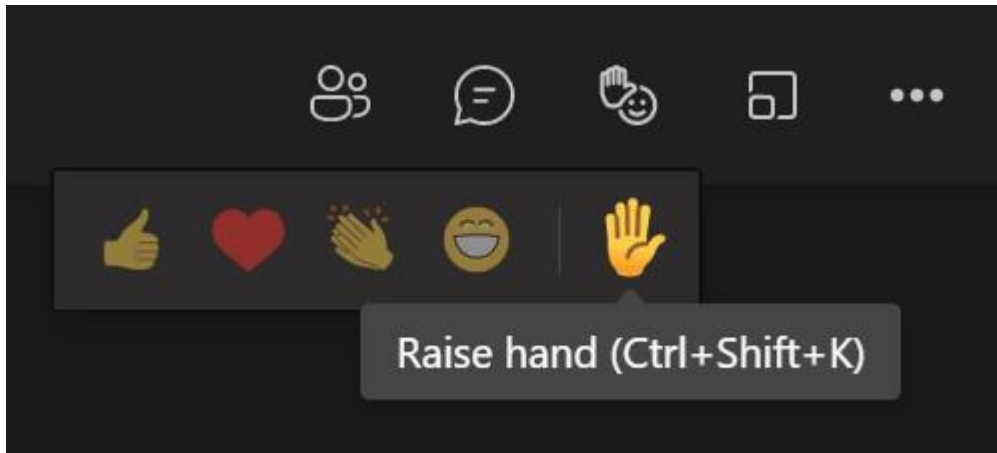


P443 Digital Meeting Etiquette

- Welcome to **P443 ‘To Cap NGESO Interconnector Trades at the Value of Lost Load (VoLL)’** Workgroup Meeting 1 – we’ll start shortly
- No video please to conserve bandwidth
- Please stay on mute unless you need to talk – use the **Raise hand** feature in the menu bar in Microsoft Teams if you want to speak, or use the **Meeting chat**



- Lots of us are working remotely – be mindful of background noise and connection speeds

ELEXION

P443 Workgroup 1

To Cap NGESO Interconnector Trades at the Value of Lost Load (VoLL)

15 September 2022

Meeting Agenda & Objectives

- Consideration of the background to P443 and proposed solution
- Consideration of the P443 Terms of Reference

Agenda Item	Lead
1. Welcome and Meeting objectives	Lawrence Jones (Chair)
2. What is the issue and proposed solution?	Lisa Waters (Proposer’s representative, Waters Wye Associates on behalf of Saltend Cogeneration Company Ltd)
3. Terms of Reference	Paul Wheeler (Lead Analyst)
4. Workgroup views on the Issue	Workgroup
5. How do National Grid ESO decide how to take balancing actions?	Louise Trodden (National Grid ESO)
6. NGESO changes required and impacts	Louise Trodden
7. Who should the solution apply to?	Workgroup
8. What could be the unintended consequences of the proposed solution? (Storyboarding exercise)	National Grid ESO/Elexon facilitate Workgroup discussion
9. Progression Plan & Next steps	Paul Wheeler
10. AOB & Meeting close	Lawrence Jones



WHAT IS THE ISSUE AND PROPOSED SOLUTION?

