



Reserve Reform  
Show & Listen #4  
12 July 2022

# Agenda

- I. Review of Show & Listen 3
- II. Focus topics:
  - 1. Minimum Activation Period
  - 2. Recovery Period
  - 3. Performance Monitoring
  - 4. Energy Requirements
- III. Slow & Quick Reserve – overview
  - I. Technical design
  - II. Procurement design
- IV. Close down

# How to engage

- We will be using Mural to gather detailed feedback.
- If you have a clarification, question or discussion point, please use the “*raise your hand*” function in MS Teams and wait to be called.
- We will be recording the session in order to make sure we capture all feedback, this will not be published or shared.



Recap of Show & Listen 3

# Recap of Show & Listen 3

- We shared initial proposal for two new Quick Reserve products – Positive Quick Reserve and Negative Quick Reserve.
- Key discussion points included our proposals for time to full delivery, recovery period, activation period and ramping envelope. We addressed your feedback points on the Q&A document, which can be located using the link below.



Slides

Q No.	Question / Comment	Answer Provided
1	Why do you think you can't do by SF from the beginning?	Handling 48 settlement periods per day from Stage 1 is very challenging to our current system and processes.
2	Will new STOR follow the move to settlement period? - major issues with 2 hour duration requirement?	No, considering the max activation period (2 hour), settlement periods won't work for new Show Reserve Products. Would you please let us know what major issues you come across with 2 hour window?
3	Will DCOM/DR move to settlement period at same time? (+2)	Any changes to Response service terms will be communicated via the Response team channels.
4	You won't show dealing but do envisage splitting of units between services. When do you plan to introduce splitting? Will you bring it in with the EAP? More broadly, any update on your intention to allow participants co-optimisation of the new response and reserve services?	The scope of Enduring Auction Platform will be communicated from EAP project team later on.
4	How would it work moving from one QR window to a DC window with no gap for example?	You will need to consider the period in which an instruction could extend beyond the end of a delivery window by at least 5 minutes (minimum activation period set maximum of 5 minutes) when tendering to Dynamic Containment (DC) and manage any overlap accordingly. This means that units will not be able to provide a different Ancillary Service in the window immediately following reserve service.
5	Would be helpful to have timeline for allowing 'splitting' and over what services?	See Q4.
6	Will you require providers to deliver outside of contracted windows?	Yes, units should be obligated to deliver Quick Reserve outside of their nominally scheduled windows in line with the minimum activation period (up to 5min for Quick Reserve). See Q4 for more details.
7	cap on individual asset? (i.e. 50MW)?	Yes, there will be a cap on individual asset. The max bid volume per unit can bid up to is 500 MW, if a unit is Large Power Station, we require flexibility to mitigate quantities anywhere between Static Export Limit (SEL) and Maximum Export Limit (MEL) or Stable Import Limit (SIL) and Maximum Import Limit (MIL).
8	Are co-located hybrid project able to meet eligibility?	I don't see why they wouldn't, it's about how you deliver the service and whether you can meet the requirements as set out.
9	can DSO via CLASS participate?	Any providers who meets the services terms are eligible to participate. We note that Ofgem is currently consulting on CLASS.
10	is State of Charge going to be used by the Control Room for this product and how?	State of Energy (or Charge) must be managed by the providers to meet the requirements of the service; the Control Room will therefore not have take it in to account.
11	is information on compliance metering available?	Can you expand on the question? We are aiming to cover Performance Monitoring in our next Show & Listen event.
12	Are there upper and lower tolerances in the ramp rates?	There are no maximum or upper ramp rates limits when ramping to or from the instruction. Units can achieve the contracted capacity immediately after accepting the dispatch instruction (can be continuous or instantaneous ramping). The minimum or lower ramp rates limit is set as no less than 100% of contracted capacity per minute to make sure that units will achieve its output within 1 minute.
13		As part of our Performance Monitoring, a minimum of 95% of contracted volume must be delivered by the relevant unit throughout the contracted period.

Q&A document



Quick Reserve – Focus topics

# Mural

## How to use Mural for live feedback in this event?

**nationalgridESO**

### 1 Quick Reserve Product & Service Design

Workshop date: 12 07 22

Facilitator:

#### Agenda

- 1 Recap of Show & Listen 2
- 2 Discussion points
  - Recovery Period
  - Performance Monitoring
  - Energy Requirements
- 3 Slow & Quick Reserve - Overview
  - Technical Design
  - Procurement Design
- 4 Close down & Feedback

#### Rules

- This is your session to participate. Dig in!
- Use the chat function to ask questions.
- Use the mute button when not speaking.
- Avoid interrupting when others are speaking.

