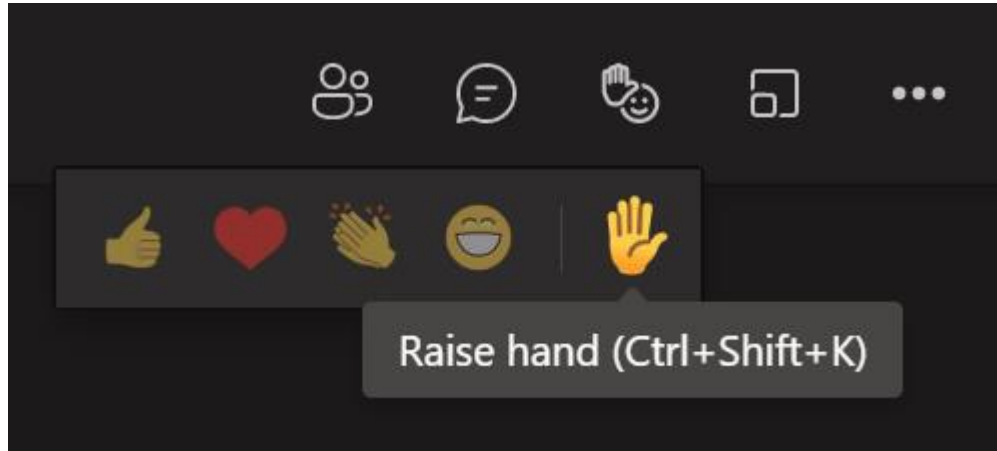


Issue 105 Digital Meeting Etiquette

- Welcome to the Issue 105 meeting 4 – 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

**Issue 105 'Further considerations
following implementation of BSC
Modification P448'**

Meeting 4

11 April 2023

Meeting Objectives and Agenda

- Decide whether a Code Change should be recommended to address the unintended impacts to cash-out prices following the implementation of P448
- Review draft redlined changes to BSC Procedure 18 ‘Corrections to Bid-Offer Acceptance Related Data’ and the Network Gas Supply Emergencies Guidance Note
- Review Terms of Reference and confirm Workgroup recommendations
- Decide whether the P448 solution should be time limited
- Consider and agree next steps

Agenda Item	Lead
1. Welcome and meeting objectives	Keren Kelly (Elexon) – Chair
2. Meeting 3 recap	Kayleigh Neal (Elexon) – Lead Analyst
3. Unintended impacts to cash-out prices	Simon Dickie (Elexon) – Market Design
4. Workgroup discussion	Workgroup
5. P448 guidance – draft redlining	John Lucas (Elexon) – Market Design
6. Workgroup discussion	Workgroup
5. Review of ToR and Workgroup recommendations	Kayleigh Neal
6. Time limiting the P448 solution	John Lucas
7. Workgroup discussion	Workgroup
8. Next steps	Kayleigh Neal
9. AOB and Meeting close	Keren Kelly

Meeting 3: Recap

- Unintended impacts to cash-out prices
- P448 guidance
- Risk Mitigation for D+1 onwards
- Update on Gas Operating Margins Contracts

No.	Action	Owner
1.	Circulate suggested changes to BSCP 18 and the Network Gas supply Emergencies Guidance Note before the next Issue 105 meeting.	Elexon
2.	Provide information on potential timeline of events during a stage 2+ gas supply emergency.	Elexon
3.	Ask GSO about the potential scenario that a power station is being paid under their OM contract at same time as they are subject to load shedding.	Elexon
4.	Provide information on what cash-out prices might look like in Europe in the event of the gas shortage impacting wider than the UK.	Workgroup Member