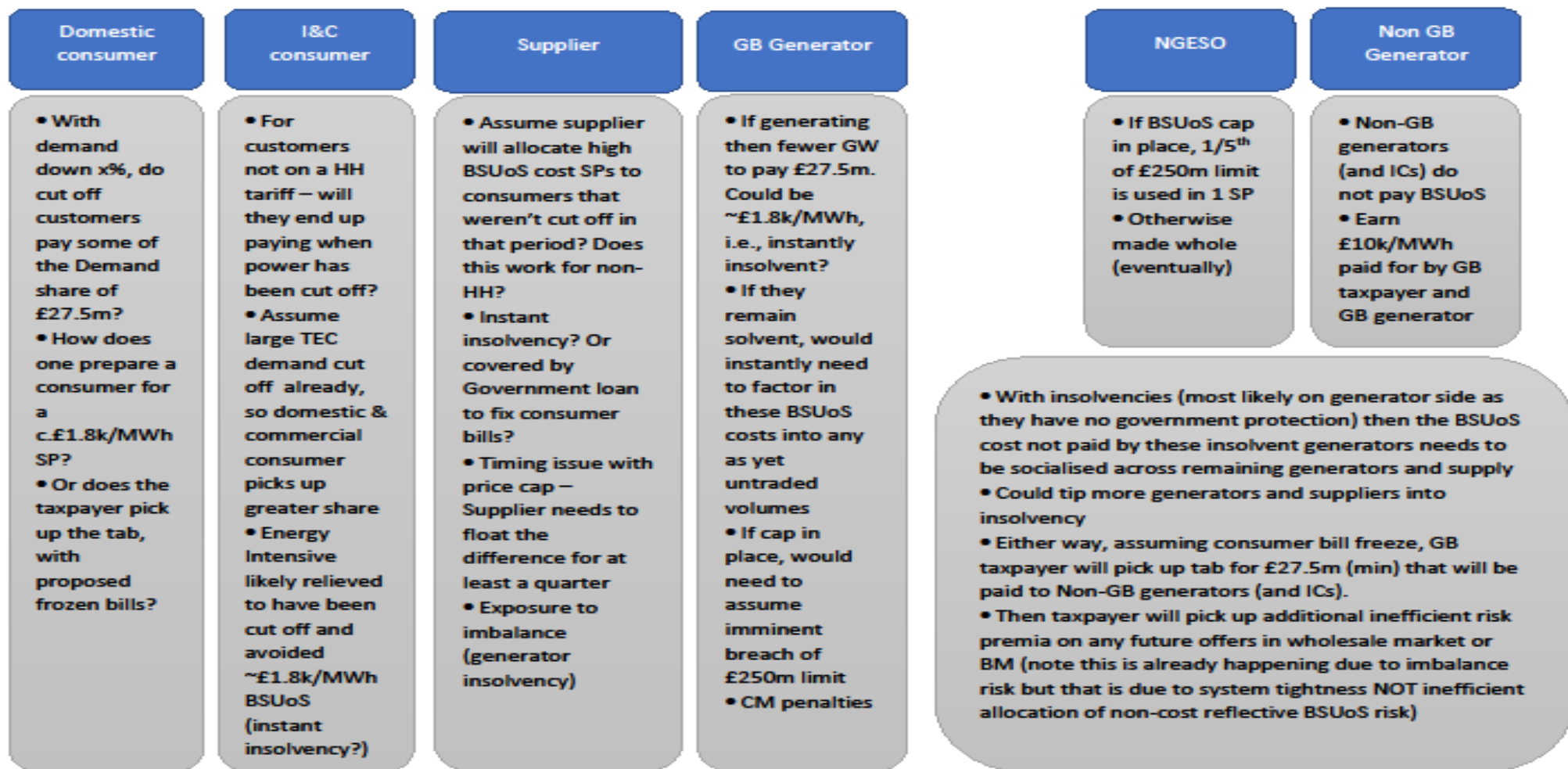
P443: Background and Issue

- At the current time National Grid Electricity System Operator (NGESO) can trade at prices above the Value of Lost Load (VoLL) – currently £6,000/MWh
- This adds to customers' costs and sends a signal to the markets that customers are willing to buy power at any price
- In a cost of living crisis the Proposer does not believe that the British public are prepared to buy energy at any price and therefore a price cap before emergency actions seems a sensible safety net
- If NGESO has a price cap it will signal to the market that it will not simply buy through spiralling prices. Instead, it would cease to buy energy and start to use other energy management tools when offers to sell power are above VoLL. The Proposer would see these other actions as being:
 - Issuing Capacity Market Warnings (CMW), to which interconnectors have an obligation to respond;
 - Use Electricity Margin Notices (EMNs); and
 - Start to manage demand, either via Demand Side Response (DSR) services or if necessary via load shedding.

P443: Background and Issue

- At the current time National Grid Electricity System Operator (NGESO) can trade at prices above the Value of Lost Load (VoLL) – currently £6,000/MWh
- This adds to customers' costs and sends a signal to the markets that customers are willing to buy power at any price
- In a cost of living crisis the Proposer does not believe that the British public are prepared to buy energy at any price and therefore a price cap before emergency actions seems a sensible safety net
- If NGESO has a price cap it will signal to the market that it will not simply buy through spiralling prices. Instead, it would cease to buy energy and start to use other energy management tools when offers to sell power are above VoLL. The Proposer would see these other actions as being:
 - Issuing Capacity Market Warnings (CMW), to which interconnectors have an obligation to respond;
 - Use Electricity Margin Notices (EMNs); and
 - Start to manage demand, either via Demand Side Response (DSR) services or if necessary via load shedding.