#### Your Participation Role

- 1 **Throughout the session**  
Speak up, think big, voice concerns, be patient, don't be discouraged or overly cautious.
- 2 **During activities**  
Ask clarifying questions before we begin, good energy in good results out.
- 3 **Remember**  
This session is part of the spaced work. We'll never done this together before. Seek to understand before being understood.

#### Mural Tips

- Navigation**  
Moving the board: Hold the space bar, click and drag to move the position of the entire MURAL on your screen.
- Zooming in & out**  
Scroll the wheel on your mouse or pinch on your touchpad to zoom in/out. When changing devices you may need to check **Zoom Settings** in the bottom right.
- The minimap**  
Track your view of the MURAL, and zoom percentage on the minimap in the bottom right corner of your screen.
- Organizing**  
Select Objects: Click an object to select it, hold with another object to expand the selected area, then drag to move.
- Move Objects**  
After selecting the objects you wish to move, drag along them to the desired location on the MURAL.
- Comments**  
Sticky Notes: Add sticky notes by right-clicking, then selecting **Add Sticky Note** or by double-clicking an empty space on the background.

### 2 Discussion points

Discussion on the following items:

#### Recovery Period

Do you agree with our reviewed proposal to increase maximum recovery period to 3 minutes?

Yes No

Feedback

Review Questions and seek clarification

Questions

#### Performance Monitoring

Do you agree with our proposal for Performance Monitoring and penalties?

