

# Agenda

- I. Review of Show & Listen 2
- II. Quick Reserve Project timeline
- III. Quick Reserve System need
- IV. Quick Reserve Design parameters
  - 1. Time to full delivery
  - 2. Recovery period
  - 3. Dispatch mechanism
  - 4. Product duration
  - 5. Ramping envelope
  - 6. Performance & operational metering
- V. Quick Reserve Procurement service design
- VI. Looking ahead to our next Show & Listen event

# 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- We will be recording the session in order to make sure we capture all feedback, this will not be published or shared.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 2

- We shared an overview of two new Slow Reserve products Positive Slow Reserve and Negative Slow Reserve.
- Key discussion points included our proposals for service windows, auction timings, metering and baselining. We addressed your feedback points on the Q&A document, which can be located using the link below.



Slides



**Q&A** document





#### Proposed Project Timeline

- Using an Agile approach we can introduce services and functionality in sequential releases.
- However, there are a number of dependencies for the different releases:

Dependency	Launch stage	Required for	Estimated timescales
Ofgem approval		All services	4 months
ASDP release	Stage 1 Optional NBM + BM	NBM providers	6 months
Enduring Auction Capability project	Stage 2 Firm NBM	Firm market	12 months
Balancing Transformation release	Stage 3 Firm BM	BM providers	24 months

# **Proposed Project Timeline**

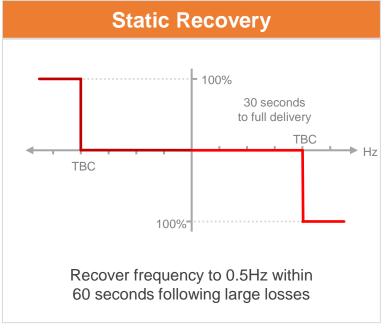


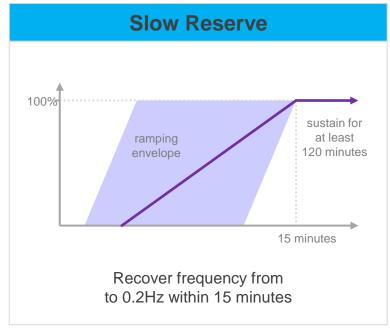
- Launching a Firm NBM market ahead of a Firm BM market is estimated to deliver potential consumer value of £1-2M per month.
- Note that STOR day ahead will continue until the full NBM and BM Firm Positive Slow Reserve service is available.

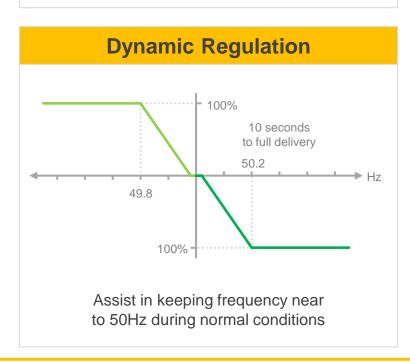


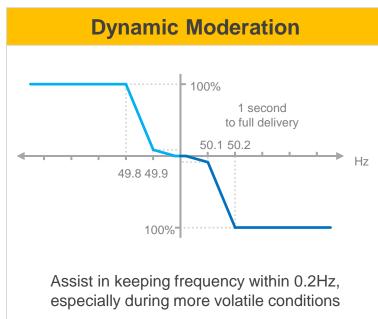


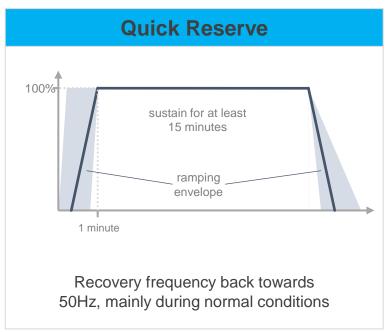
# Prevent frequency deviations outside -0.8Hz / +0.5Hz following large losses