UNINTENDED IMPACTS TO CASH- OUT PRICES

Issue 105 Cash Out Price Assumptions

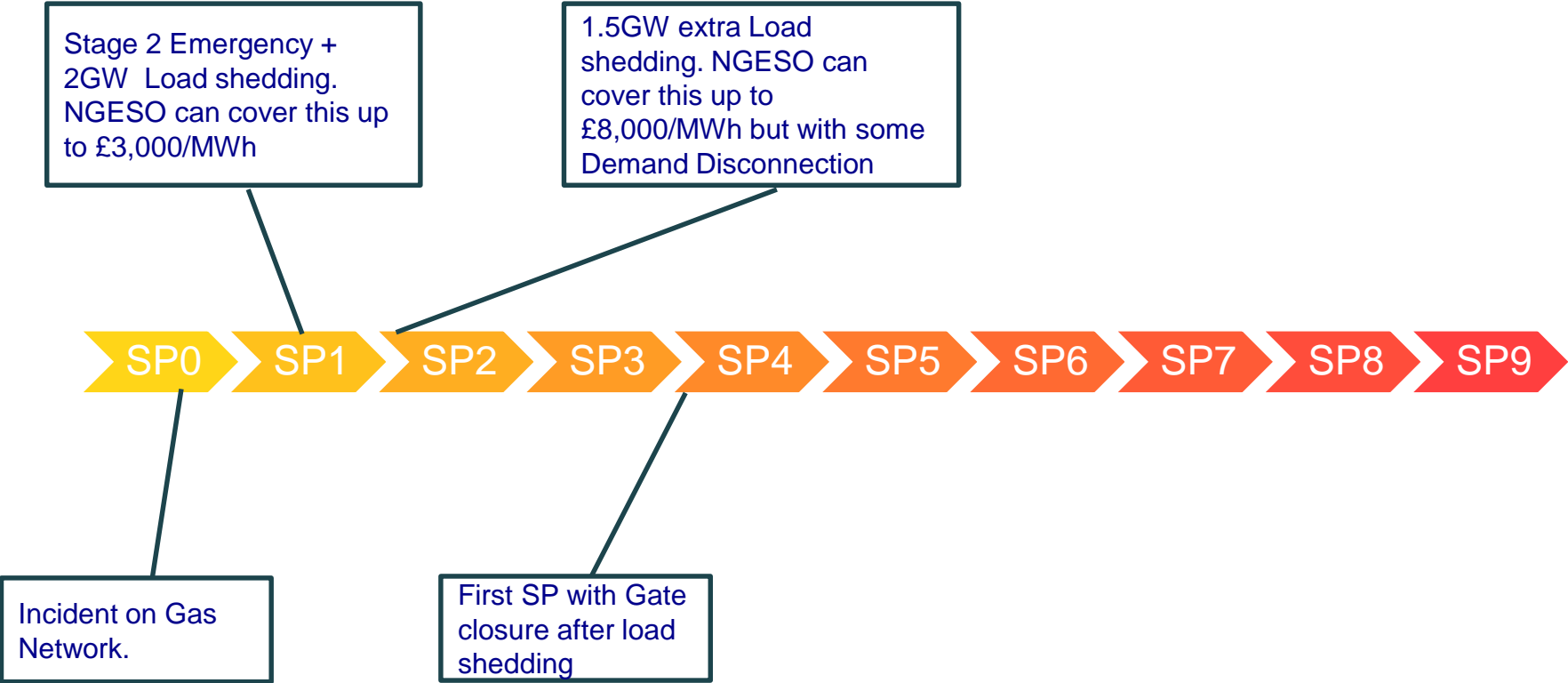
Sudden curtailment	Rising market Curtailment
After a catastrophe on the gas network, it will be almost immediate before a stage 2 emergency is triggered	Prices may be high as gas prices rise pre stage 2, but we do not expect parties to plan for a curtailment. So power prices will reflect a high gas price but below VoLL. E.g. 3k (1 workgroup member questioned this, we welcome further feedback on the question of power prices rising above VoLL before the emergency)
After the load shedding instruction has been issued, within day gas prices will rise sharply and power prices will lag behind by 1-2 hours (until they can react to the gate closure) for wholesale and bid/offer prices	Markets will be driven by high gas prices rather than preempting a stage 2 and the impact of P448. (This is not a unanimous assumption as 1 work group member questioned it)
Gas generators will raise their within day power prices in line with gas prices regardless of the price they paid for the gas	Once a stage 2 curtailment is activated, the behavior of parties may be driven by the P448 solution (i.e. parties' expectations of whether cash-out prices will be suppressed by P448)
Interconnectors will be available if the gas catastrophe is a GB issue only. They will be able to respond the a GB need, but at a high price.	Most generation may already be bought as prices will become favorable to produce power, so therefore unavailable in the BM
SP1 will be classed as the SP during which the first load shedding occurs and subsequently where the bids first come into play	SP1 will be classed as the SP during which the first load shedding occurs and subsequently where the bids first come into play
Gas curtailments are likely to last for several hours to days	Demand control prices are set at 6k (VoLL), but it is possible to for NGESO to purchase at a higher price before enacting Demand Control
	Demand control will not necessarily dominate the stack so the cashout price may still be higher
	Suppliers will try to go long in the face of high cashout
	Interconnectors will not be available to the ESO due to actions in Europe dealing with their own Gas shortage