Yes No

Feedback

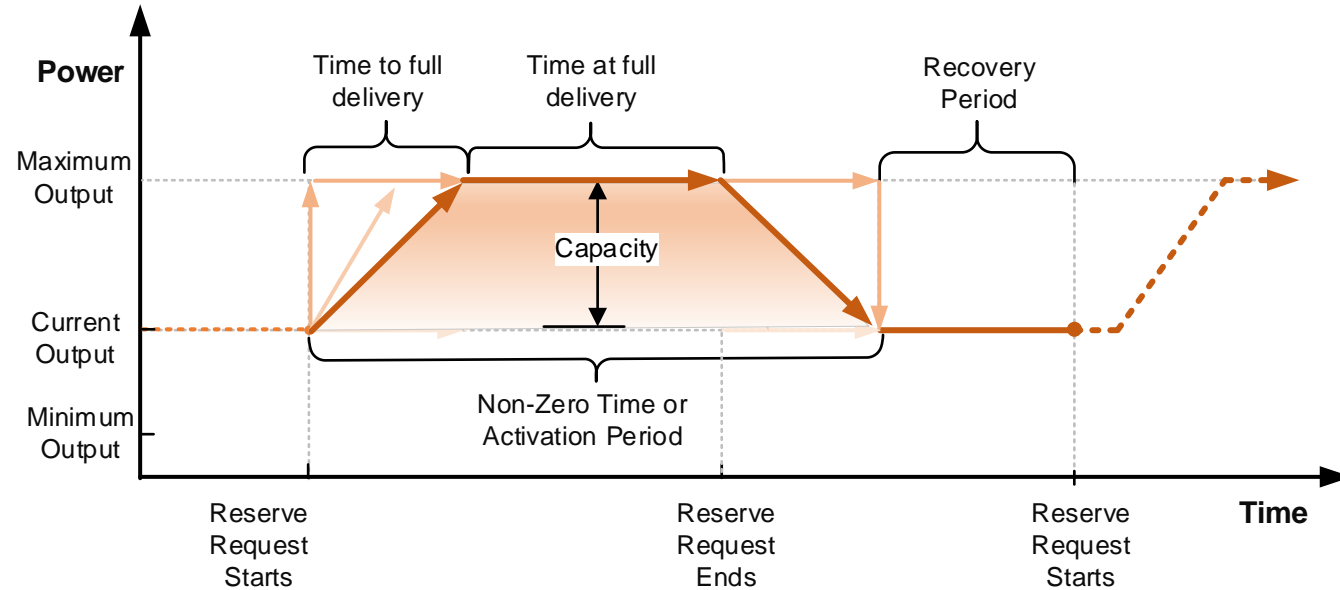
Review Questions and seek clarification

Questions

nationalgridESO

# Minimum Activation Period

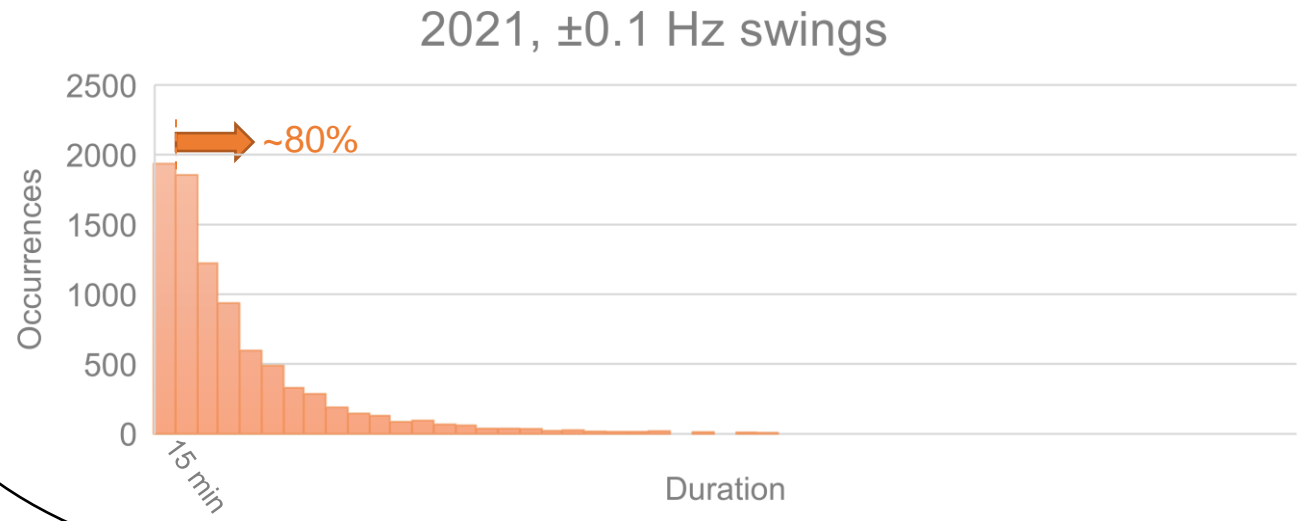
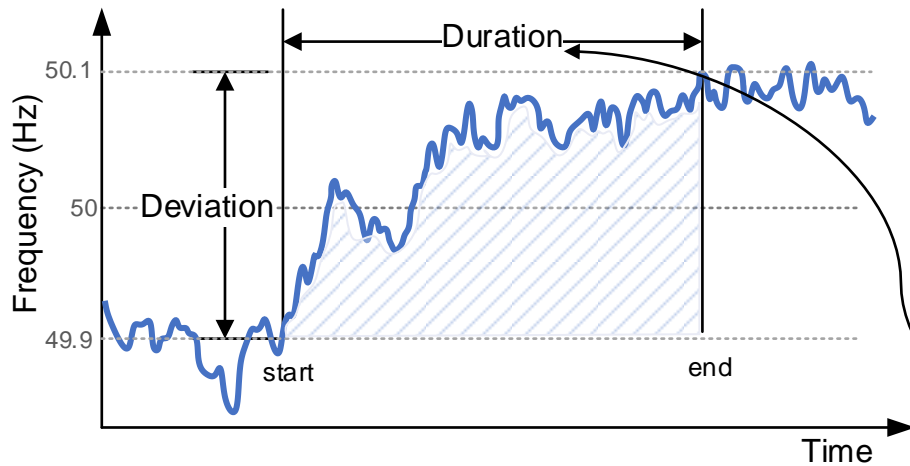
- This refers to the minimum duration for which an instruction can be issued, as specified by providers. The upper limit for this parameter is **5 minutes**.