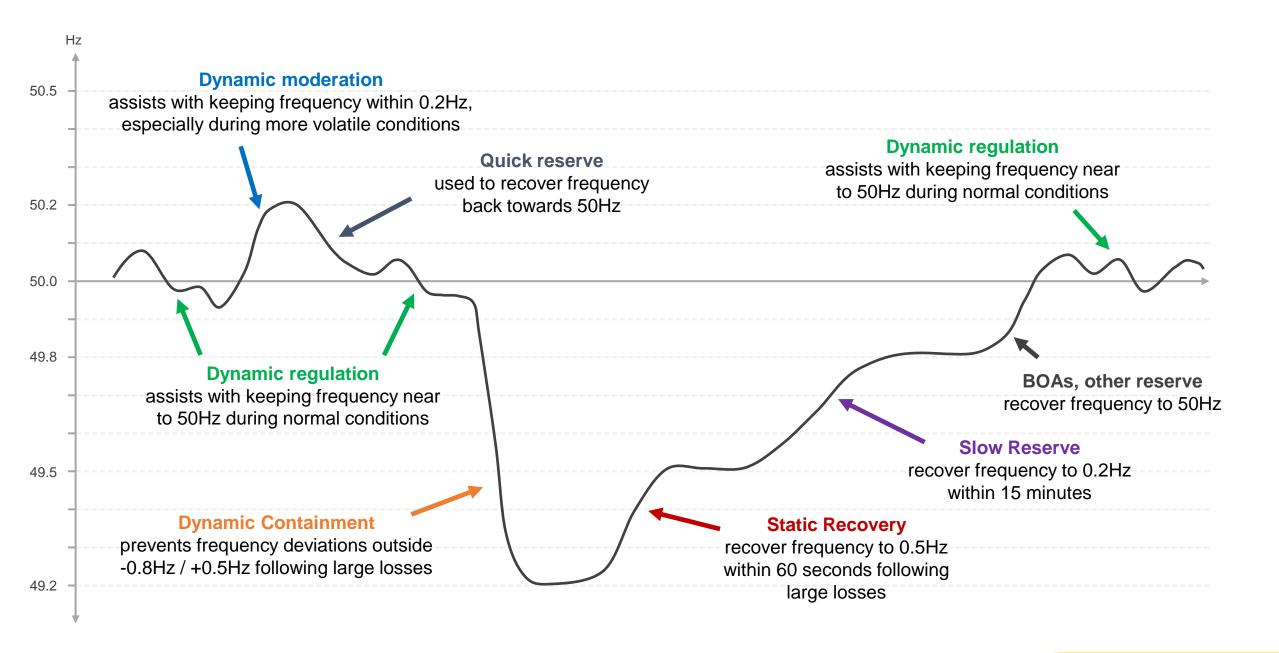




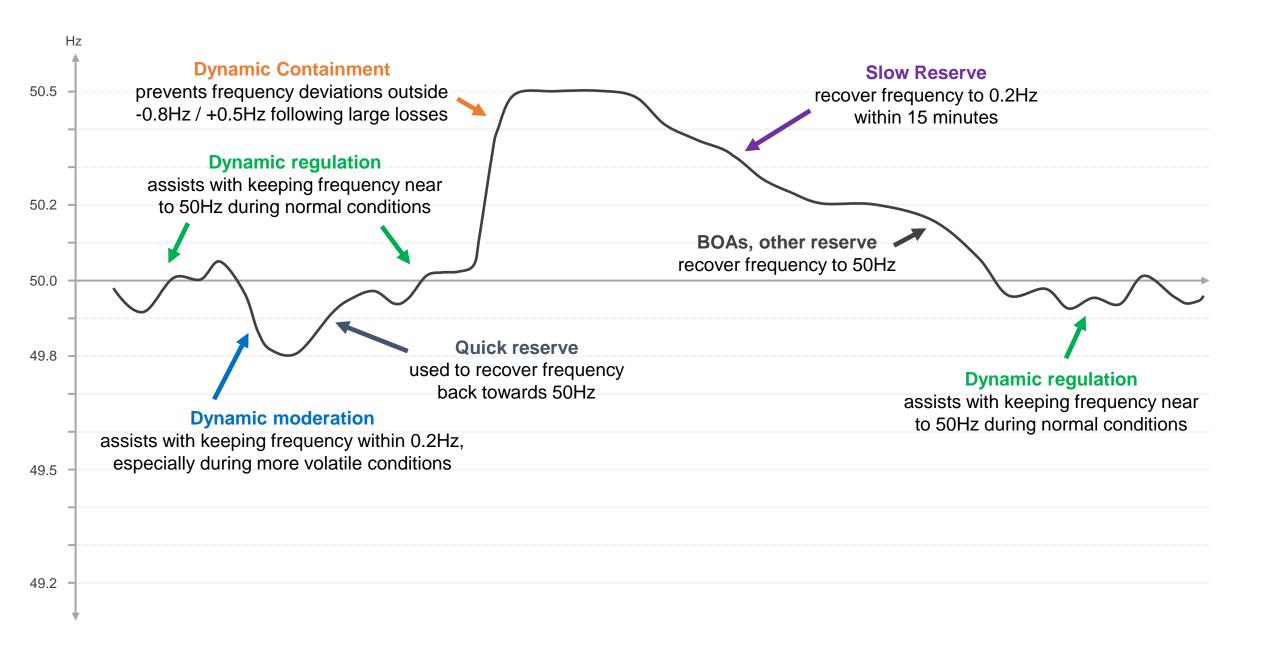




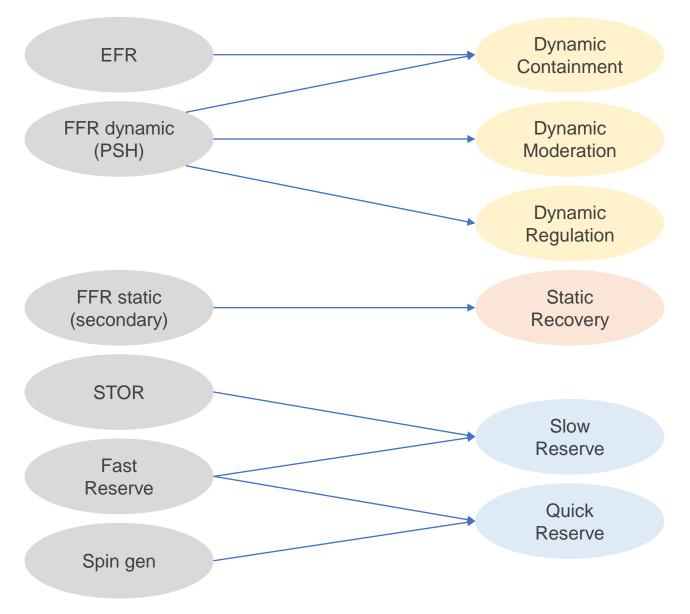