Issue 105 Cash Out Price – Sudden Curtailment

Sudden Curtailment - A GB issue on the Gas network.

This possible scenario looks at what could happen if there is an incident on the GB Gas network only.

Please note that all of the scenarios presented during this session are possible and plausible scenarios for the purposes of the Workgroup. This is not a reflection of what the Workgroup think will or is likely most to happen.



Issue 105 Cash Out Price – Sudden Curtailment

SP1 – SP3

Party	Incentive with P448 bids	Incentive without P448 bids
BM generators	Bid into the BM at increased prices from SP4 onwards	Incentive to bid into the WM and BM from SP4 onwards
Party with short position	They will look to trade out from SP4 onwards at any price lower than their expectation of the cashout price	Cashout price not suppressed so attempt to trade out short position in SP4 onwards
Party with Long position	Stay long as cashout will go higher as NGESO attempt to cover the curtailment from SP4 onwards	Stay long as cashout will go high as NGESO attempt to cover the curtailment from SP4 onwards
Non BM Generator	Incentive to bid into WM from SP4 onwards as cashout is high	Incentive to bid into WM from SP4 onwards as cashout is high
Curtailed Gas generator	May buy power if it is profitable for SP4 onwards	May buy power if it is profitable for SP4 onwards
Interconnector users	Prepare to import if available	Prepare to import if available
NGESO	Balance the market	Balance the market

- Offer prices will be normal as gate closure has already happened
- Gas prices will rise sharply
- Power prices will start to follow Gas prices upwards
- Gas generators will look to buy power intraday to reduce generation if profitable
- NGESO will look at importing via interconnectors
- Without the bids included, it goes very short

- P448 Bids in stack – Cashout suppressed at normal levels as the Bids cause NIV tagging to remove the additional NGESO actions from the stack
- P448 bids removed from Stack – Cashout starts to rise due to the additional actions from NGESO in the Buy stack

Issue 105 Cash Out Price – Sudden Curtailment

SP4 – SP?

Party	Incentive with P448 bids	Incentive without P448 bids
BM generators	Incentivised to bid into the WM and BM due to high cashout and power prices.	Incentivised to bid into the WM and BM due to high cashout and power prices.
Party with short position	They will look to trade out at any price lower than their expectation of the cashout price	They will look to trade out at any price lower than their expectation of the cashout price
Party with Long position	Stay long and take the high cashout price as NGESO attempt to cover the curtailment	Stay long and take the high cashout price as NGESO attempt to cover the curtailment
Non BM Generator	Continue to bid into the WM at high power prices	Continue to bid into the WM at high power prices
Curtailed Gas generator	May buy power if it is profitable	May buy power if it is profitable
Interconnector users	Import power	Import power
NGESO	Balance the market, prepare to instruct Demand disconnection	Balance the market, prepare to instruct Demand disconnection

- Offer prices will be attempting to target the price that NGESO will pay to keep the market going. This is likely to fluctuate for a few settlement periods
- Gas and Power prices start to settle
- The market is likely to be Short and without the bids, it goes even shorter
- Interconnectors may start to import taking up slack, but at a high price

- P448 Bids in stack – Cashout is high, but not up to £8,000 as it is suppressed, maybe £5,000
- P448 bids removed from Stack – Cashout moves towards £8,000