Scenario : Insufficient generation due to cold weather, no wind and generator outages. NGESO reverses direction of 5.5GW of IC export @ £10,000/MWh. Total cost is £55 million in one Settlement Period. Despite this effort, load control is required, reducing demand by 30% from 45GW to 30GW.



Impact on BSUoS cost – at 30GW demand

added BSUoS cost per MWh (at 30GW demand)

Total GW traded	£500	£3,000	£6,000	£10,000	£17,000	£20,000
1	£8	£50	£100	£167	£283	£333
2	£17	£100	£200	£333	£567	£667
3	£25	£150	£300	£500	£850	£1,000
4	£33	£200	£400	£667	£1,133	£1,333
5	£42	£250	£500	£833	£1,417	£1,667
6	£50	£300	£600	£1,000	£1,700	£2,000
7	£58	£350	£700	£1,167	£1,983	£2,333
8	£67	£400	£800	£1,333	£2,267	£2,667
9	£75	£450	£900	£1,500	£2,550	£3,000
10	£83	£500	£1,000	£1,667	£2,833	£3,333
11	£92	£550	£1,100	£1,833	£3,117	£3,667

Impact on BSUoS cost – at 45GW demand

added BSUoS cost per MWh (at 45GW demand)

Total GW traded	£500	£3,000	£6,000	£10,000	£17,000	£20,000
1	£6	£33	£67	£111	£189	£222
2	£11	£67	£133	£222	£378	£444
3	£17	£100	£200	£333	£567	£667
4	£22	£133	£267	£444	£756	£889
5	£28	£167	£333	£556	£944	£1,111
6	£33	£200	£400	£667	£1,133	£1,333
7	£39	£233	£467	£778	£1,322	£1,556
8	£44	£267	£533	£889	£1,511	£1,778
9	£50	£300	£600	£1,000	£1,700	£2,000
10	£56	£333	£667	£1,111	£1,889	£2,222
11	£61	£367	£733	£1,222	£2,078	£2,444

P443: Proposed solution

- The Proposer's preferred option is to alter BSC Section Q 'Balancing Mechanism Activities' to add in a new paragraph as follows:
- 6.3.2D For any Balancing Services Adjustment Action [provided using an Interconnector] and with a positive Balancing Services Adjustment Volume, the Balancing Services Adjustment Cost cannot be greater than $\text{VoLL} * \text{Balancing Services Adjustment Volume}$
- The solution will require NGESO to cap its offers to Interconnector Users to no more than VoLL, as defined in the BSC
- These trades are included in the Balancing Services Adjustment Data (BSAD) file, which is sent from NGESO to Elexon. Elexon process the BSAD file for the purposes of Settlement and reporting, with no changes to the file structure or format required

P443: Views against the Applicable BSC Objectives

- The Proposer believes that this Modification Proposal will better facilitate the following Applicable BSC Objectives:

Applicable BSC Objective	Proposer’s initial views
(b) The efficient, economic and co-ordinated operation of the National Electricity Transmission System	NGESO will not simply buy through all offers to meet demand, rather they will use other tools e.g. Capacity Market
(c) Promoting effective competition in the generation and supply of electricity and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity	Will protect customers and also Generators and Suppliers who are short in a particular Settlement Period by offering protection from excessive prices
(f) Implementing and administrating the arrangements for the operation of contracts for difference and arrangements that facilitate the operation of a capacity market pursuant to EMR legislation	If electricity supplies are short and prices are above the level that customers are willing to pay, the System Operator can issue a Capacity Market Warning for Capacity Market Parties to respond to



TERMS OF REFERENCE

Terms of Reference – P443 Specific ToR

P443 Specific ToR

- a) Should the solution only apply to interconnectors?
- b) Assurance and validation – should Elexon validate that NGESO have not executed Interconnector Trades above VoLL?
- c) Is this consistent with EBGL objectives and other retained EU law?
- d) What is the appropriate value of VoLL that should be used?
- e) What could be the unintended consequences of the proposed solution?

Terms of Reference – Standard ToR

Standard ToR

- f) How will P443 impact the BSC Settlement Risks?
- g) What changes are needed to BSC documents, systems and processes to support P443 and what are the related costs and lead times?
When will any required changes to subsidiary documents be developed and consulted on?
- h) Are there any Alternative Modifications?
- i) Should P443 be progressed as a Self-Governance Modification?
- j) Does P443 better facilitate the Applicable BSC Objectives than the current baseline?
- k) Does P443 impact the EBGL provisions held within the BSC, and if so, what is the impact on the EBGL Objectives?



