

2022 MASS Consultation review

Forum 1

Systems Capability – Q2 2022



We acknowledge the Traditional Owners of country throughout Australia and recognise their continuing connection to land, waters and culture.

We pay our respects to their Elders past, present and emerging.

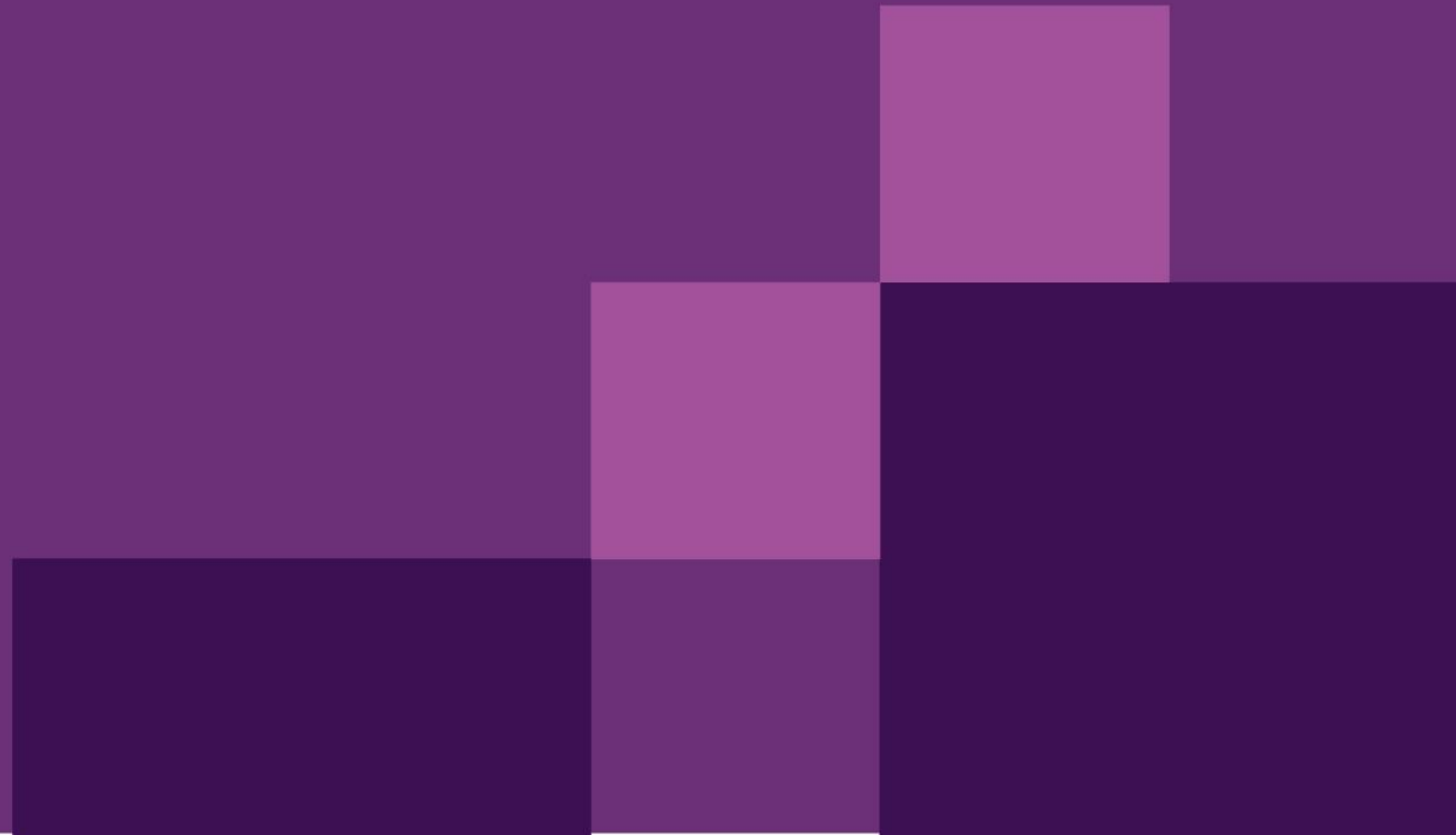


Please note that this forum will be recorded for the purposes of assisting AEMO accurately capturing feedback.