Issue 105 Cash Out Price – Sudden Curtailment

A few hours after the Stage 2 Emergency

Party	Incentive with P448 bids	Incentive without P448 bids
BM generators	Already incentivised to bid into the WM and BM due to high cashout and power prices.	Already incentivised to bid into the WM and BM due to high cashout and power prices.
Party with short position	They will look to trade out at any price lower than their expectation of the cashout price	They will look to trade out at any price lower than their expectation of the cashout price
Party with Long position	Stay long and take the high cashout price as NGESO attempt to cover the curtailment	Stay long and take the high cashout price as NGESO attempt to cover the curtailment
Non BM Generator	Should already be active in the WM and incentivised to trade at the high power price	Should already be active in the WM and incentivised to trade at the high power price
Curtailed Gas generator	Protected from Cashout	Protected from Cashout
Interconnector users	Import power	Import power
NGESO	Balance the market, prepare to instruct Demand disconnection	Balance the market, prepare to instruct Demand disconnection

- Offer prices will be more consistent targeting the price that NGESO will pay to keep the market going
- Gas and Power prices are settled
- The market is likely to be Short and without the bids, it goes even shorter
- NIV tagging will make little difference as all Offers are around the same price
- High chance that NGESO use Demand Disconnection

- P448 Bids in stack – Cashout not impacted by P448 bids, It will settle at a consistent level, maybe £6,000
- P448 bids removed from Stack – Cashout settles around £6,000

Cashout will be suppressed initially due to gate closure having passed by the P448 bids.

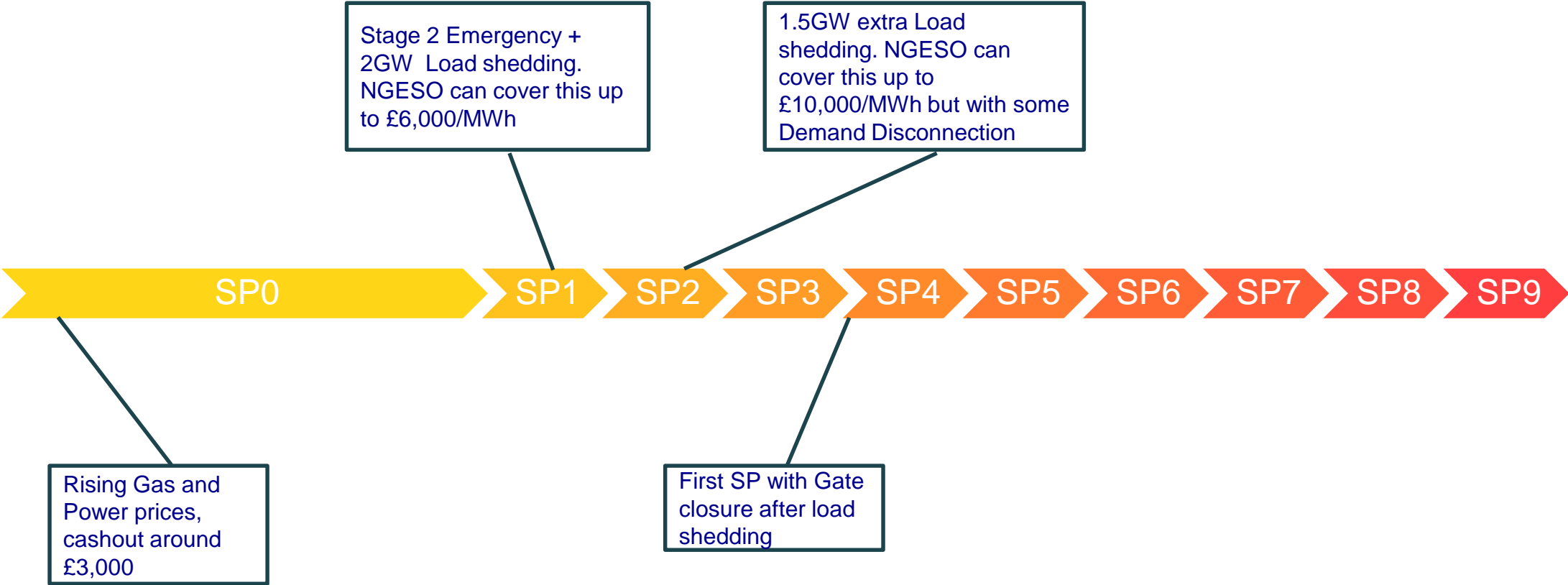
From SP4 onwards Offer prices will be raised in expectation of what NGESO will pay to keep the market going.

This will only have a limited effect and at a certain point, parties will be aligned in their Offer prices so NIV tagging and hence P448 will not be very consequential in impacting the cashout price.