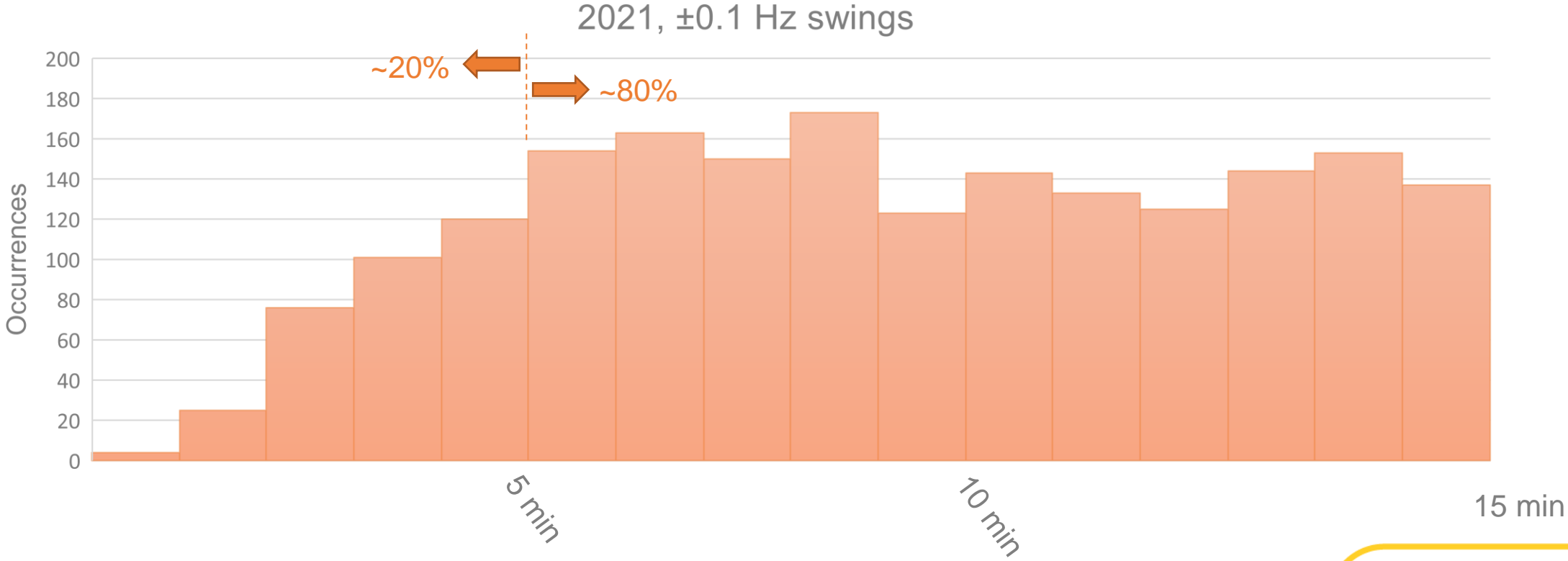
# Minimum Activation Period

- To specify this parameter we looked at the number and duration of frequency swings, e.g. 49.9 Hz to 50.1 Hz (see figure below).
- Swings with durations over 15 minutes were discarded as unlikely to be linked.
- Around 8742 swings of  $\pm 0.1$  Hz for 2021. About 1924 less than 15 minutes.



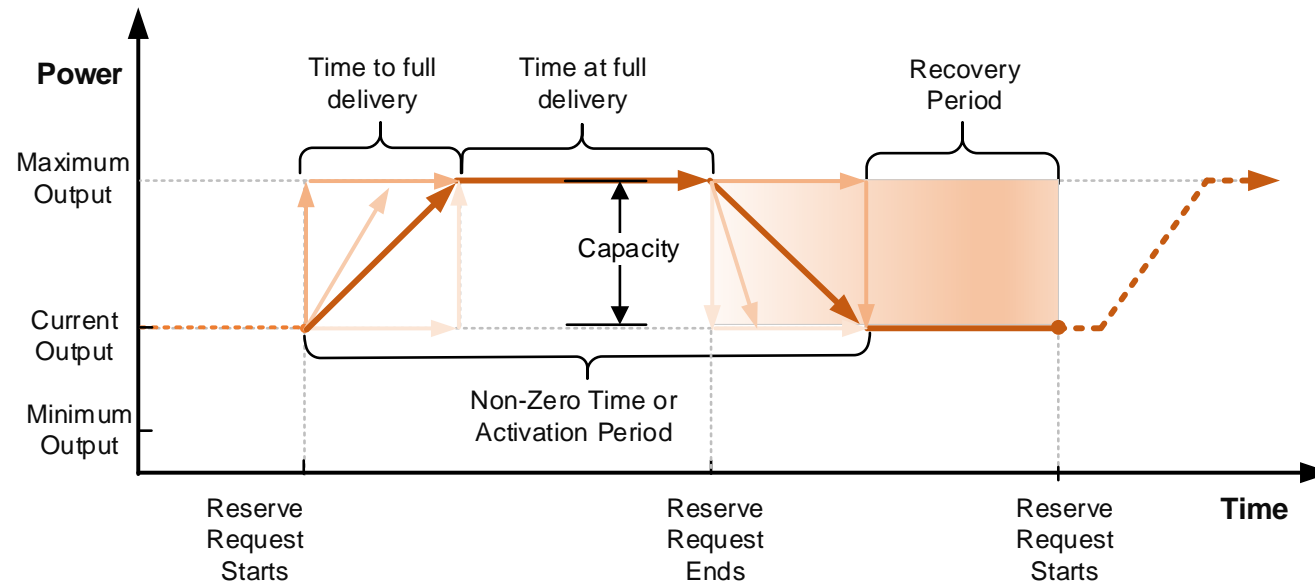
# Minimum Activation Period

- Only around 20% of  $\pm 0.1$  Hz swings (~330 per year) are less than 5 minutes.
- Minimum Activation Period **up to 5 minutes** has the potential to shorten the duration of the remaining 80% of swings.