#### Anticipated service transition



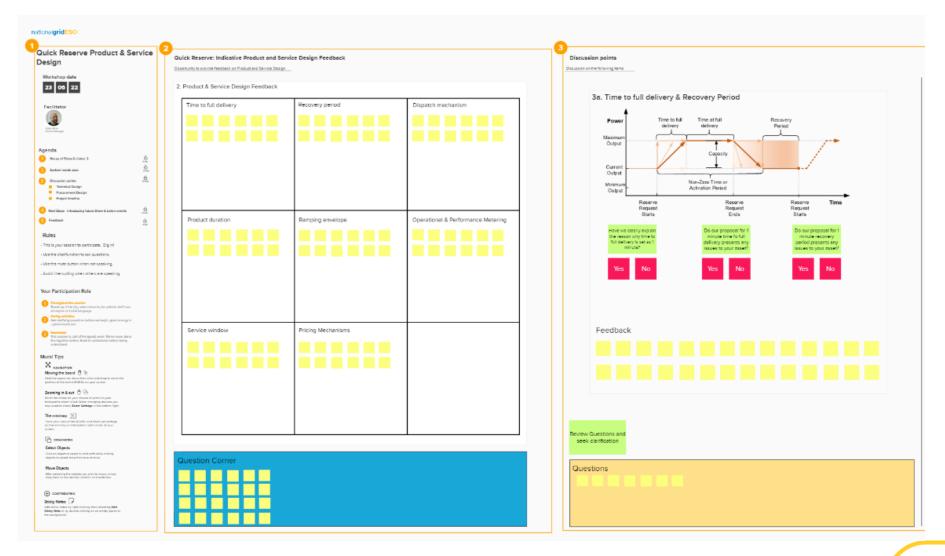
This is just indicative view on service transition in the future.