WORKGROUP VIEWS ON THE ISSUE

Workgroup views on the issue

- The Proposer has presented the issue and the proposed solution
- We welcome the views of Workgroup Members on the issue and the Proposer's analysis



HOW DO NATIONAL GRID ESO DECIDE HOW TO TAKE BALANCING ACTIONS?

How do NGEESO decide to take balancing actions, and in what order?

Order of Action

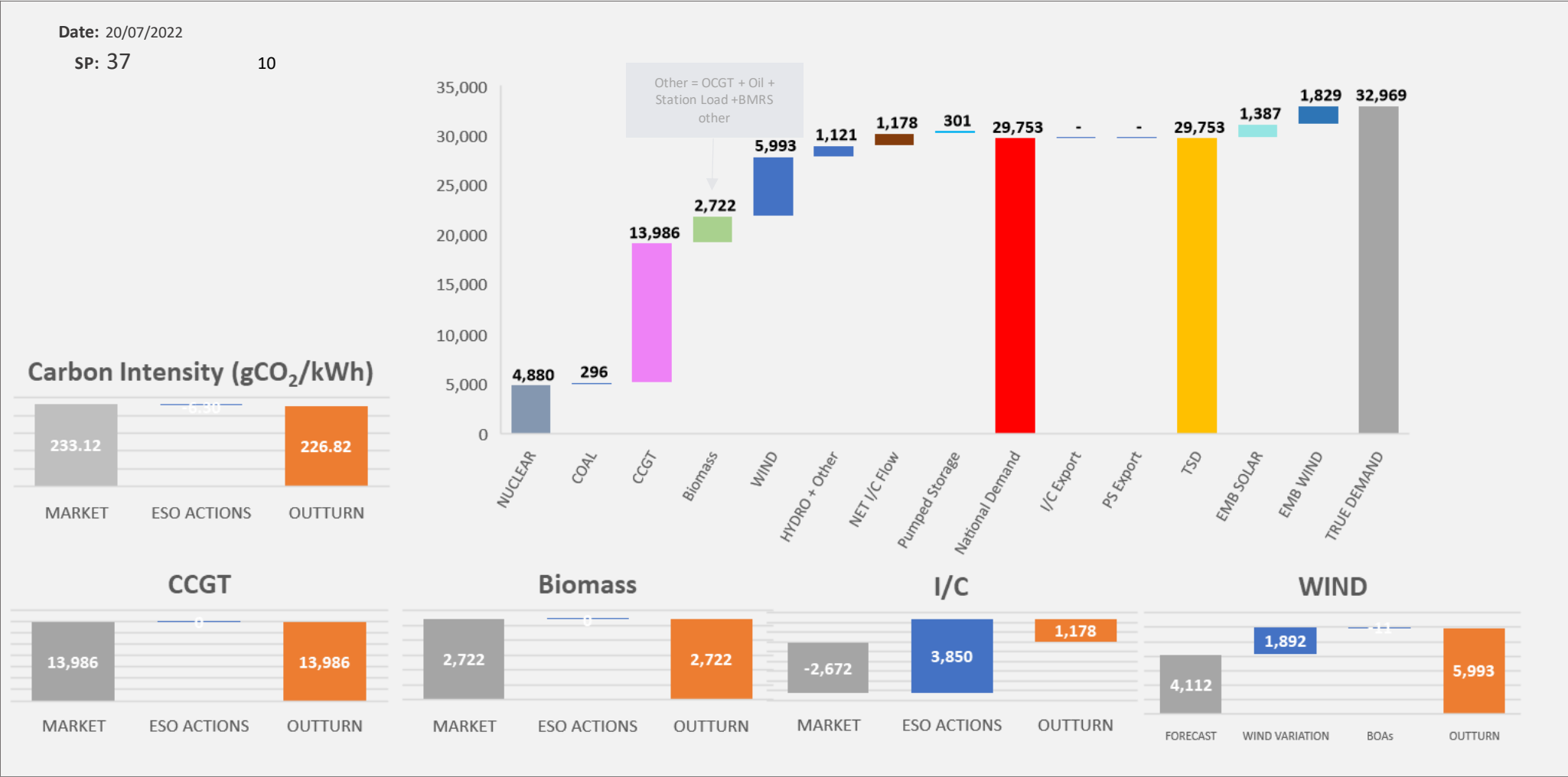
Sometimes operational circumstances and rapidly evolving scenarios will mean that we take options out of this order

