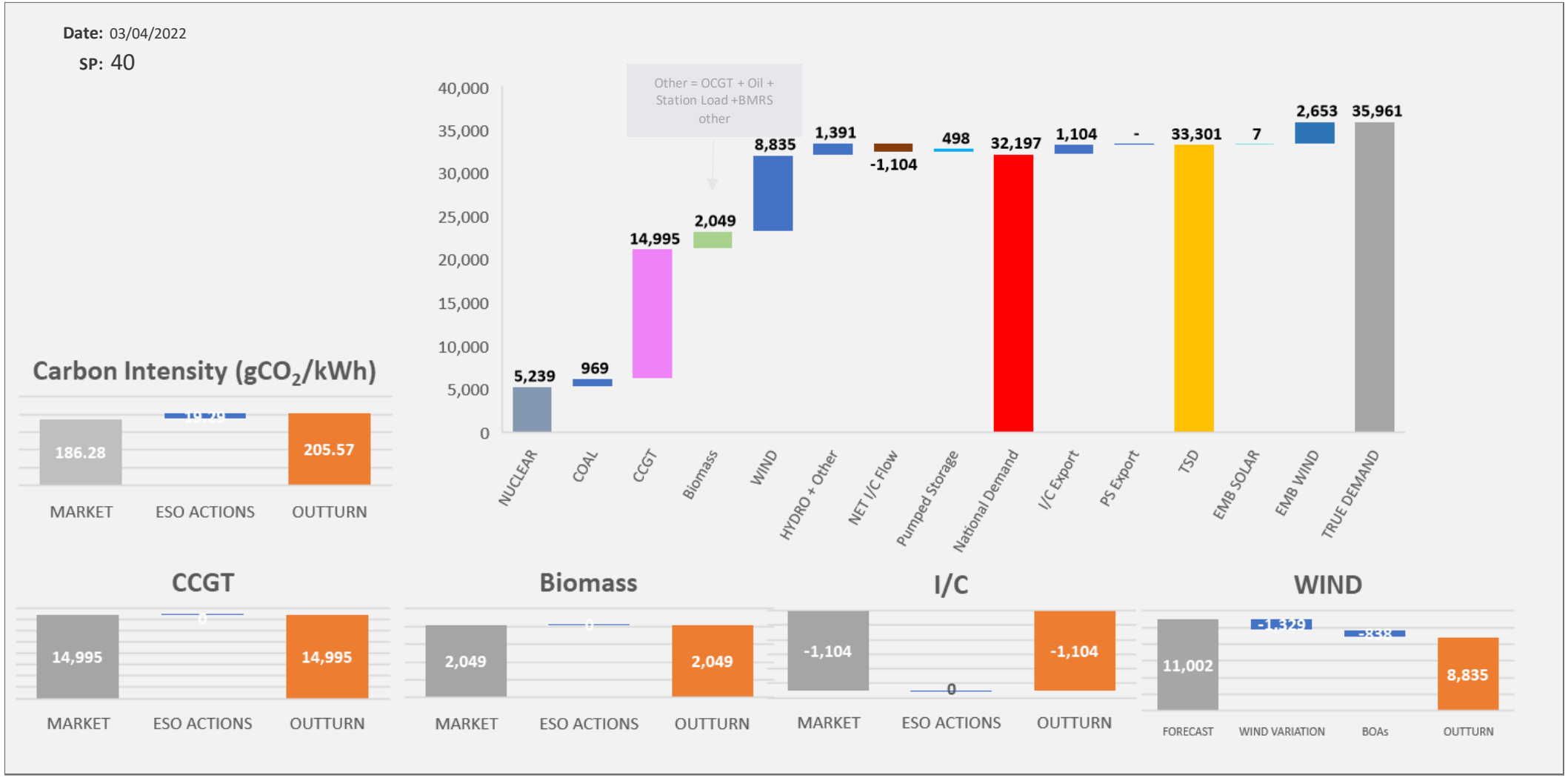
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Sunday 03 April Minimum



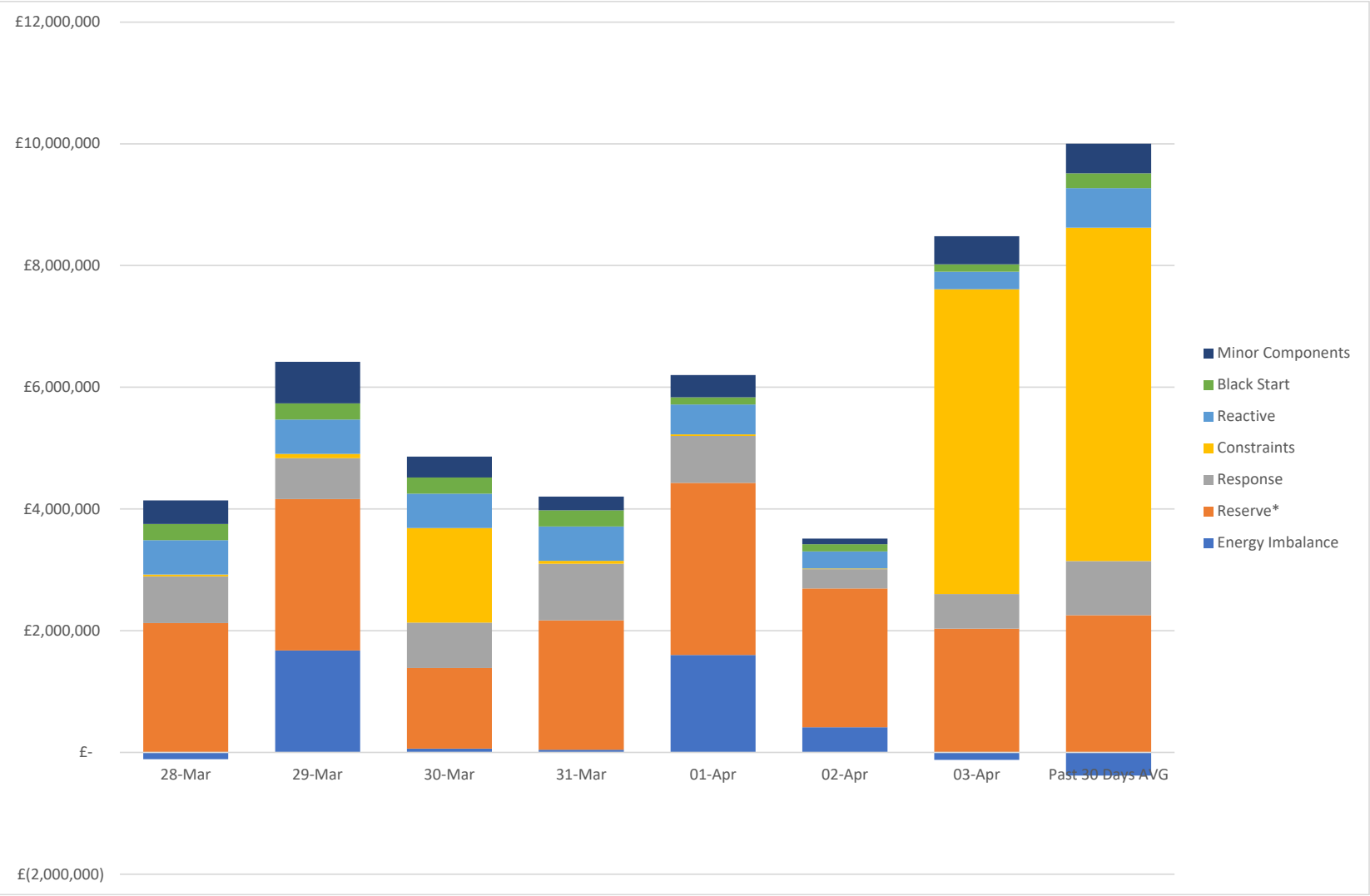
Carbon Intensity data on data portal: https://data.nationalgrideso.com/carbon-intensity1/carbon-intensity-of-balancing-actions