We are not proposing closing any services at this stage.



#### Mural

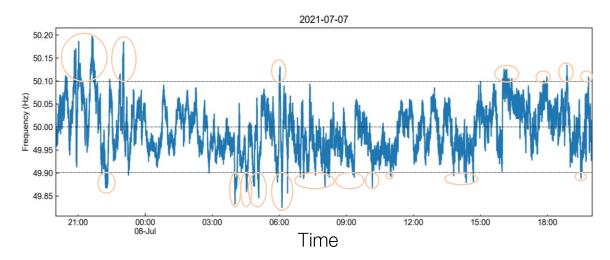
How to use Mural for live feedback in this event?

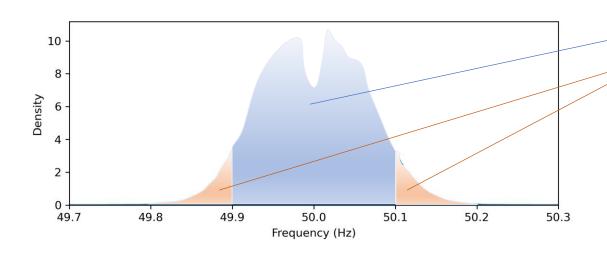




#### Time to full delivery

Frequency behaviour



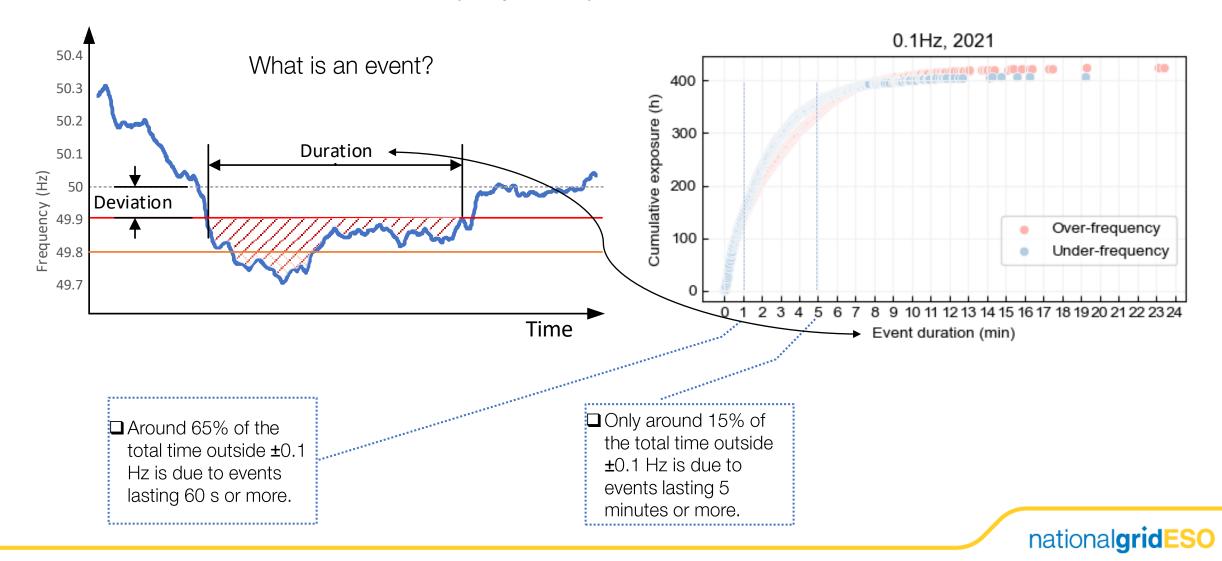


- ☐ Typical frequency trace. Moving closely around 50.0 Hz.
  - Random fluctuations
  - Disturbances
- ☐ Frequency response is procured assuming a pre-fault frequency different from 50 Hz.
- ☐ How is the frequency distributed over the year?
  - □ Around 90% of the time.
  - ☐ Around 10% of the time. ~ 832 hours per year.
- ☐ How are these ~ 832 hours per year distributed, based on the duration of the events?