Sli.do code #OTF

Everyday Actions	Order	Comments
All deliverable Offer action on all available BM participants	#1 based on Cost	Scheduled at Day Ahead, action taken in real time – some offers may not be available due to network congestion
Issue warming instructions to cold BM participants	#1 based on Cost	Scheduled at Day Ahead, action taken in real time
Buy energy from the continental Europe	#1 based on Cost	Scheduled at Day Ahead, action taken from Day Ahead to 4hrs ahead of time by ESO Traders
Reconfigure CCGTs to increase available energy (e.g. sync additional GTs)	#1 based on Cost	Scheduled at Day Ahead, managed within the control timescales within day
SO-SO trade in cost order	#1 based on Cost	SO to SO trade with other SO in Europe/Ireland
Reconfigure Transmission Network to reduce network congestion, including: Change substation running arrangements, Tap Quad Boosters, to control flow of energy and Making use of enhanced ratings	Normal operating practice – no cost	Changing daily operating conditions can result in different network configurations to reduce congestion
Enhanced Actions (if everyday actions are insufficient)	Order	Comments
Recall TO assets from outage to increase network availability and increase available capacity	#2	Anytime through to control room timescales, depending on ERTS (Emergency Return to Service) time
Issue an Electricity Margin Notice (EMN)	#3	Request to market to increase available energy or reduce demand. Likely to be issued at Day Ahead. Updated regularly
Taking additional actions obtained through EMN	#4	Managed in real time
A Capacity Market Notice (CMN) is automatically triggered to alert CM participants	#5	Driven by calculation of Market data at 4 hours ahead of real time
Emergency Actions	Order	Comments
Issue a High Risk of Demand Reduction (HRDR) system warning	#6	Warning network operators of high likelihood of demand control. Further request to market to increase available energy or reduce demand. Closer to real-time than ENM
Emergency Assistance (EA) request to other SO	#7	Real-time action. Only applicable if capacity is available on interconnectors
Emergency Instruction (EI) to other SO	#8	
Issue Demand Control Imminent (DCI) system warning	#9	If possible, this system warning will be issued 30 minutes prior to demand control. Warning to network operators
OC6 demand control instructions to DNOs	#10	This could be via voltage control or demand control (disconnecting customers)

20th July Actions

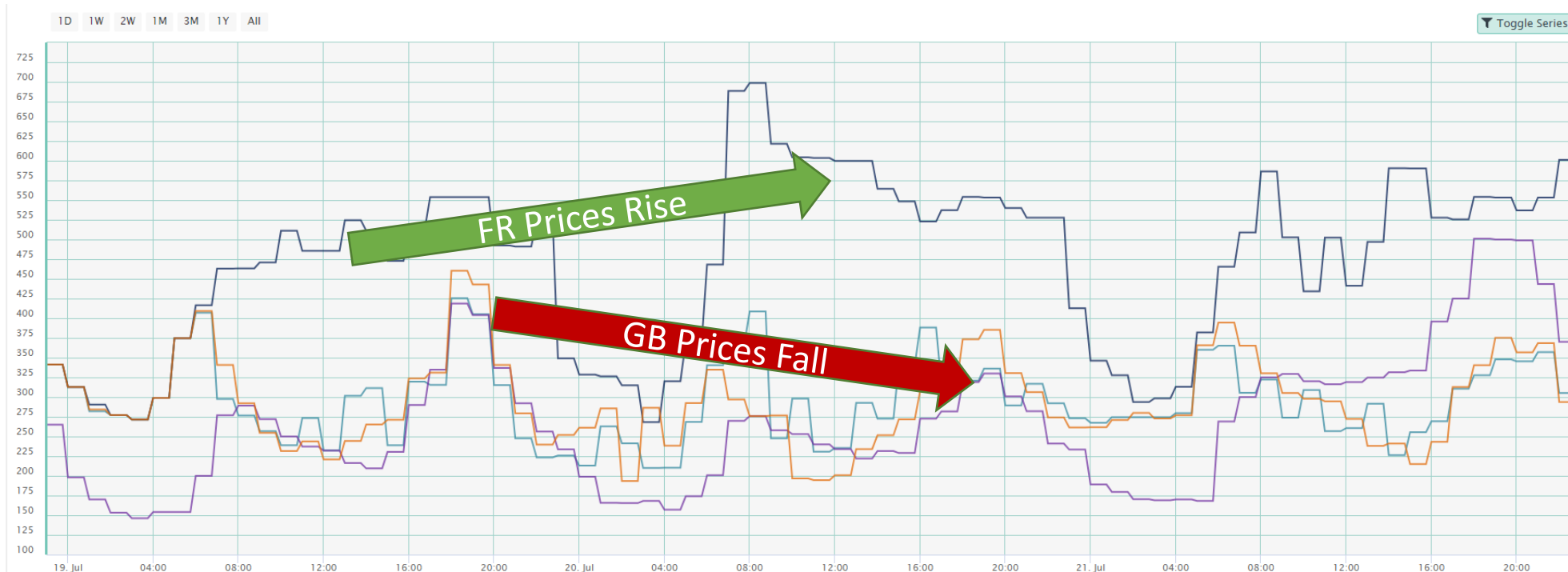
ESO Actions | Wednesday 20 July - Highest SP Spend ~£5.1m