ESO Actions | Sunday 03 April Highest Spend ~£0.5m on SP40



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

Transparency | Category costs breakdown for the last week

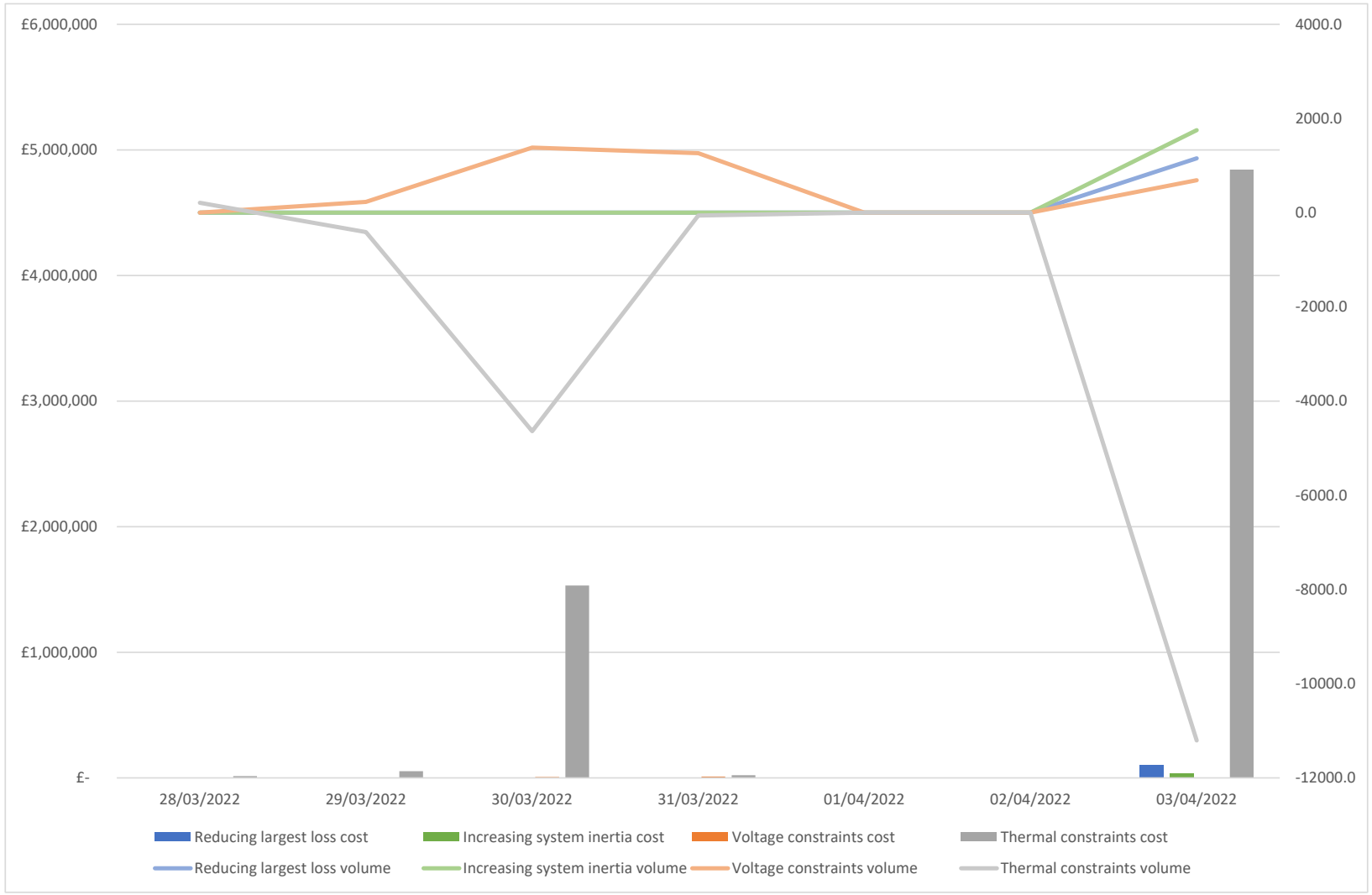


Day	£m
28/03/2022	4.0
29/03/2022	6.4
30/03/2022	4.9
31/03/2022	4.2
01/04/2022	6.2
02/04/2022	3.5
03/04/2022	8.4

Reserve costs were the main component of the daily spend on most days.
Wednesday and Sunday costs associated to constraints were predominant.