#### Time to full delivery

How are the total number of hours per year dependent on the duration of the events?



#### Time to full delivery

Cumulative yearly exposure (%)

□ ~290 hours per year

Event duration (s)	0.05 Hz		0.1	0.1 Hz		0.15 Hz		0.2 Hz	
	UF	OF	UF	OF ,	UF	OF	UF	OF	
30	2.81	2.78	1.03	1.02	0.14	0.15	0.01	0.01	
60	4.58	4.59	1.68	1.63	0.23	0.24	0.02	0.02	
90	5.89	5.77	2.22	2.05	0.31	0.30	0.03	0.02	
120	7.00	6.81	2.70	2.43	0.35	0.35	0.03	0.02	
180	8.77	8.37	3.39	2.99	0.38	0.43	0.03	0.03	
240	10.41	9.77	3.86	3.50	0.40	0.46	0.04	0.03	
300	12.01	11.09	4.13	3.86	0.41	0.48	0.04	0.03	
> 300	23.3	22.5	4.7	4.8	0.4	0.5	0.05	0.05	

- □ ~700 hours per year
- A time to full delivery of 60 s or less would assist in reducing the exposure to deviations of ±0.1 Hz from around 8% of the time to around 3.3% of the time (a reduction of 4.7%).
- ☐ This implies a drop from 700 to 290 hours per year (net reduction of around 410 hours).

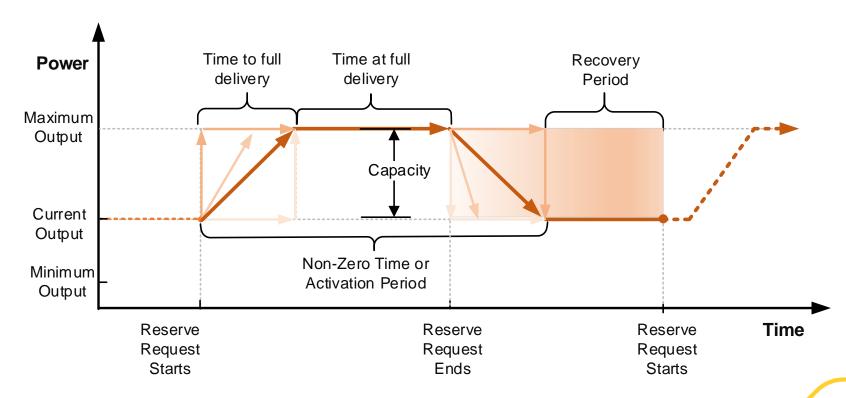


#### Future perspective

- Looking at the past as indication of the future:
  - In 2014 frequency was inside the ±0.1 Hz range for 94% of the time (~534 hours outside).
     Compared with 90% in 2021 (~832 hours outside).
- We are anticipating this exposure to increase in the future as the system is getting more volatile (more renewable connected, low inertia, large uncertainty).
- Strengthens the need for faster response and reserve products.

# Recovery Period

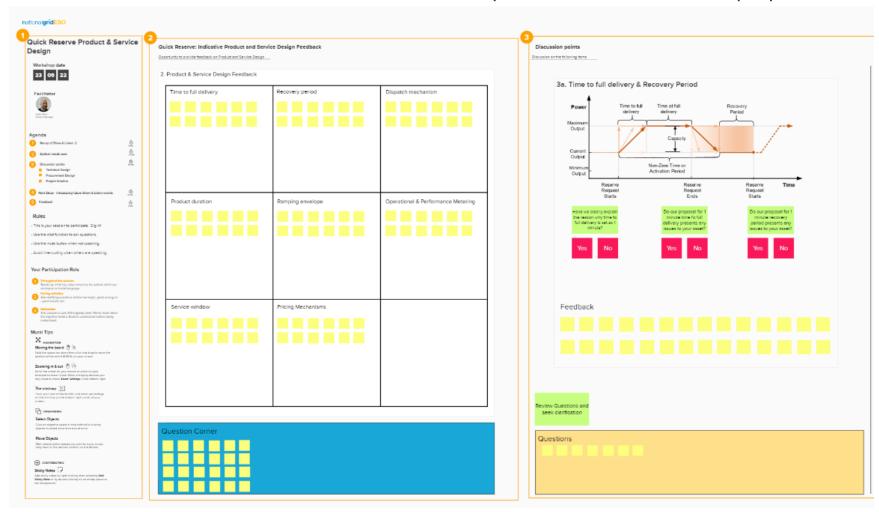
- This refers to the time interval in which a unit is allowed to recover and return to availability following an instruction.
- For Quick Reserve, a recovery period of 1 minute or less is proposed.