Wednesday 20th July 2022

Fundamental Context

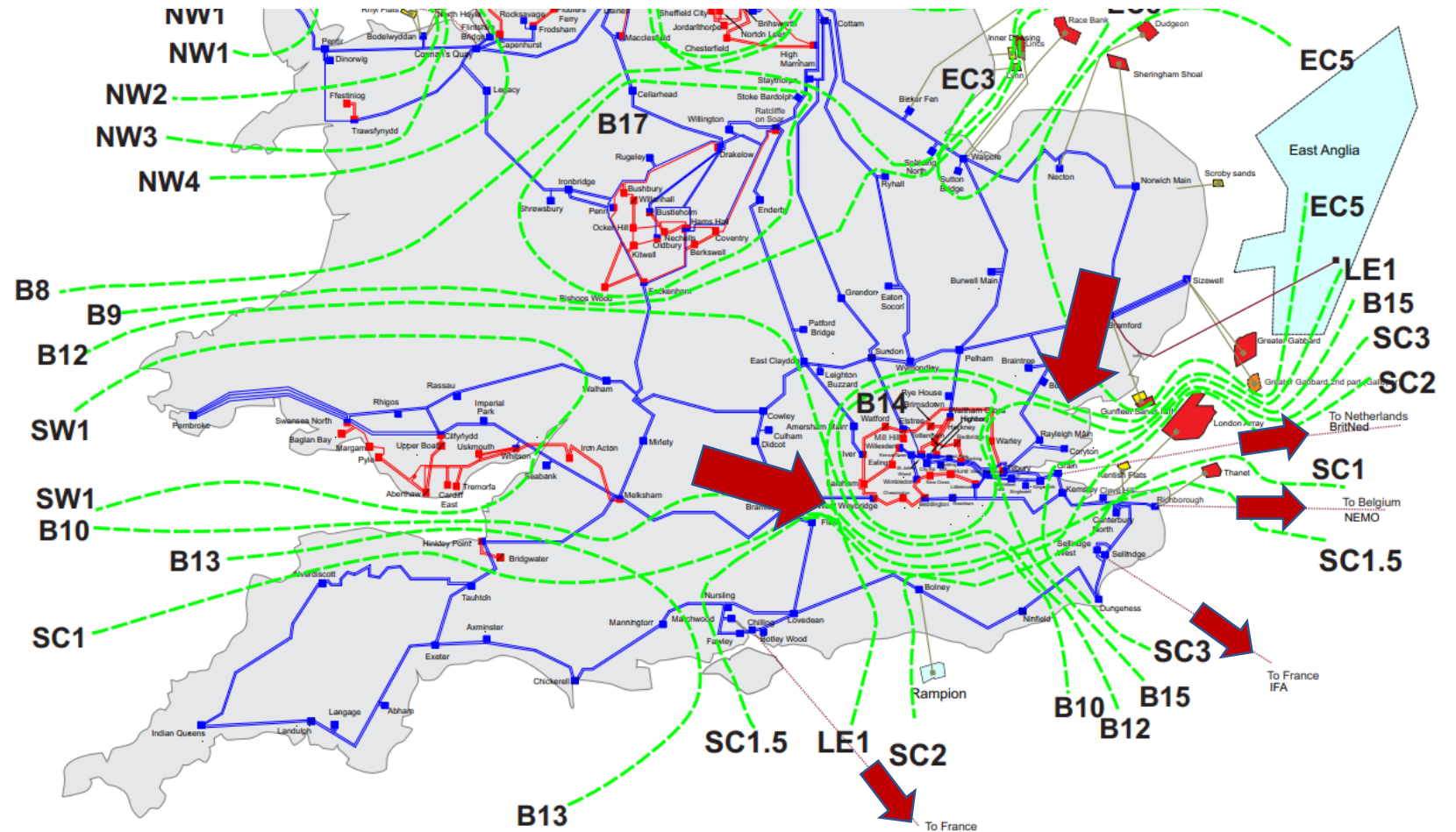
- As of 19/7: NBP Gas trading at significant discount to TTF (€74/MWh vs €158/MWh)
- Power market tightness in GB eased on 20/7 while tightness on the continent intensified. (DAH Spread to France up to 424 £/MWh)