Past 30 Days Average is displayed in the chart

Transparency | Constraint Cost Breakdown



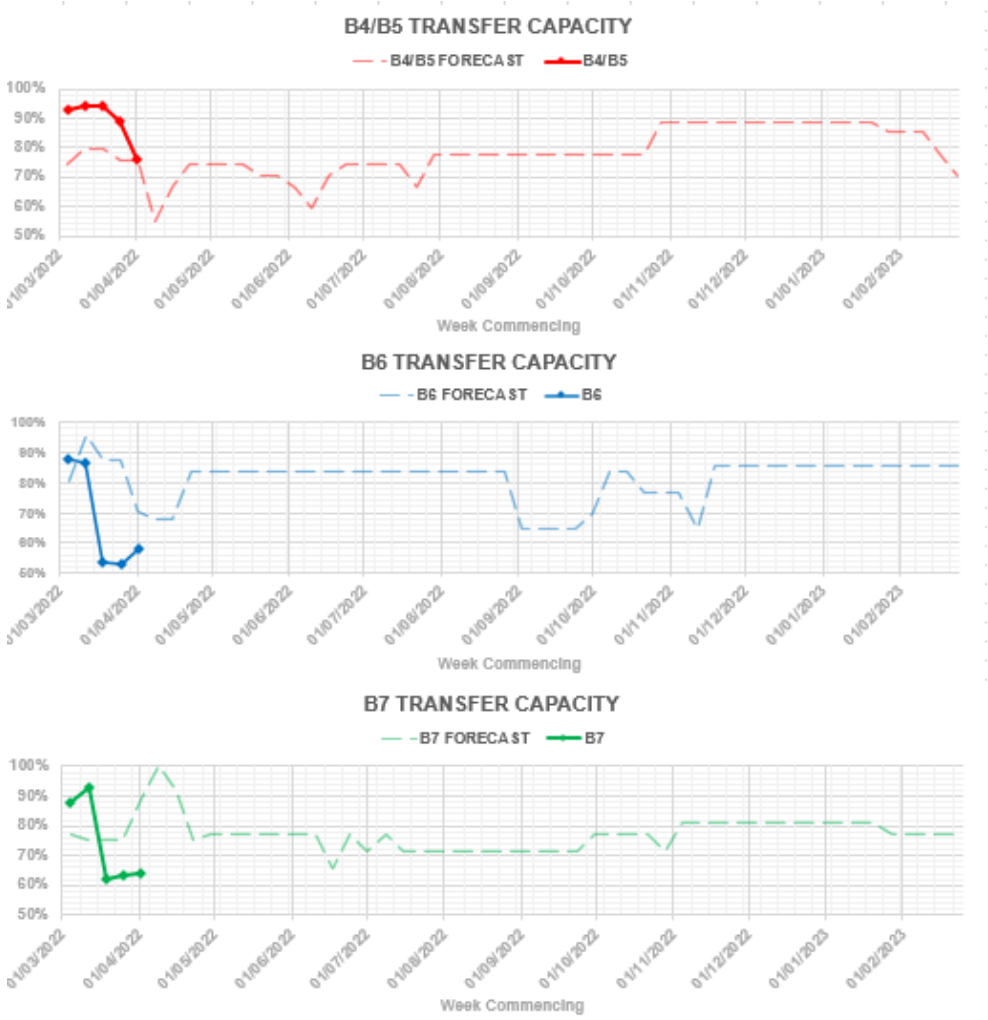
Thermal – network congestion
No Actions required to manage Thermal Constraints on Friday and Saturday.

Voltage
Actions taken to synchronise generation to meet voltage requirements were required Wednesday and Thursday.

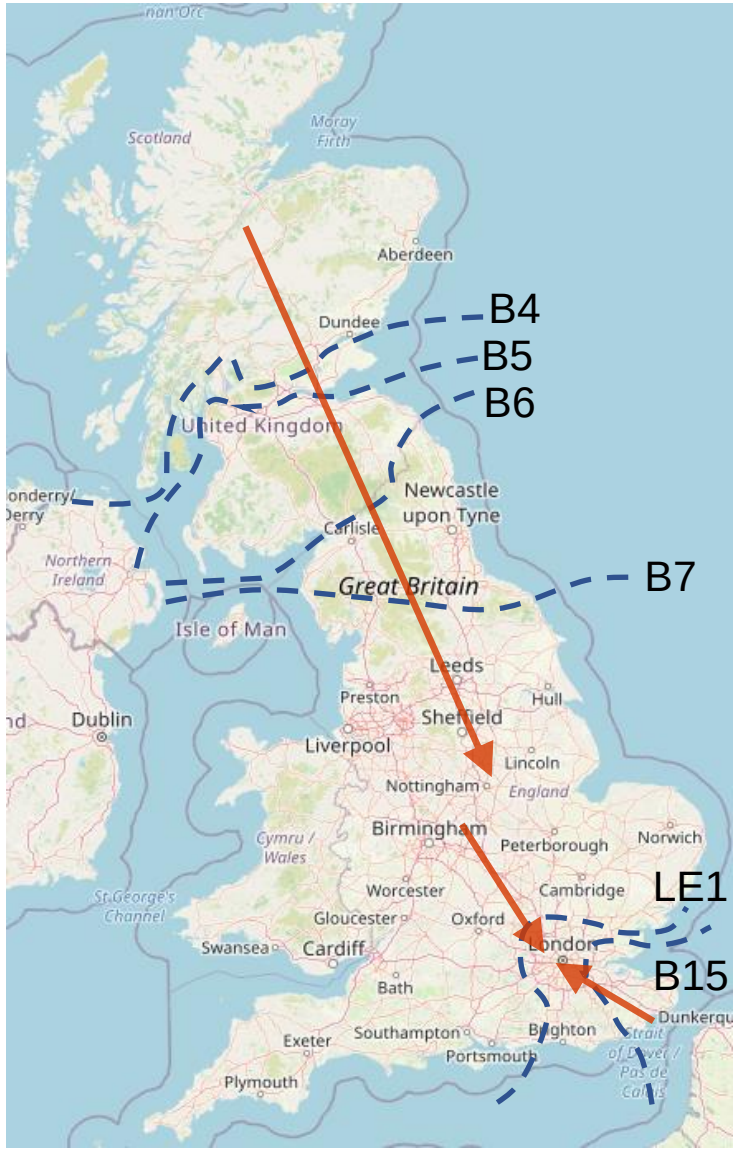
Managing largest loss for RoCoF
Intervention required to manage largest loss on interconnectors on Sunday.

Increasing inertia
No intervention required to increase minimum inertia.