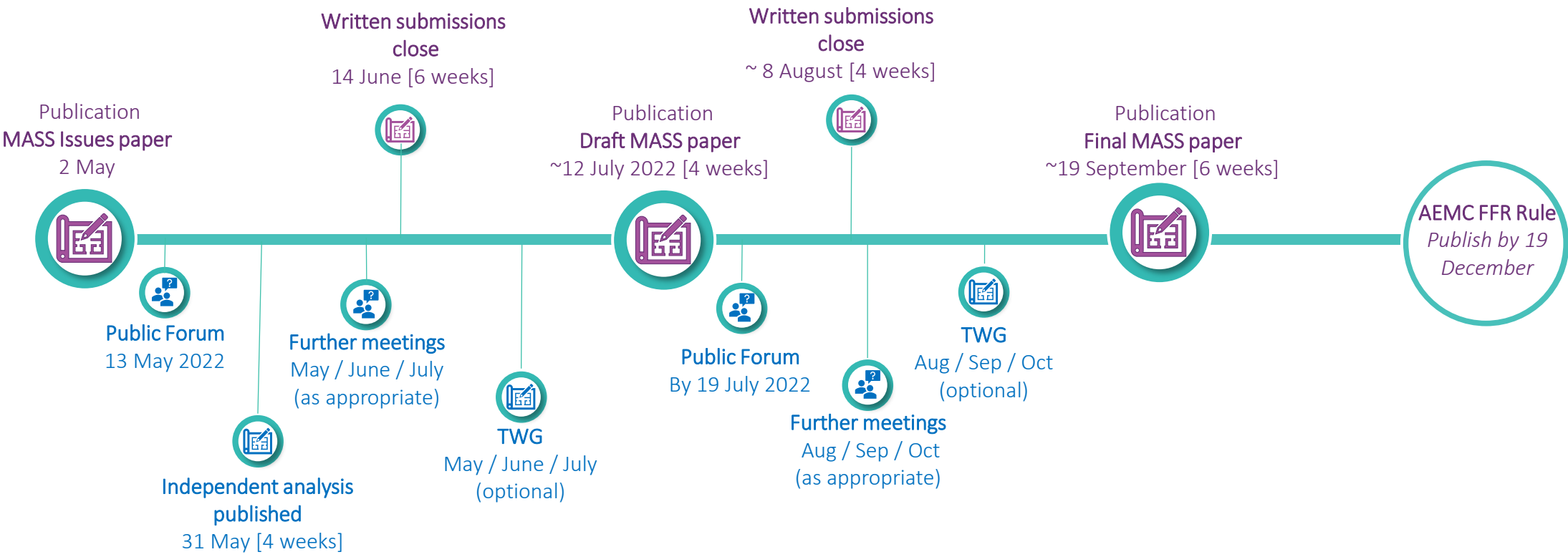
Welcome & Introductions

- The purpose of this forum is to support understanding of the MASS consultation issues paper, and provide an opportunity for discussion and Q&A on the items presented in the paper.
- This forum does not replace the formal written submissions process – we encourage all stakeholders to provide formal submissions by 5.00pm (AEST) on 14 June 2022.
- To support discussion during this forum, we ask all attendees to please raise their hand when they intend to speak and be respectful to others speaking.
- Please introduce yourself (name & organisation) before you speak.