Wednesday 20th July 2022

Fundamental Context

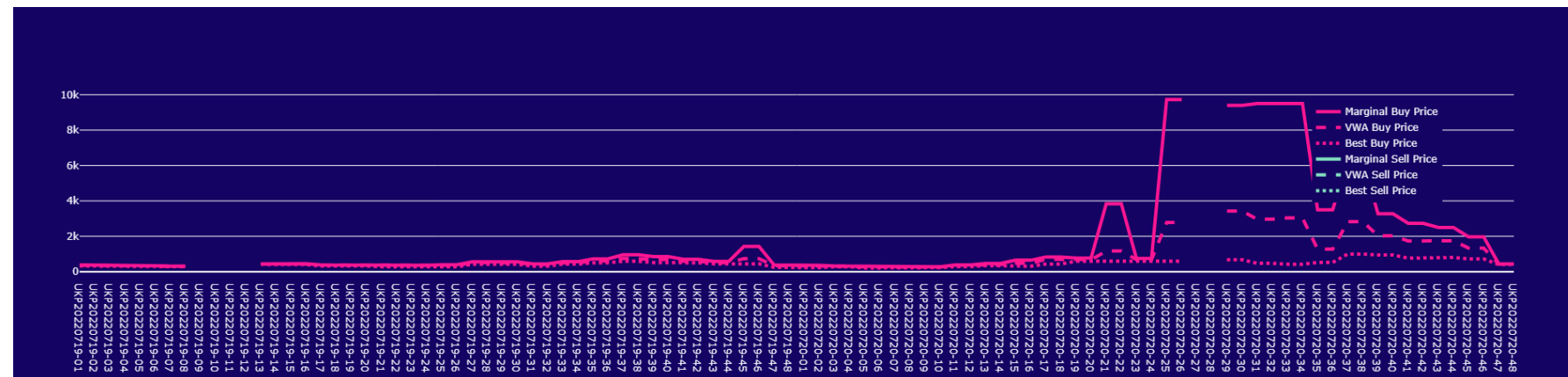
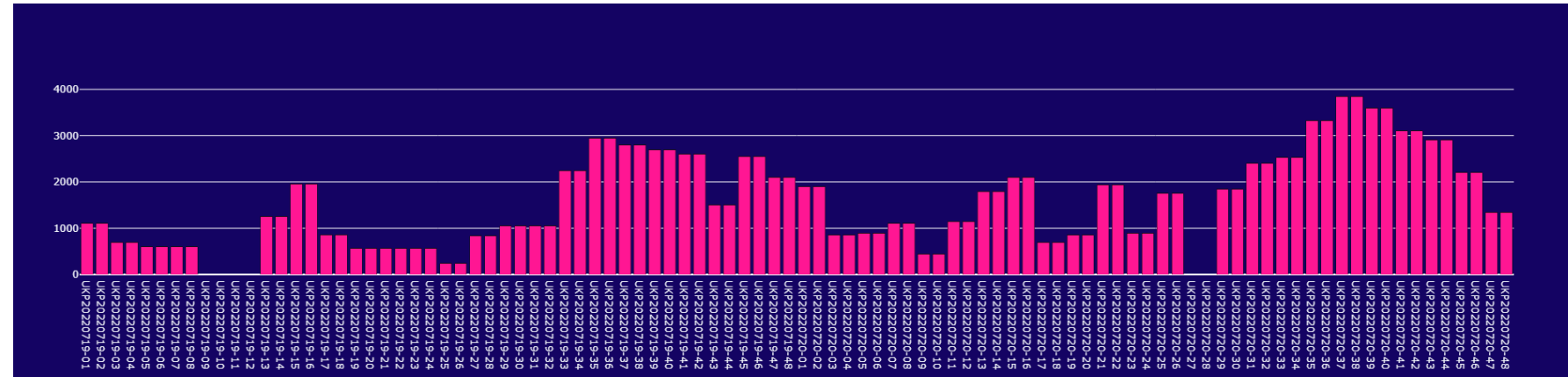
- Strong spread to the continent caused exports on all South East interconnectors.
- Combined with London demand, this drove power flows across the LE1 and SC boundaries.
- These boundaries had been weakened by unplanned outages.