Transparency | Network Congestion

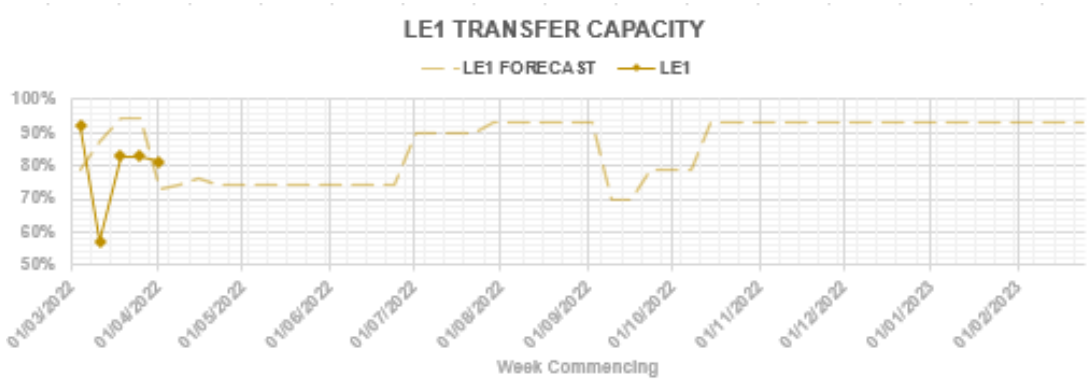


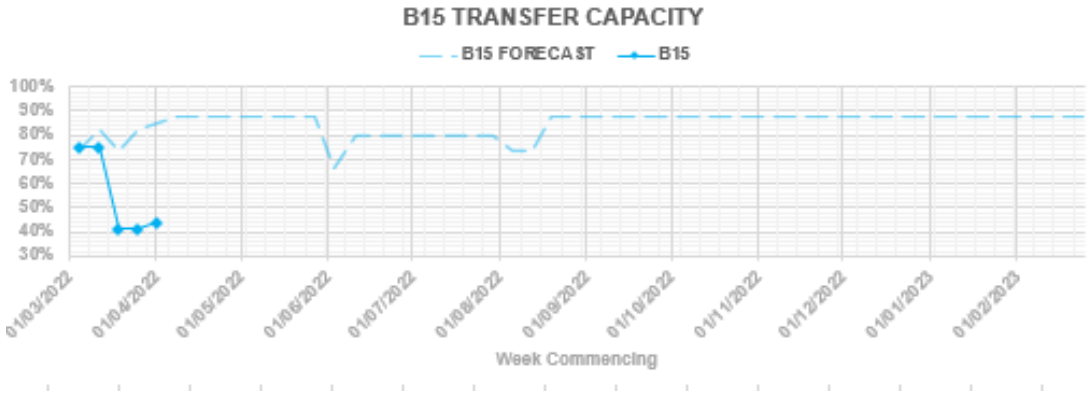
Boundary	Max. Capacity (MW)
B4/B5	2700
B6	5600
B7	8400
LE1	7000
B15	7500



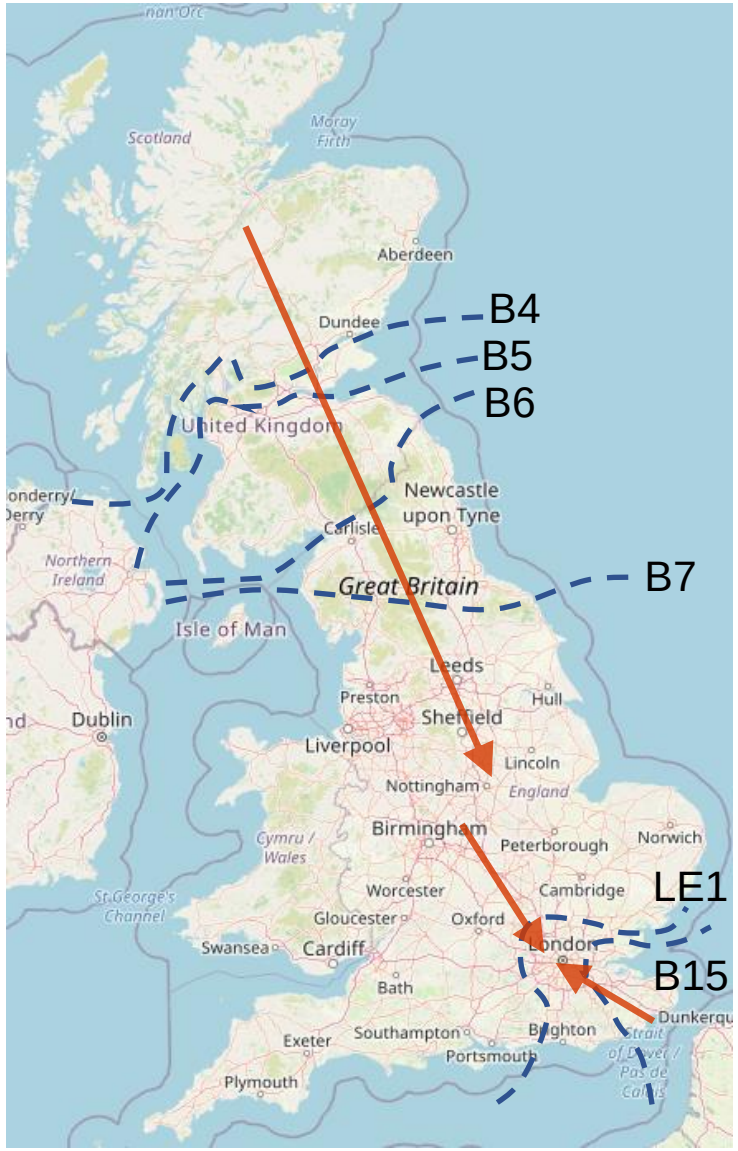
Day ahead flows and limits, and the 24 month constraint limit forecast are published on the ESO Data Portal:
https://data.nationalgrideso.com/data-groups/constraint-management

Transparency | Network Congestion





Boundary	Max. Capacity (MW)
B4/B5	2700
B6	5600
B7	8400
LE1	7000
B15	7500



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

Stability Pathfinder Phase 2 Results

Background

- Stability Phase 2 was seeking to procure **6GVA.s of inertia** and **8.4GVA of Short Circuit Level** in Scotland
- This is to due declining levels of transmission connected synchronous generation
- The tender competed transmission owner options alongside those offered by commercial parties
- The service was opened to new technologies to offer innovative solutions to meet the needs

Results

- 10 contracts have been awarded to 4 parties to deliver the stability service between 2024 and 2034
- These will provide **6.75 GVAs of inertia** and **11.55 GVA of SCL**
- The forecast cost of these contracts is £323m
- 5 solutions will be synchronous condensers with the others being grid forming converters – this is believed to be a world first

Company	Location	Technology type
Statkraft	Coylton	Grid forming battery storage
	Neilston	Grid forming battery storage
TINZ Programme 1 ProjectCo 3 Ltd	Beatrice	Synchronous condenser
Zenobe Energy Limited	Blackhillock	Grid forming battery storage
	Kilmarnock South	Grid forming battery storage
	Eccles	Grid forming battery storage
Welsh Power Grid Services	Gretna	Synchronous condenser
	Rothienorman	Synchronous condenser
	Thurso South	Synchronous condenser
	Neilston	Synchronous condenser

Announcement: https://www.nationalgrideso.com/news
Results file: Stability Phase 2 webpage
Contact: box.futureofbalancingservices@nationalgrideso.com

Balancing Capability – Strategic Review

Stepping back and strategic review

Our understanding of the complexity and scale of the transition from existing to future balancing capability has developed greatly since we submitted our first RIIO-2 business plan.
We are keen to receive views and input from a wide range of stakeholders, to ensure that further investment will enable us to:

- Meet our net-zero carbon operability ambition.
- Continue to remove barriers to entry for energy providers and encourage participation in the market.
- Operate within increasingly challenging system conditions.
- Shape an optimum transition path between our current and future balancing capability.

Join our forum events

Our engagement begins in April and continues through May. This will include dedicated collaborative forum events, the first of which will take place on 7 April. These will address different aspects of the review and seek input and feedback from stakeholders.