Consultation stage overview



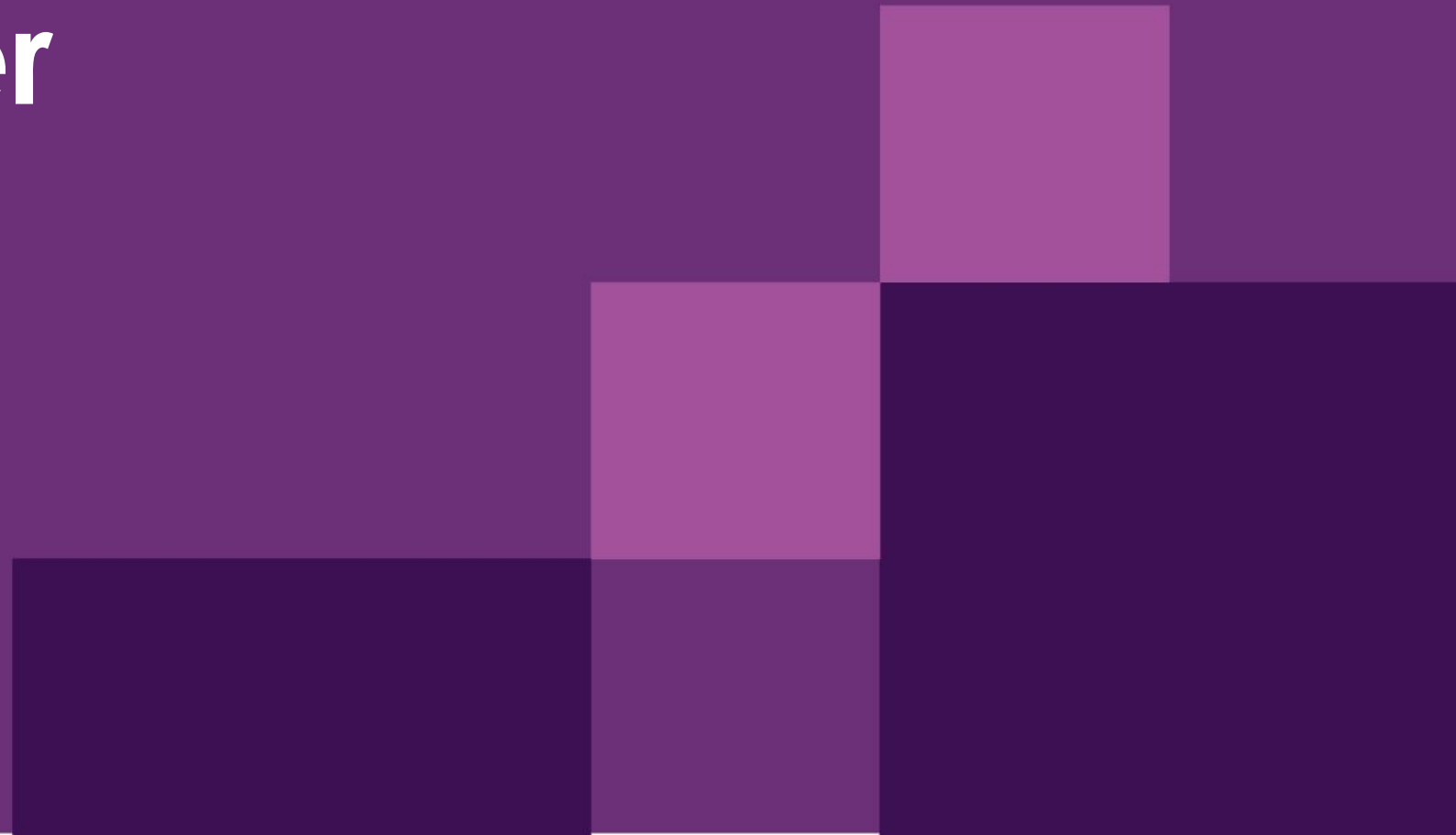
MASS Consultation timeline



■ Guided by rules consultation procedure
■ Optional activities

Questions?

Overview of MASS Issues Paper



Contingency FCAS – current and future state

- The Very Fast FCAS rule introduces two new Contingency FCAS markets:
 - Very Fast Raise Contingency FCAS
 - Very Fast Lower Contingency FCAS
- The Issues Paper examines the current market and explores the likely providers of Very Fast FCAS
- Includes summary of AEMO's knowledge of FFR capabilities of various technologies

Guiding principles

- Power system security considerations are paramount.
- Very Fast FCAS should fulfil a need that Fast FCAS cannot.
- If possible, the markets should be simple.
- If possible, maintain consistency with existing Contingency FCAS markets.
- Unless there is a clear power system need, the registration of existing Fast FCAS Providers should remain unaffected.
- To extent possible, existing FCAS Providers wishing to provide Very Fast FCAS should be able re-use existing controls, metering, etc.
- If practicable, the design should be technology neutral.