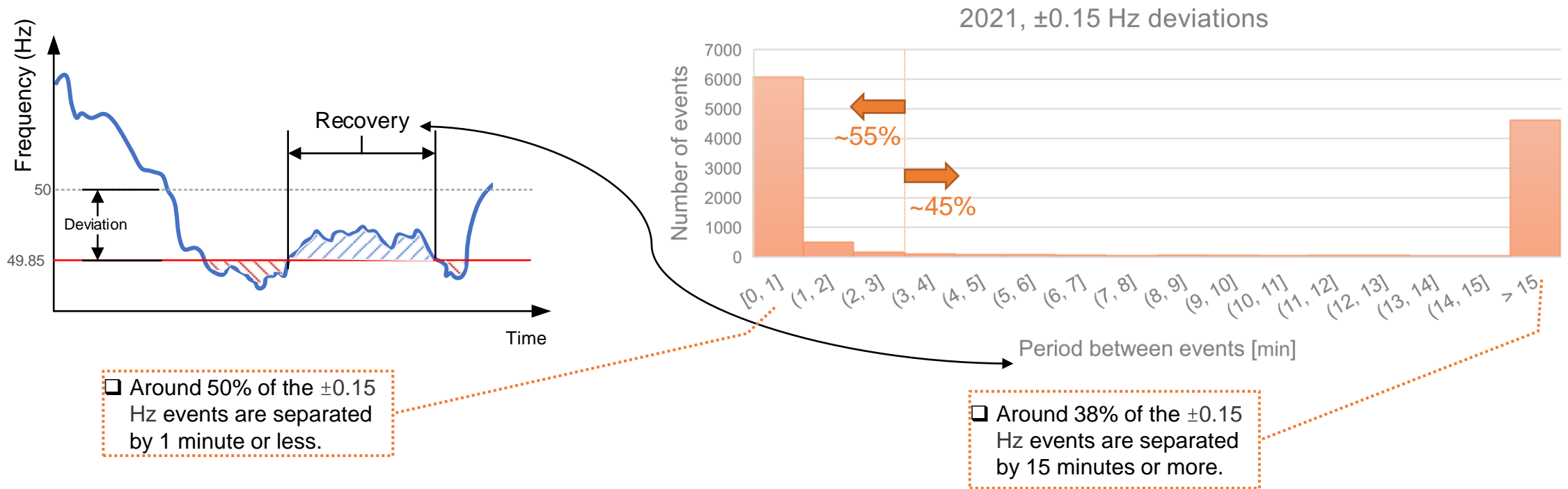
# Recovery Period

- This refers to the time interval in which a unit is allowed to recover and return to availability following an instruction.
- Initially, this parameter was specified as 1 minute or less. Following feedback from the previous S&L, we are now proposing a recovery period of **3 minutes or less**.



# Recovery Period

- To specify this parameter we looked at the interval between frequency events of different magnitudes, e.g.  $\pm 0.1$  Hz,  $\pm 0.15$  Hz (see figure below).



- A Recovery Period of 3 minutes or less represents a good compromise between unit's ability to deliver and historic system needs.

# Mural

Please head to the [Reserve Show & Listen Mural board](#) to provide feedback on our proposals.

**2**

**Discussion points**  
Discussion on the following items

**Minimum Activation Period & Recovery Period**

Element	Proposal
Minimum Activation Period	Up to 5 minutes
Maximum Recovery Period	Up to 3 minutes

Does our proposal for Minimum Activation Period present any issues to your technology?

Yes No

Do you agree with our reviewed proposal to increase Maximum Recovery Period to 3 minutes?