Our first forum is a webinar that we are hosting via MS Teams. Please sign up via Eventbrite to attend:
https://www.eventbrite.co.uk/e/310571607037

More information

Further details are available on our website - https://www.nationalgrideso.com/industry-information/balancing-services/balancing-programme/strategic-capability-review
Review the open letter to industry - https://www.nationalgrideso.com/document/248016/download
If you have any questions or comments, please contact us at Box.BalancingProgramme@nationalgrideso.com

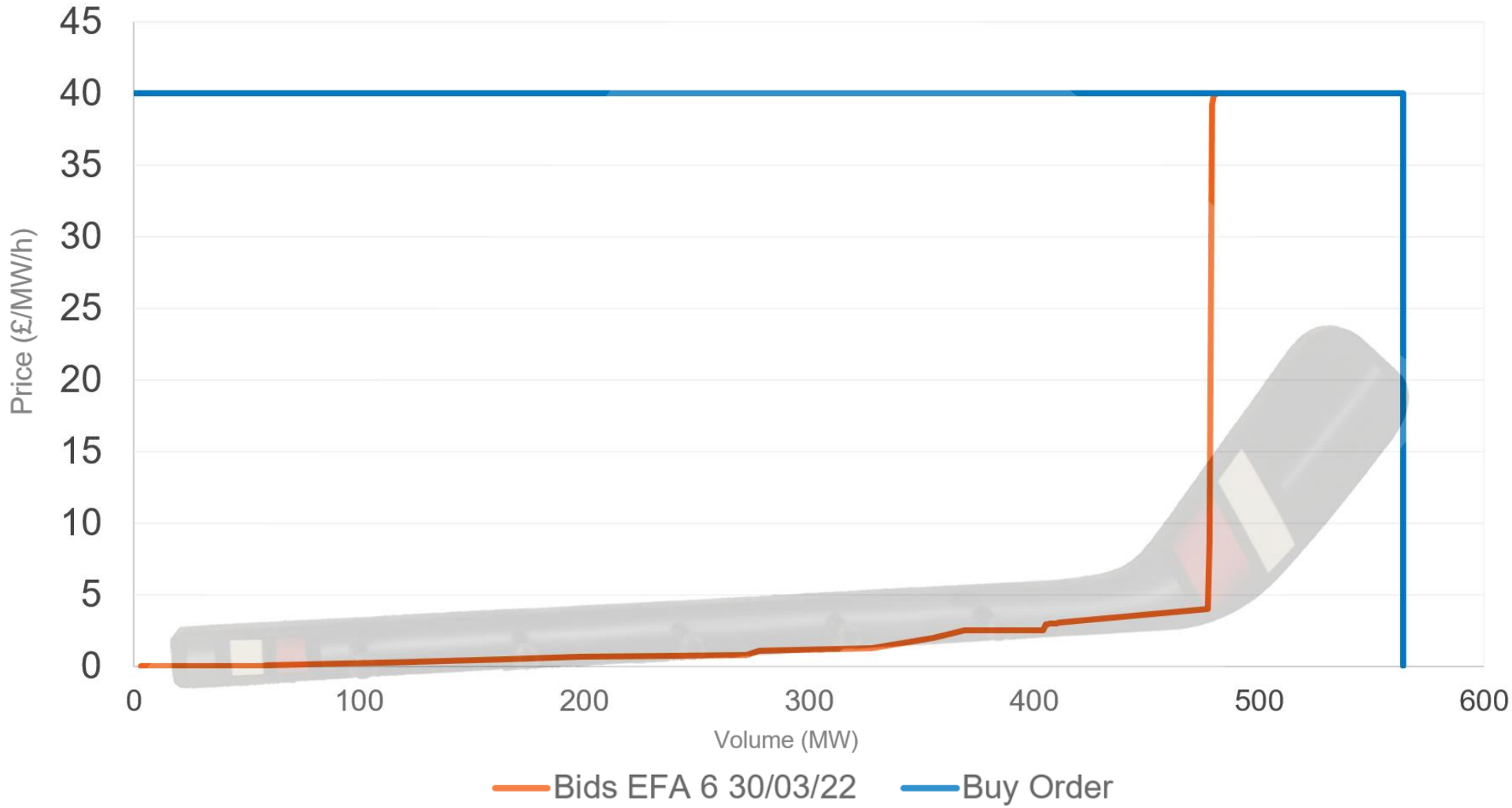
Changes to the Dynamic Containment Buy Order

Sli.do code #OTF

1. Overholding Adjustments
2. Updated alternative cost methodology

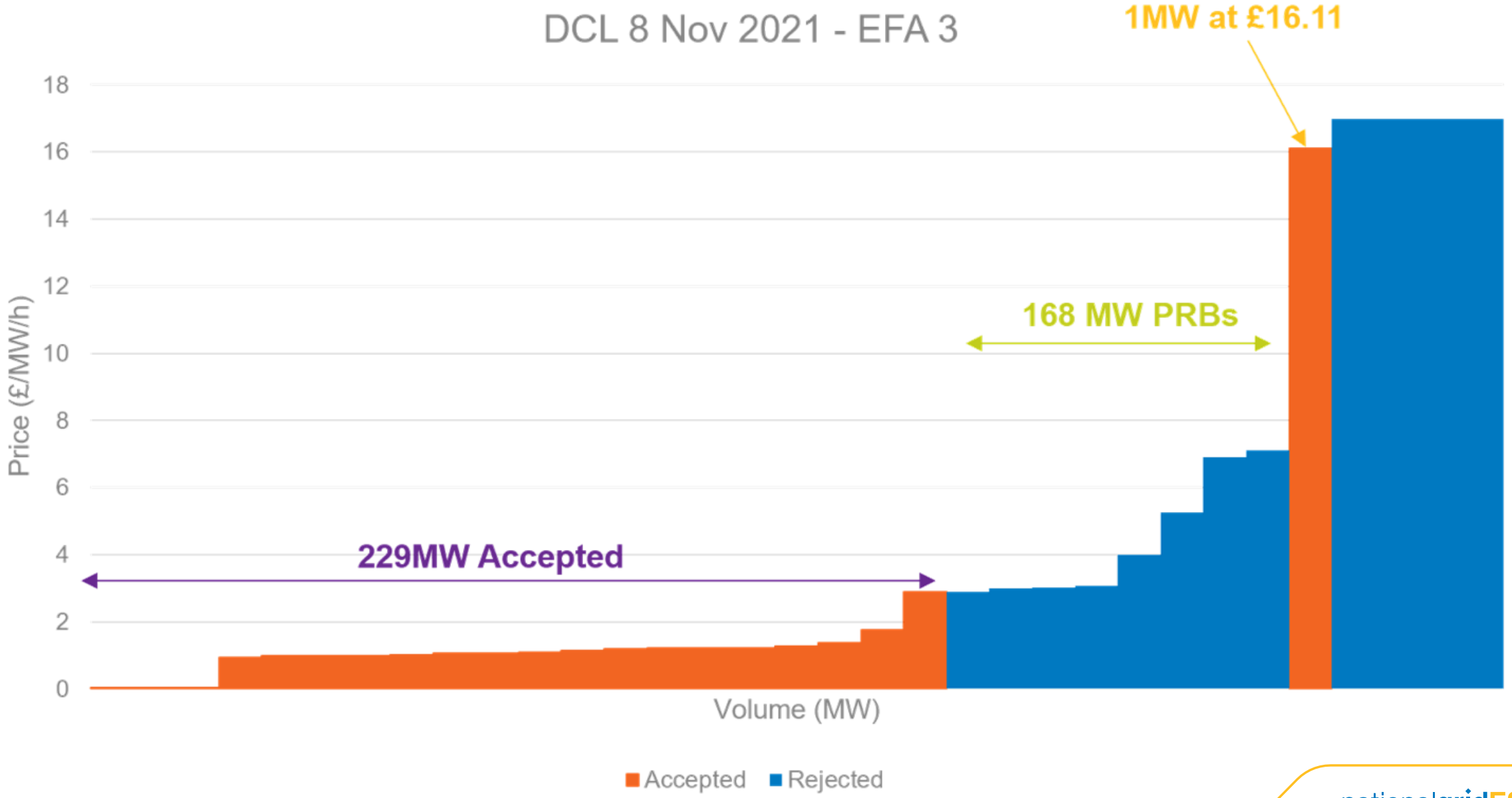
Overholding adjustments: Hockey Stick Bids