#### Mural

Please head to the Reserve Show & Listen Mural board to provide feedback on our proposals.

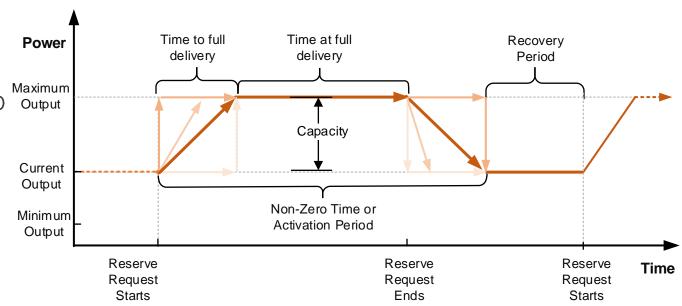


#### Dispatch mechanism

- Dispatch instructions to BM providers will be by way of Bid-Offer Acceptances via EDT/EDL.
- A Non-BM provider will be dispatched via the Ancillary Services Dispatch Platform (ASDP) system.
- Both Quick Reserve (Positive & Negative) services will be dispatched and ceased manually by ENCC.
- In the future, we are proposing to add optional (additional) dispatch mechanism for frequency relay for automatic dispatch following frequency deviation.

#### **Product duration**

- Minimum Activation Period is the minimum duration for which an instruction can be issued, as specified by providers. For Quick Reserve, we proposed Minimum Activation Period to be up to 5 minutes.
- Maximum Activation Period is the maximum duration for which an instruction can be issued, as specified by providers. For Quick Reserve, we proposed Minimum Activation Period to be at least 15 minutes.
- Minimum and Maximum Activation
   Periods are inclusive of ramp to instruction, time at full delivery and ramp from instruction.
- All instructions can be extended in intervals of one minute from the Minimum Activation Period up to the Maximum Activation Period.

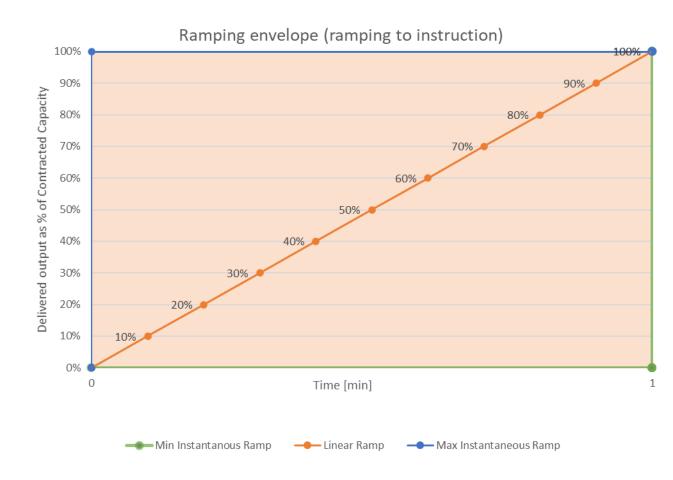




#### Ramping envelope

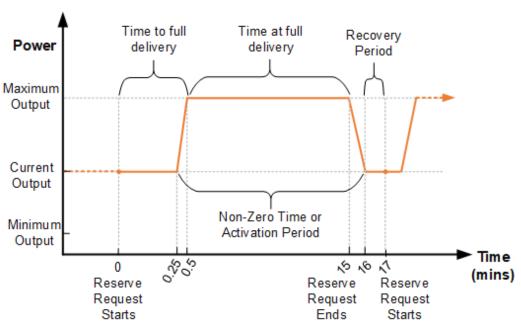
#### Proposal:

- No maximum ramp rates limit when ramping up or to instruction or ramping down and from instruction. The unit can ramp to and from instruction freely (continuously or instantaneously) with any ramp rates.
- The unit may not deliver at a rate less than 100% of contracted capacity per minute (minimum ramp rate for ramp to and from instruction).
- The unit may start delivery immediately after accepting a dispatch instruction.



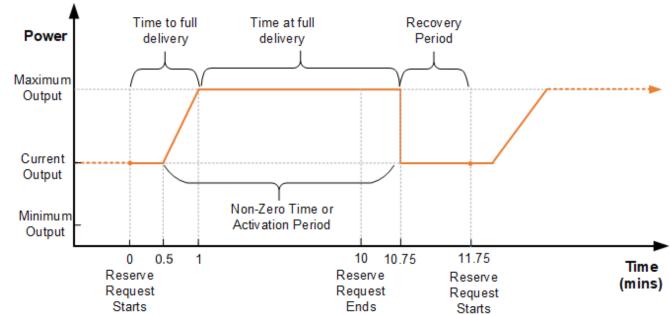


# **Delivery Examples**



- Ramp-up: **0.5 min**
- Time at full delivery: 14.5 min
- Ramp-down: 1 min
- Activation period: 15.75 min

- Ramp-up: 1 min
- Time at full delivery: 9 min
- Ramp-down: 0.75 min
- Activation period: 10.25 min



# Performance & Operational Metering

- We are proposing that Quick Reserve has 1Hz (once per second) read frequency for both operational and performance metering for all participating units.
- Operational metering frequency to align with the Balancing Mechanism. It is needed to aid
  control room visibility of units when dispatched and ramping. We are also developing new systems
  which will enhance forecasting capability, also improved by more granular metering data.

- For performance metering, it is important to be able to check compliant ramping within the envelope, over and deliveries for monitoring purposes.
- These metering requirements are consistent with Slow Reserve metering requirements for standardisation purposes.



#### Quick Reserve: Indicative Product Technical Design

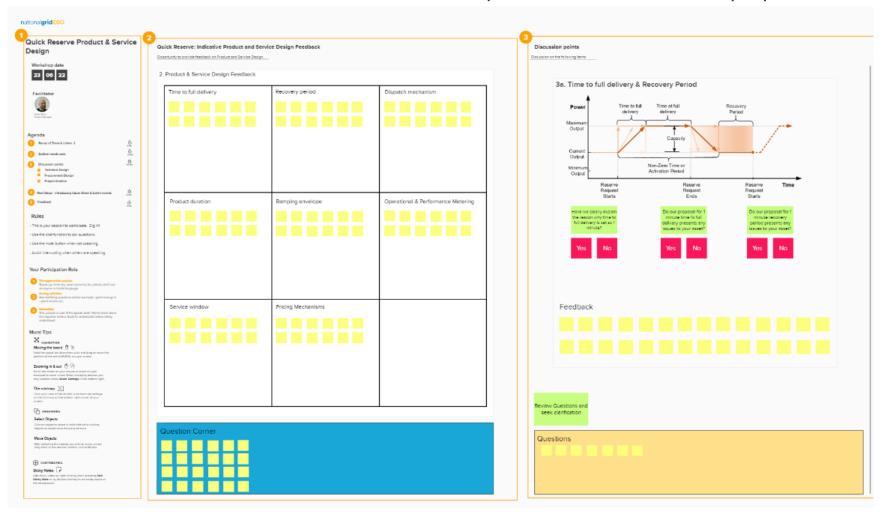
Product Criteria	Proposal			
Minimum Capacity	1.0MW			
Time to Full Delivery	Providers must reach full activation within 1 minute from instruction			
<b>Maximum Activation Period</b>	A minimum of 15 minutes			
Minimum Activation Period	A maximum of 5 minutes			
Maximum Recovery Period	A maximum of 1 minutes			
Aggregation rules	Providers can aggregate units within a GSP Group			
Dispatch Mechanism	BM – BOAs / Non-BM - ASDP			
Operational Metering	1Hz			
Performance Metering	1Hz			
Ramp rates	As per envelope restrictions			
Baselining	60-minute nomination baseline			