Wednesday 20th July 2022

Trading Activity

- NG ESO Buys power over the interconnectors to manage flows across the LE1 and SC boundaries.
- Overall volumes larger than, but similar to previous days.
- Scarcity on the continent resulted in extreme prices on the 20th.
- The total trade expenditure was ~£69m.





NGESO CHANGES REQUIRED AND IMPACTS

NGESO changes and required impacts

Possible changes required - initial thoughts	Possible impacts- initial thoughts
• C16/Balancing principles statement • Control room process • Trading team actions • Reporting on BSAD	• Increases in pricing • Impacts to relationships with Interconnectors and EU TSOs if trades are capped • Security of supply?



WHO SHOULD THE
SOLUTION APPLY
TO?

Who should the solution apply to?

- The Proposer raised a question in the Solution section of the Proposal Form as to whether the cap should just apply to interconnector trades
- The Proposer believes the cap should only apply to interconnector trades because all GB generators/traders/suppliers are regulated by Ofgem and can be investigated if prices are believed to no longer be cost reflective and/or go beyond scarcity pricing
- The Proposer is also keen that customers who offer Demand Side Response (DSR) are free to do so at a price that will reflect their own VoLL. For some industries that may be higher than £6,000/MWh
- What are the Workgroup's thoughts on who the solution should apply to?



WHAT COULD BE
THE UNINTENDED
CONSEQUENCES
OF THE PROPOSED
SOLUTION?

What could be the unintended consequences of the proposed solution?

- P443 was presented to the Panel on 18 August 2022
- The Panel were keen to ensure that the P443 Workgroup consider what may be the unintended consequences of the proposed solution
- This could take the form of a storyboarding exercise to consider the possible unintended consequences and impacts

Would this Modification Proposal lead to increased Demand Control Events or risk security of supply?

Winter outlook text

Interconnectors

We assume that interconnectors are able to provide **5.7 GW** net imports at times when GB needs it. This is consistent with their Capacity Market obligations. Our Base Case assumes 2.7 GW additional interconnector capacity that was not available last winter. This includes Eleclink which is now operational, and both IFA and NSL operating at full capacity. There is uncertainty on the availability of the French nuclear fleet for winter. This could lead to more export flows from Great Britain to France when our system margins are not tight. We are continuing to monitor the outlook in France and will undertake further assessments ahead of the Winter Outlook Report in the autumn.

Discussion point: What would this mean for the ESO and how would it impact consumers?

Discussion point : Are there any security of supply consequences and would this increase the likelihood of demand disconnection if we need to trade above VoLL (£6,000) to secure the imports to manage a system margin requirement?



PROGRESSION PLAN & NEXT STEPS

Progression Plan

Event	Date
Initial consideration by Workgroup	15 September 2022
Second Workgroup meeting	W/C 26 September 2022 or 3 October 2022
Assessment Consultation	17 October 2022 to 4 November 2022
Third Workgroup meeting	W/C 14 November 2022 or 21 November 2022
Assessment Report presented to Panel	8 December 2022
Report Phase Consultation	12 December 2022 – 12 January 2023
Draft Modification Report presented to Panel	9 February 2023
Final Modification Report submitted to Authority	15 February 2023

Next steps

- Workgroup summary to be issued by 22 September 2022
 - Doodle poll to be issued to seek availability for Workgroup meeting 2
 - Post meeting actions to be addressed
-
- Any Other Business?

MEETING CLOSE

ELEXON

THANK YOU

Paul Wheeler

Paul.Wheeler@elxon.co.uk

bsc.change@elxon.co.uk

15 September 2022