Sli.do code #OTF



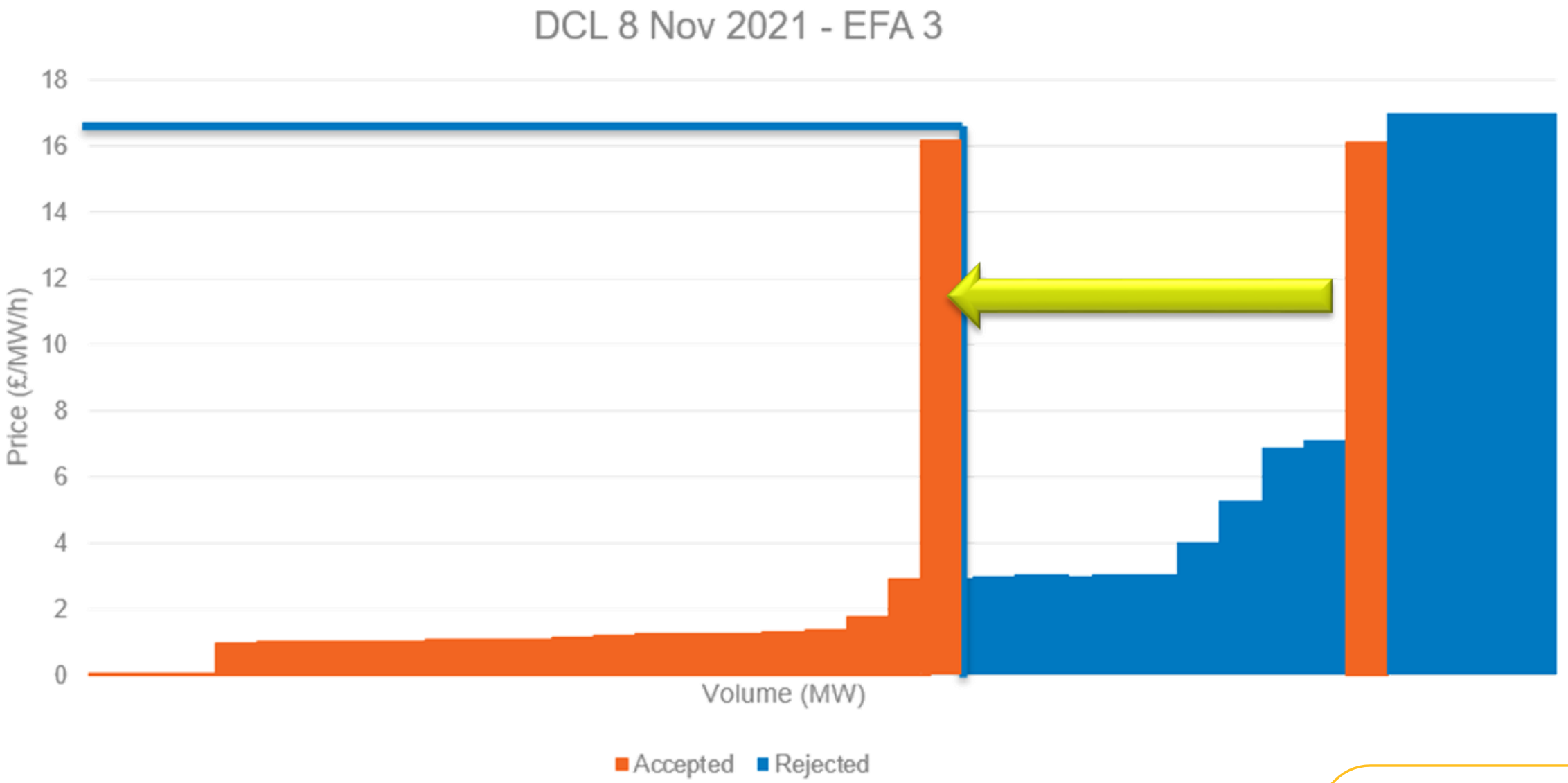
Overholding adjustments: Hockey Stick Bids - example

Sli.do code #OTF



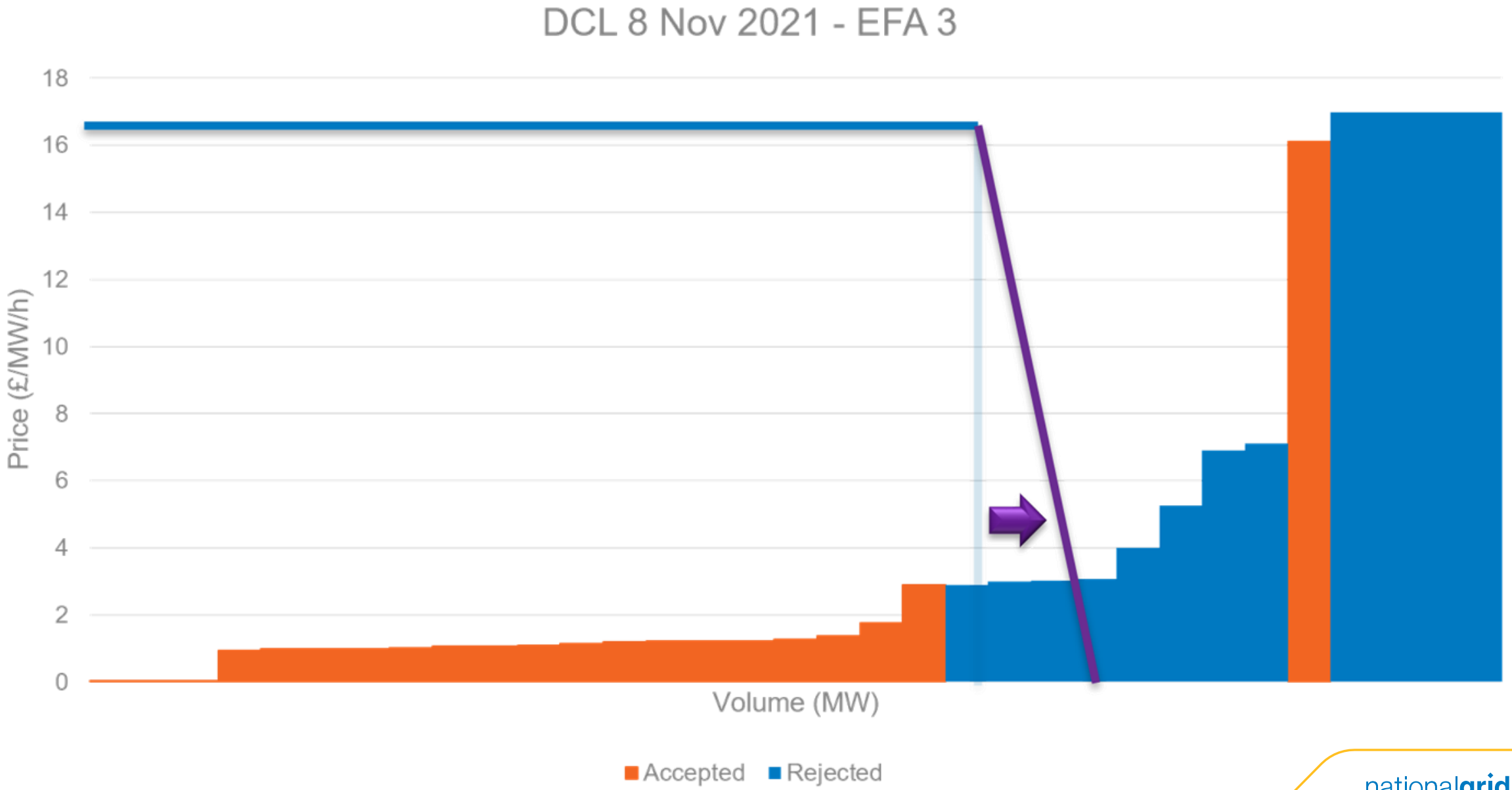
Overholding adjustments: Hockey Stick Bids - example