Yes No

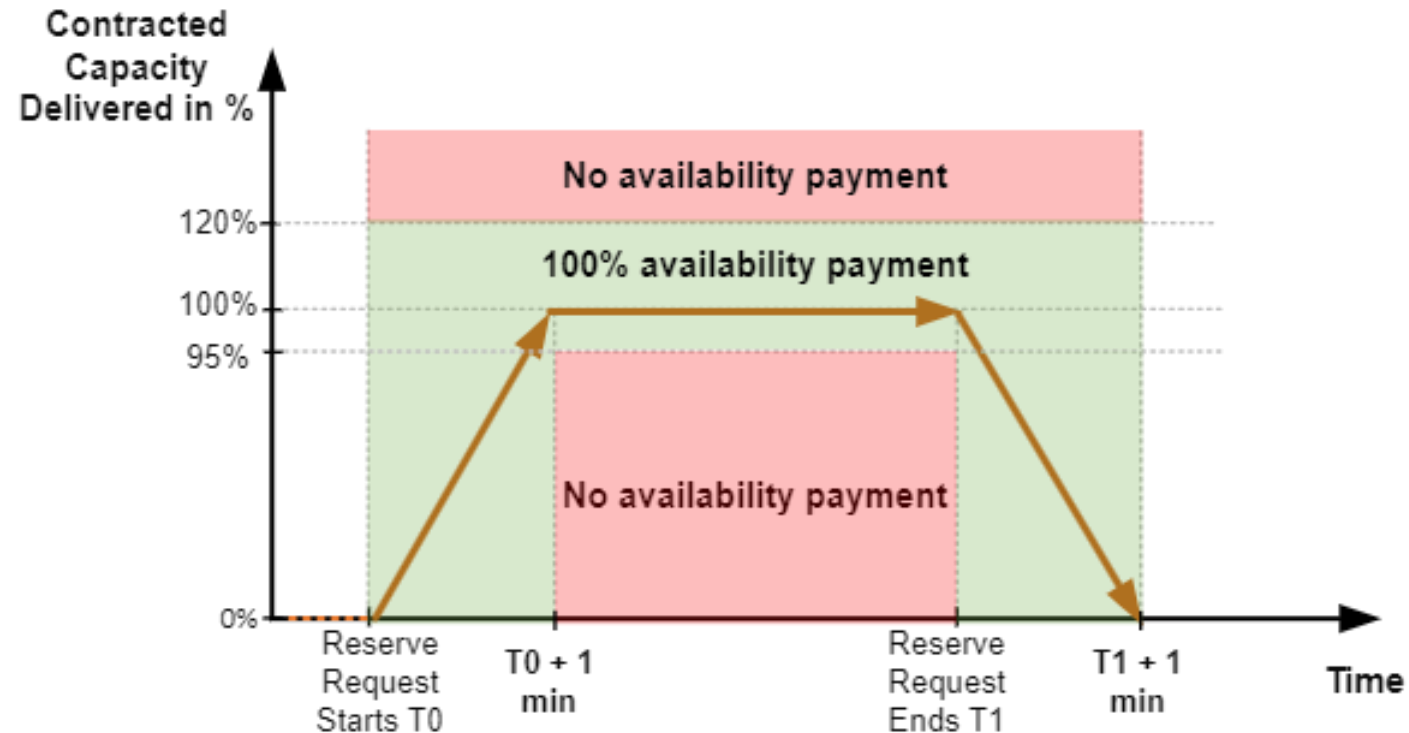
Feedback

Review Questions and seek clarification

Questions

# Performance Monitoring

- NGESO will conduct regular performance monitoring of service delivery.
- **Under-delivery** below 95% contracted capacity will mean availability payments for the relevant service window will be withheld. Utilisation payments will be made for all energy delivered.
- **Over-delivery** will be permitted up to 20% in addition to contracted capacity, however utilisation and availability payments will be capped at 100%.



# Mural

Please head to the [Reserve Show & Listen Mural board](#) to provide feedback on our proposals.

Performance Monitoring

Contracted Capacity Delivered in %

120%  
100%  
95%  
0%

No availability payment  
100% availability payment  
No availability payment

Reserve Request Starts T0  
T0 + 1 min  
Reserve Request Ends T1  
T1 + 1 min  
Time

Do you agree with our proposal for Performance Monitoring and penalties?