Where possible we kept the Quick Reserve technical design proposal as close to the Slow Reserve technical design for standardisation across products in Reserve Reform



#### Mural

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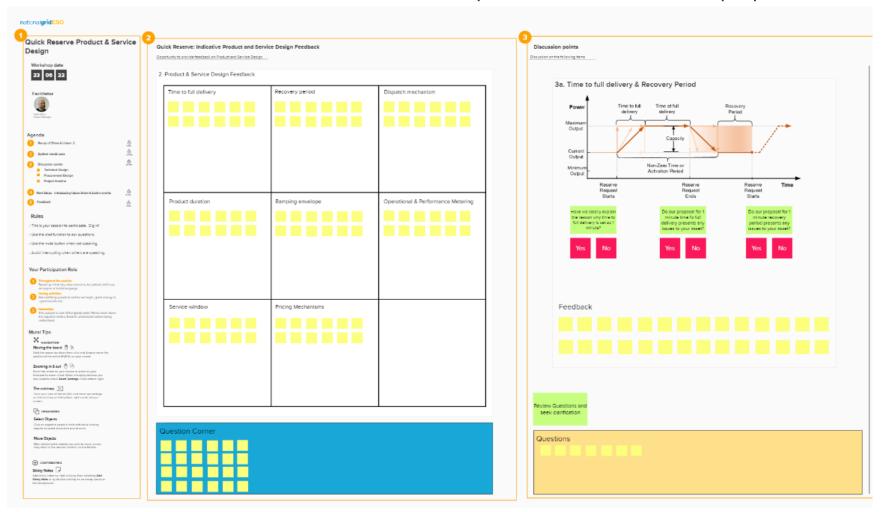


# Procurement Design

	Launch Stage 1	Launch Stage 2	Launch Stage 3
	Optional (BM & Non-Bm)	+ Firm Non-BM	+ Firm BM
Unit Cap	500 MW	500 MW	500 MW
Frequency of Procurement	Ad-hoc	Daily	Daily
Auction Timing	N/A	D-1 14:30	D-1 14:30
Service Window	2h Window	2h Window	Settlement Period
Auction Platform	N/A	<b>Enduring Auction Platform</b>	<b>Enduring Auction Platform</b>
Stacking	Same MW cannot be sold twice	Same MW cannot be sold twice	Same MW cannot be sold twice
Linking of Bids	No	No	No
Payment Structure	Utilisation only	Firm service:  Availability+ Utilisation  Optional service:  Utilisation	Firm service: Availability+ Utilisation Optional service: Utilisation
Payment Mechanism	Pay-as- bid	Availability: Pay-as-clear Utilisation: Pay-as-bid	Availability: Pay-as-clear Utilisation: Pay-as-bid

#### Mural

Please head to the Reserve Show & Listen Mural board to provide feedback on our proposals.







#### Quick Reserve – Next Steps

- Feedback from today's session does this style and structure work for you?
   Box.futureofbalancingservices@nationalgrideso.com
- We would like to propose another session in July where we hope to share more information and Q&A session around Quick Reserve product.
- Further written feedback would be appreciated on Quick Reserve design elements via email (<u>Box.futureofbalancingservices@nationalgrideso.com</u>)
- Mural board will be open for 1 week to provide a space to give us a feedback





#### Meet The Team



Adam Sims

Reserve Reform Product

Manager



Steve Dugmore

Reserve Reform Market

Services Lead

Rob Westmancoat



Market Requirements Future
Design Manager



Francisco Sanchez
Gorostiza

Reserve Reform

Product Design



Reserve Reform
Product Design



Ewa Krzywkowska
Reserve Reform
Product Design



Reserve Reform
Procurement Design

Yingyi Wang