Sli.do code #OTF



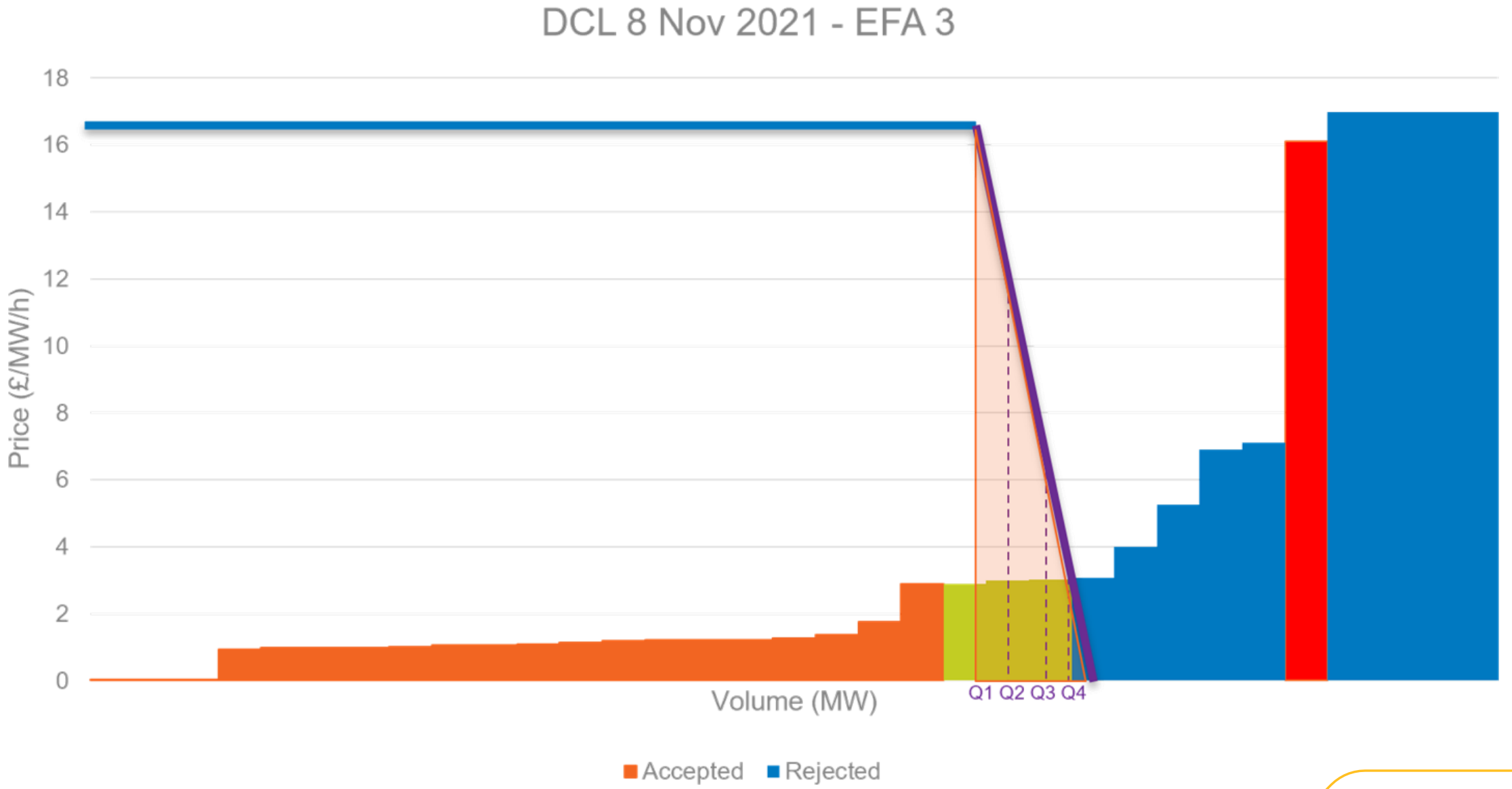
Overholding adjustments: Hockey Stick Bids - Overholding