Issue 105 Cash Out Price – Rising Market

Rising Market Curtailment – A Gas shortage across Europe

This scenario looks at what may happen when there is a shortage of gas across GB and Europe which leads to a Stage 2 Gas Emergency being announced.



Issue 105 Cash Out Price – Rising Market

SP1 – SP3

Party	Incentive with P448 bids	Incentive without P448 bids
BM generators	Already incentivised to bid into the WM and BM due to high cashout and power prices, but now incentivised to increase further	Already incentivised to bid into the WM and BM due to high cashout and power prices, but now incentivised to increase further
Party with short position	They will look to trade out from SP4 onwards at any price lower than their expectation of the cashout price	They will look to trade out from SP4 onwards at any price lower than their expectation of the cashout price
Party with Long position	Stay long as cashout will go higher as NGESO attempt to cover the curtailment from SP4 onwards	Stay long as cashout will go high as NGESO attempt to cover the curtailment from SP4 onwards
Non BM Generator	Should already be active in the WM as cashout is high before load shedding. Incentivised to increase prices	Should already be active in the WM as cashout is high before load shedding. Incentivised to increase prices
Curtailed Gas generator	May buy power if it is profitable for SP4 onwards	May buy power if it is profitable for SP4 onwards
Interconnector users	Will be in use already due to high power prices if available to NGESO, but risk of providing nothing	Will be in use already due to high power prices if available to NGESO, but risk of providing nothing
NGESO	Balance the market, prepared for Demand disconnection	Balance the market, prepared for Demand disconnection

- Offer prices will be quite high already due to a gas shortage even though gate closure has already happened
- Gas prices will rise sharply
- Intra day power prices will start to rise rapidly
- Gas generators will look to buy power intraday to reduce generation if profitable
- Short market already and without the bids, it goes even shorter

- P448 Bids in stack – Cashout suppressed at existing high levels (£3,000) as the Bids cause NIV tagging to remove the additional NGESO actions from the stack
- P448 bids removed from Stack – Cashout starts to rise due to the additional actions from NGESO in the Buy stack

Issue 105 Cash Out Price – Rising Market

SP4 – SP?

Party	Incentive with P448 bids	Incentive without P448 bids
BM generators	Already incentivised to bid into the WM and BM due to high cashout and power prices.	Already incentivised to bid into the WM and BM due to high cashout and power prices.
Party with short position	They will look to trade out at any price lower than their expectation of the cashout price	They will look to trade out at any price lower than their expectation of the cashout price
Party with Long position	Stay long and take the high cashout price as NGESO attempt to cover the curtailment	Stay long and take the high cashout price as NGESO attempt to cover the curtailment
Non BM Generator	Should already be active in the WM and incentivised to trade at the high power price	Should already be active in the WM and incentivised to trade at the high power price
Curtailed Gas generator	May buy power if it is profitable	May buy power if it is profitable
Interconnector users	Will be in use already due to high gas prices if available to NGESO, but risk of providing nothing	Will be in use already due to high gas prices if available to NGESO, but risk of providing nothing
NGESO	Balance the market, prepare to instruct Demand disconnection	Balance the market, prepare to instruct Demand disconnection

- Offer prices will be attempting to target the price that NGESO will pay to keep the market going
- Gas and Power prices start to settle
- The market is likely to be Short and without the bids, it goes even shorter
- NGESO may start to employ Demand Disconnection

- P448 Bids in stack – Cashout is high, but not up to £10,000 as it is suppressed, maybe £6,000
- P448 bids removed from Stack – Cashout moves towards £10,000

Issue 105 Cash Out Price – Rising Market

A few hours after the Stage 2 Emergency

Party	Incentive with P448 bids	Incentive without P448 bids
BM generators	Already incentivised to bid into the WM and BM due to high cashout and power prices.	Already incentivised to bid into the WM and BM due to high cashout and power prices.
Party with short position	They will look to trade out at any price lower than their expectation of the cashout price	They will look to trade out at any price lower than their expectation of the cashout price
Party with Long position	Stay long and take the high cashout price as NGESO attempt to cover the curtailment	Stay long and take the high cashout price as NGESO attempt to cover the curtailment
Non BM Generator	Should already be active in the WM and incentivised to trade at the high power price	Should already be active in the WM and incentivised to trade at the high power price
Curtailed Gas generator	Protected from Cashout	Protected from Cashout
Interconnector users	Will be in use already due to high gas prices if available to NGESO, but risk of providing nothing	Will be in use already due to high gas prices if available to NGESO, but risk of providing nothing
NGESO	Balance the market, prepare to instruct Demand disconnection	Balance the market, prepare to instruct Demand disconnection