Yes No

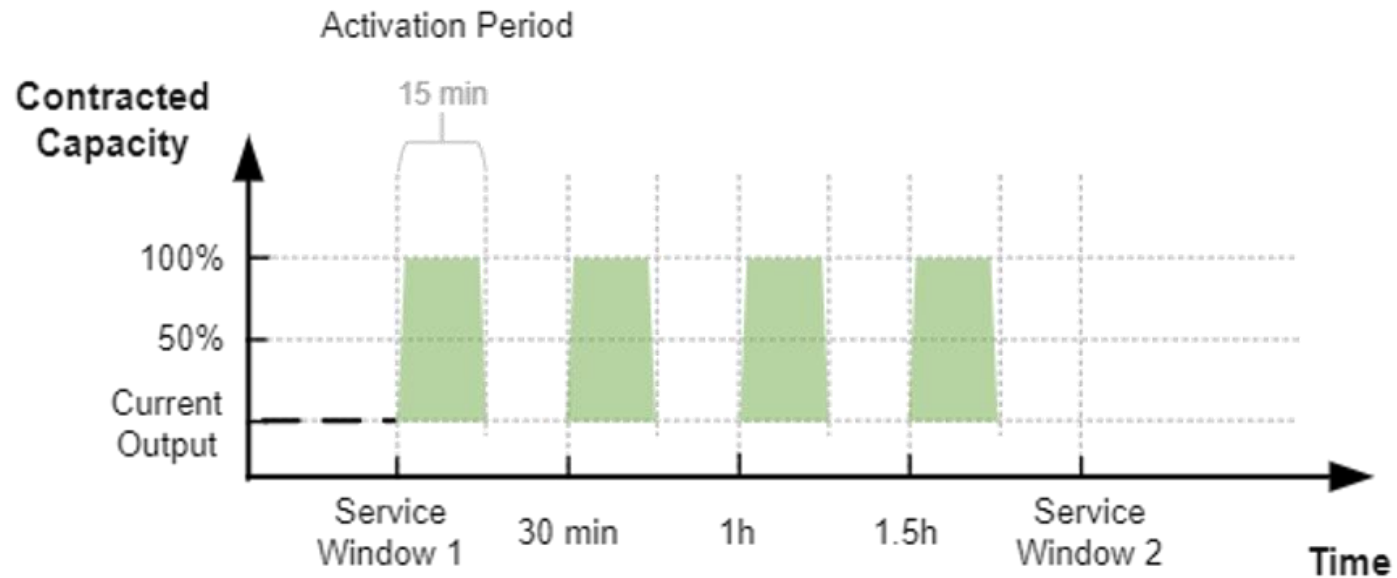
Feedback

Review Questions and seek clarification

Questions

# Energy Requirements

- For energy-limited assets, we propose a requirement for at least 1 activation at full contracted output per Settlement Period.
- As with other Response Services, it falls on providers to work out appropriate energy management strategies to avoid being penalised.





# Mural

Please head to the [Reserve Show & Listen Mural board](#) to provide feedback on our proposals.

**Energy Requirements**

The graph displays 'Contracted Capacity' on the y-axis (0%, 50%, 100%) and 'Time' on the x-axis. It shows an 'Activation Period' of 15 minutes at 100% capacity, followed by four 30-minute intervals at 100% capacity, and two 1.5-hour intervals at 100% capacity. The x-axis is labeled with 'Service Window 1', '30 min', '1h', '1.5h', and 'Service Window 2'.

Do our proposal for Energy Requirements presents any issues to your technology?

Yes No

Feedback

Review Questions and seek clarification

Questions



# Slow & Quick Reserve – Overview

# Technical Design Recap

Product Criteria	Slow Reserve	Quick Reserve
<b>Direction</b>	Low (Positive Reserve) & High (Negative Reserve)	
<b>Minimum Capacity</b>	1 MW	
<b>Time to full output</b>	Maximum of 15 minutes of instruction	Maximum of 1 minute from instruction
<b>Maximum Activation Period</b>	A minimum of 120 minutes	A minimum of 15 minutes
<b>Minimum Activation Period</b>	A maximum of 30 minutes	A maximum of 5 minutes
<b>Maximum Recovery Period</b>	A maximum of 30 minutes	A maximum of 3 minutes
<b>Aggregation rules</b>	Providers can aggregate units within a GSP Group	
<b>Dispatch Solution</b>	BM – BOAs / Non-BM - ASDP	
<b>Operational &amp; Performance Metering</b>	1Hz	
<b>Ramp rates</b>	<p>Maximum ramp rates - not greater than 100% of contracted capacity per minute.</p> <p>Maximum instantaneous ramp rates – unit cannot deliver more than 50% of contracted capacity in any 30 seconds period of ramping.</p>	No maximum ramp rate limits.
<b>Performance Monitoring</b>	Penalties for over and under deliveries	
<b>Baselining</b>	60-minute nomination baseline	
<b>Energy Requirements</b>	N/A	At least 1 activation at 100% of contracted capacity per Settlement Period

# Mural

Please head to the [Reserve Show & Listen Mural board](#) to provide feedback on our proposals.

3

**Slow and Quick Reserve: Technical Design Feedback**  
Opportunity to provide feedback on both Product Design

Element	Slow Reserve	Quick Reserve
Direction and Minimum Capacity		
Time to full output		
Minimum and Maximum Activation Period		
Dispatch mechanism		
Operational and Performance Monitoring		
Ramp Rates		
Aggregation rules		
Baselining		
Energy Requirements		