Sli.do code #OTF



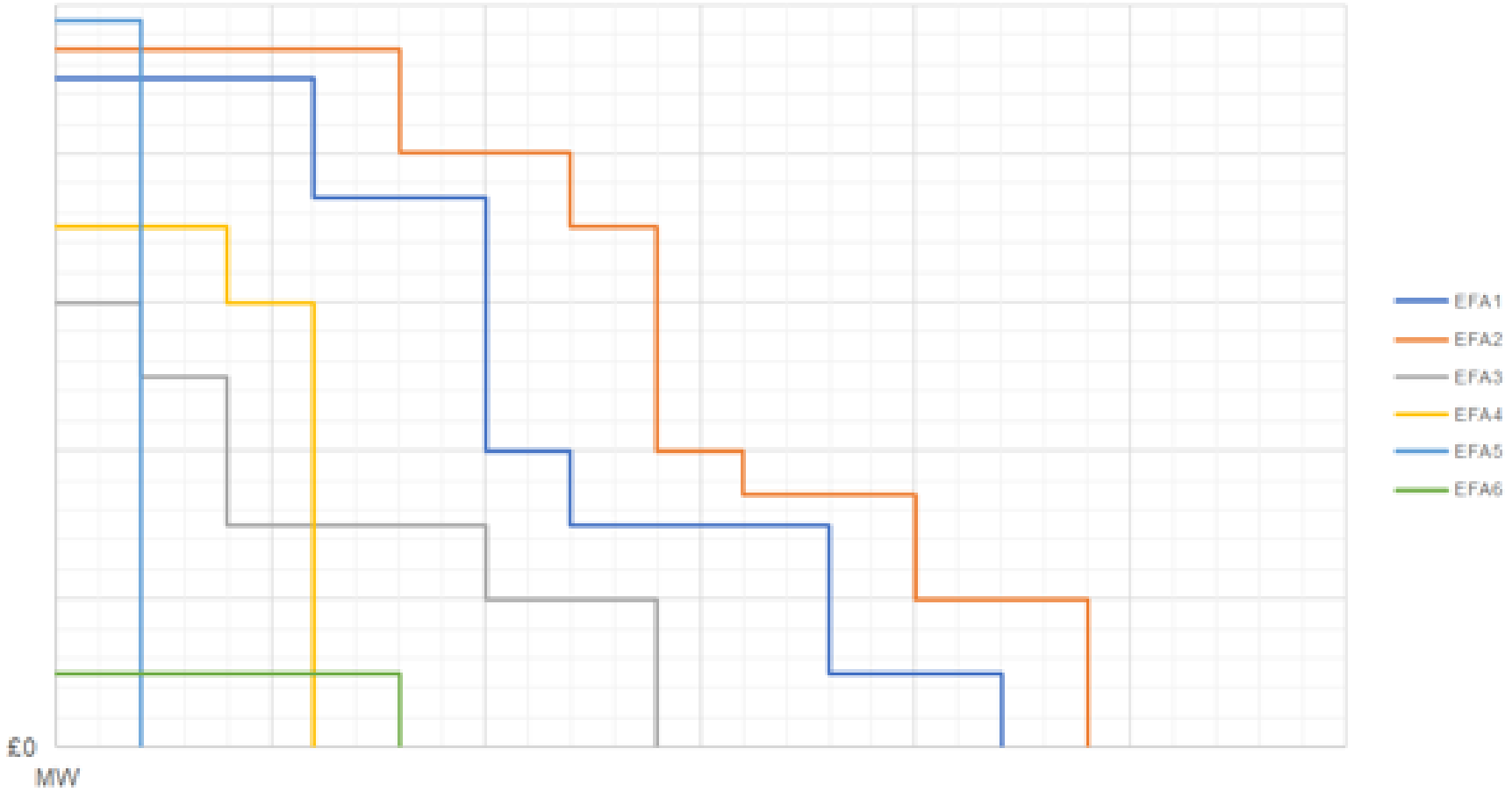
Overholding adjustments: example

Sli.do code #OTF



Updated Alternative Cost Methodology: Offsetting Alternative Actions

Sli.do code #OTF



Dynamic Containment Requirements

Sli.do code #OTF

nationalgridESO Frequency Response Market Information Report | March 2022

Dynamic Containment

This section provides information on requirements for Dynamic Containment Low Frequency (DC-LF) and Dynamic Containment High Frequency (DC-HF). These requirements are indicative and subject to change.

DC-LF Requirements for 2022

Figure 3 presents an indicative view of our expected requirements for the DC-L service. This is split into 200MW volume bands which can be seen in the top middle section of the graphic. For each month the % of time we expect the DC-L requirements to fall within the associated band (based on current assumptions) for each EFA block is represented by the shading of the associated cells as described at the bottom of figure 3.

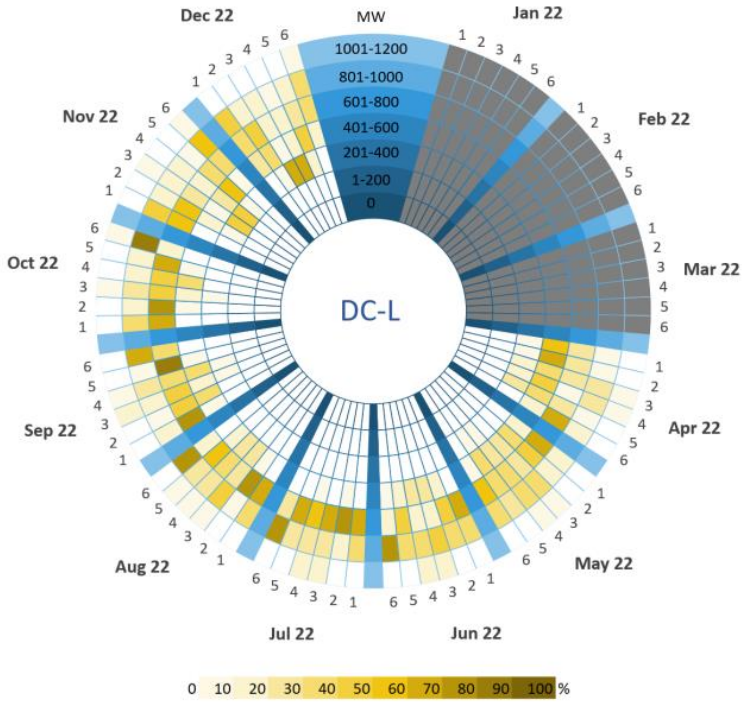


Figure 3: Indicative DC-L Requirements 2022

Date	Service_Type	EFA_1	EFA_2	EFA_3	EFA_4	EFA_5	EFA_6
2022-04-06	DC-H	624	631	485	448	449	432
2022-04-06	DC-L	663	670	650	775	770	639
2022-04-07	DC-H	621	625	447	470	473	365
2022-04-07	DC-L	717	708	746	898	870	454
2022-04-08	DC-H	577	560	347	311	312	309
2022-04-08	DC-L	603	577	436	487	474	440
2022-04-09	DC-H	478	537	457	441	437	333
2022-04-09	DC-L	512	551	514	830	773	449

Previous 1 Next

Supporting Information

Sli.do code #OTF

Buy Curves and Auction Results:
https://data.nationalgrideso.com/ancillary-services/dynamic-containment-data

DC 4 Day Forecast:
https://data.nationalgrideso.com/ancillary-services/dynamic-containment-4-day-forecast

Contact the Balancing Services Optimisation team:
box.AncillaryAssessment@nationalgrideso.com

Market Simulation Exercise: more details soon

The first auction for Dynamic Regulation will go live on Friday this week at 14:30 on the EPEX Auction platform so just a reminder if you haven't already, please complete system testing. Any questions, us at:
box.futureofbalancingservices@nationalgrideso.com

nationalgridESO

slido

Audience Q&A Session

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

Q&A

Please remember to use the feedback poll after the event. We welcome feedback to understand what we are doing well and how we can improve the event ongoing.

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

nationalgridESO