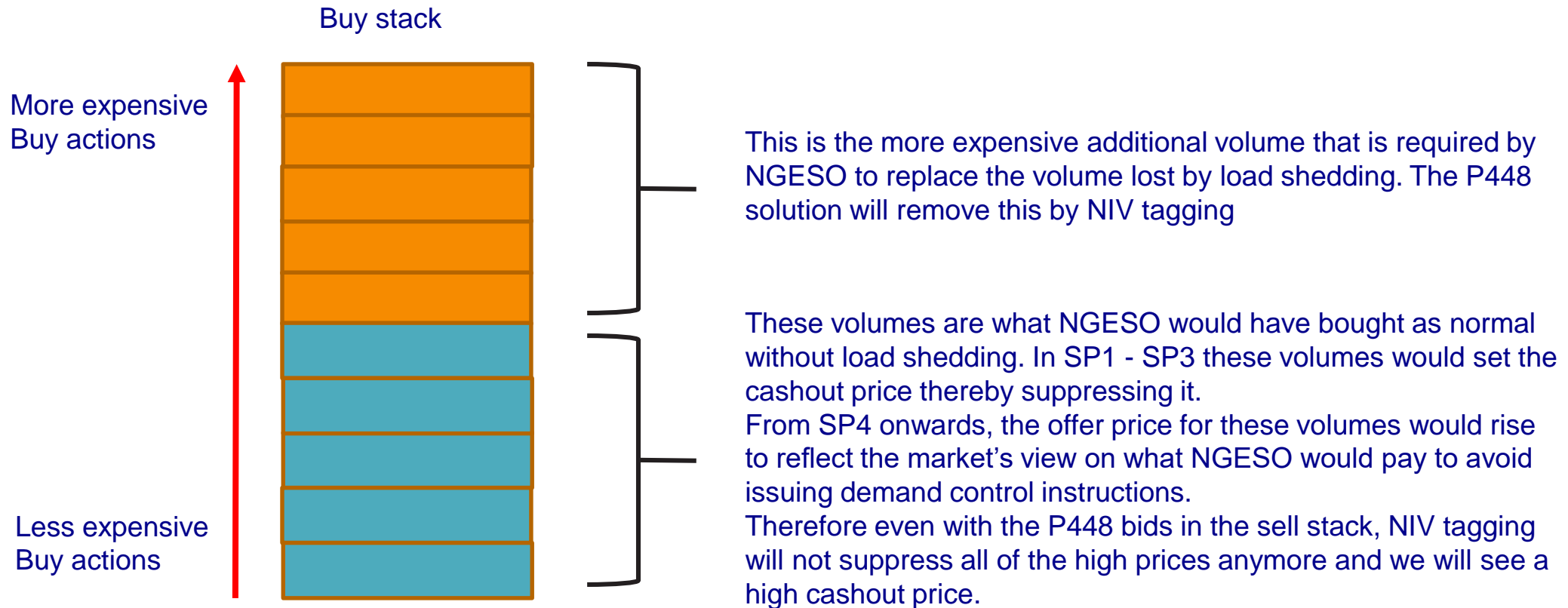
- Offer prices will be more consistent targeting the price that NGESO will pay to keep the market going
- Gas and Power prices are settled
- The market is likely to be Short and without the bids, it goes even shorter
- NIV tagging will make little difference as all Offers are around the same price
- High chance that NGESO use Demand Disconnection

- P448 Bids in stack – Cashout not impacted by P448 bids, It will settle at a consistent level, maybe £6,000
- P448 bids removed from Stack – Cashout settles around £6,000

Cashout will be suppressed initially due to gate closure having passed by the P448 bids albeit at a higher level than in the first scenario. From SP4 onwards Offer prices will be raised in expectation of what NGESO will pay to keep the market going. This will only have a limited effect and at a certain point, parties will be aligned in their Offer prices, so NIV tagging and hence P448 will not be very consequential in impacting the cashout price.