**Question Corner**

# Procurement Design Recap

Product Criteria	Slow Reserve	Quick Reserve
<b>Unit Cap/ Bidding Volume Cap</b>	N/A	300 MW
<b>Frequency of Procurement</b>	Daily	
<b>Auction Timing</b>	D-1 14:30	
<b>Service Window</b>	1* 8 hour overnight block (23:00-07:00) + 8 * 2 hour blocks	Interim: 2h Window Enduring: Settlement Period
<b>Auction Platform (for Firm Requirement )</b>	Enduring Auction Platform	
<b>Stacking</b>	Same MW cannot be sold twice	
<b>Payment Structure</b>	<b>Firm service:</b> Availability+ Utilisation <b>Optional service:</b> Utilisation	
<b>Payment Mechanism</b>	Availability: Pay-as-clear Utilisation: Pay-as-bid	

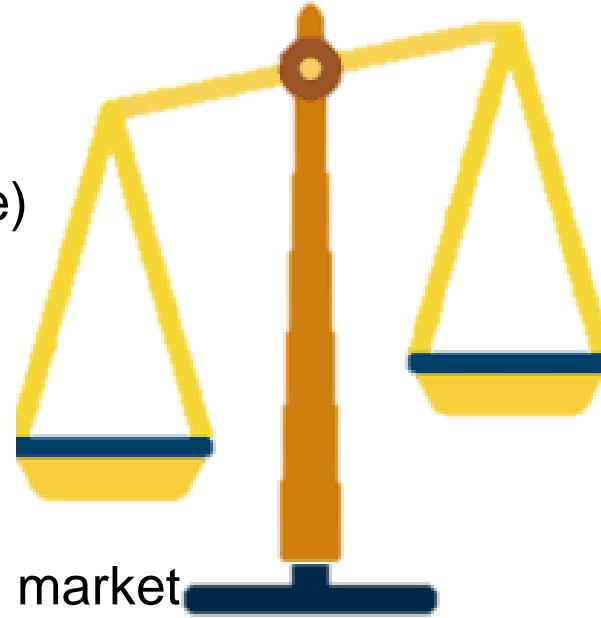
# Crossovers

We recognise the complexity of the window crossover period but it is our best view at present of how we can manage the transition from one service window to the next without losing Reserve capacity across the boundary.

Product Criteria	Slow Reserve	Quick Reserve
<b>Requirement</b>	<ul style="list-style-type: none"><li>• Max <b>15 min</b> extending beyond the procured service window</li><li>• Unless specified by the providers via the minimum activation time</li></ul>	<ul style="list-style-type: none"><li>• Max <b>5 min</b> cross window boundaries</li><li>• Unless specified by the providers via the minimum activation time</li></ul>
<b>Payment</b>	<ul style="list-style-type: none"><li>• Availability payment for procured service window. <b>No additional availability</b> payment for window crossover periods.</li><li>• <b>Utilisation payment</b> based on the utilisation price submitted for the relevant periods</li></ul>	
<b>Penalty</b>	<ul style="list-style-type: none"><li>• Normal Performance Monitoring rules applies (check slide 14 for more details)</li></ul>	

# Service Window

- Fit for technical design (e.g., Activation Time)
- Wider market access
- Mitigate overholding risk / Be cost effective
- Better support “crossovers”
- Transaction Costs & Readiness of ESO and market participants (IS system/ Processes/ Resources)



- Standardised service window across Response and Reserve products
- Suitable for future needs

# Payment Mechanism

## Why should we pay for utilisation?

- Reserve products have a high energy throughput
- Win-win for both ESO and market participants

## Why chose Pay-as-bid for Utilisation?

- Utilisation cannot meet the criteria of “Full information available to market prior to price being set”



# Mural

Please head to the [Reserve Show & Listen Mural board](#) to provide feedback on our proposals.

4

**Slow & Quick Reserve: Procurement Design Feedback**  
Opportunity to provide feedback on both Product Design

Element	Slow Reserve	Quick Reserve
Unit Cap/ Bidding Volume Cap		
Frequency of Procurement		
Auction Timing		
Service Windows		
Auction Platform (Firm Requirements)		
Stacking		
Payment Structure		
Payment Mechanism		
Crossovers		

Question Corner



Close down

# Reserve Reform – Thank you

- Thank you for participating in our last Show & Listen event from the Reserve Reform team!
- You can leave us feedback on the Mural board – it will remain open for comments for next 7 days.
- Further written feedback would be appreciated on Reserve Products via email:  
([Box.futureofbalancingservices@nationalgrideso.com](mailto:Box.futureofbalancingservices@nationalgrideso.com))



# Appendices

# Meet The Team



Mike Coldwell

Market Requirements Future  
Design Manager



Steve Dugmore

Reserve Reform Market  
Services Lead



Yingyi Wang

Reserve Reform  
Procurement Design



Francisco Sanchez  
Gorostiza

Reserve Reform  
Product Design



Rob Westmancoat

Reserve Reform  
Product Design



Ewa Krzywkowska

Reserve Reform  
Product Design