Issue 105 Cash Out Price

- A concern was raised in previous Workgroups that P448 will suppress the cashout price, because NIV tagging will remove all the extra actions taken by NGESO to replace the curtailed gas-fired power stations
- This is true in SP1-3 (before Parties have had a chance to adjust their Offer prices). But from SP4 onwards Offer prices (including for the units NGESO would have taken even without Load Shedding) will rise, in anticipation of high cashout and wholesale prices
- This means that any suppression of cashout prices by the P448 Bids will reduce quickly from SP4 onwards



Issue 105 Cash Out Price

P305

This Modification led to a change in how cashout was calculated with the goals of:

- Encouraging more efficient balancing behavior
- Provide stronger signals to the mark for provision of flexible capacity and interconnector flows

Fuel Security

There is a provision in the BSC that allows the application of a single imbalance price that is determined by the panel.

P448

This adds artificial bids into the sell stack that will impact the cashout price and therefore could be considered as going against the desire of P305.

Question

After analysis, the impact of P448 on the cashout price is not as significant as we may have thought. Is a change to P448 needed?



P448 GUIDANCE



TOR & WORKGROUP RECOMMENDATIONS

Is there an increased risk of generator behavior not in line with ‘Good Industry Practice’?

If yes, should further action be taken?

- This was addressed at WG 2
- The BSC Panel asked the Issue Group to consider whether there should be incentives on Generators to trade out their positions where possible
- The majority of Workgroup members felt strongly that no further action was required
- Existing legal and regulatory framework, such as the Competition Act, covers this and adding further requirements to guidance would be problematic and unnecessary
- This topic is based on an assumption that Generators need to be incentivised to act in a way that benefits customers
- The P448 solution permits Physical Notifications (PNs) to be changed if a Generator trades out their position

How does the P448 solution interacts with Gas Operating Margins contracts?

- This was addressed at WG 2
- This asked the Workgroup to seek confirmation of how the GSO would treat OM contracts under a Stage 2+ Network Gas Supply Emergency (NGSE). This is to ensure that P448 protections should not be restricted if gas generators are offering OM services.
- A representative from National Gas attended WG 2
- The representative confirmed that once a generator is instructed to reduce gas offtake (pre-Emergency and under their OM contract), if an emergency is declared and Load Shedding at Stage 2 or higher begins, they will still receive a Load Shedding instruction making them eligible for protection under P448
- Further, where a site is nominated down to 0 through contractual means, they will still be contacted when Stage 2 load shedding is taking place and told not to return to take gas until a stage 4 NGSE (restoration) has been declared and the legal instruction to cease taking gas is revoked
- The Issue 105 Workgroup agreed that no further action is required relating to the BSC

Do any other topics need to be considered as part of Issue 105?

- This was addressed at WG 1 and 3
- A Workgroup member presented a potential extension to the Issue 105 Terms of Reference. This related to the appropriate course of action for Generators when managing D+2 gas positions during an interruption
- The Workgroup agreed that this topic was outside of the scope of Issue 105 and that any solution to the issue sits within the gas market
- No other topics were raised for consideration



TIME LIMITING THE P448 SOLUTION

Should the P448 solution be time limited? If yes, what should the time limit be?

- Discussed at WG1 – It was agreed that P448 should be active for Winter 2023/24
- The general consensus was that the P448 solution should be enduring
- The WG requested that this be discussed at the end of the Issue process before confirming this view



NEXT STEPS

Progression plan

Event	Date
Issue raised	22 December 2022
Workgroup Meeting 1	24 January 2023
Distribution of Meeting 1 summary and actions	30 January 2023
Workgroup meeting 2	16 February 2023
Distribution of Meeting 2 summary and actions	23 February 2023
Workgroup meeting 3	6 March 2023
Distribution of Meeting 3 summary and actions	13 March 2023
Workgroup meeting 4	11 April 2023
Distribution of Meeting 4 summary and actions	18 April 2023
Draft Issue Report sent to Workgroup for feedback	April or May 2023
Present Issue Report to Panel	May or June 2023

AOB

ELEXON

THANK YOU

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11 April 2023