Qualitative aspects of design

- Very Fast FCAS will be ‘overlapped’ with Fast FCAS as per Fast FCAS overlap with Slow FCAS.
- Inertia will not be treated as Very Fast FCAS, as per existing Contingency FCAS arrangements.
- The design is independent of, but compatible with, the Primary Frequency Response (PFR) requirements.
- Concepts such as assumed frequency ramp rates and reference frequencies employed as they are for other Contingency FCAS.
- While not in scope, AEMO expects Very Fast FCAS will also have these properties:
 - Procurement will be inertia-aware: that is, the procurement volumes for Very Fast FCAS will take into account the level of system inertia.
 - Procurement may need to take into account geographic limitations, for example, at a regional level.
 - Levels of proportional and pure-switched response in Very Fast FCAS will need management.

Very Fast FCAS – design strategy

Inertia is declining in the NEM, leading to faster RoCoF

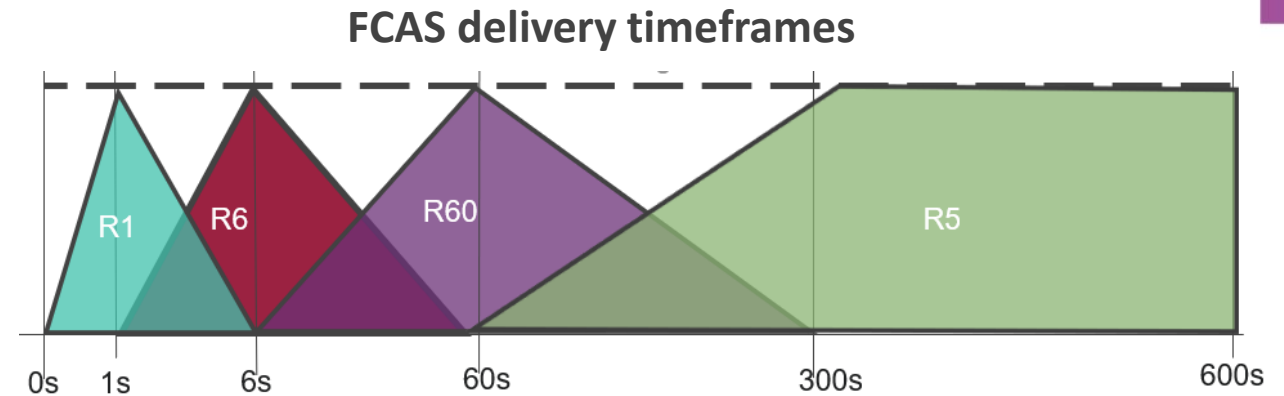
- In the near term, in a mainland intact system, existing Fast FCAS (6s response time) is adequate.
- In island or potential island scenarios, faster FCAS helps deal with faster RoCoF.
- Under lower inertia conditions, more FCAS is required to meet the FOS following a credible contingency.

‘Very Fast’ FCAS is intended to assist in frequency containment following credible events in low inertia conditions

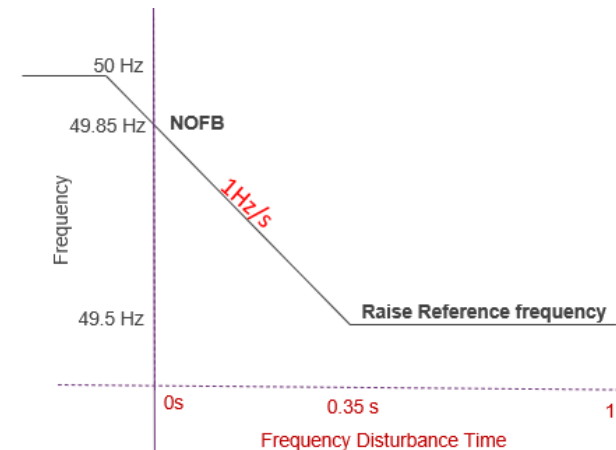
- Will help with non-credible events, but not be designed to manage them
- ‘Very Fast’ service should be ‘inertia aware’; i.e. inertia terms help dictate procurement volumes
- Low inertia conditions would first appear in island scenarios, but could later occur in system intact conditions

Proposed Very Fast FCAS attributes

- A 1-second timeframe to reach maximum response.
- A total timeframe of 6 seconds.
- Raise/Lower reference frequency to remain at ± 0.5 Hz for the Mainland and ± 2 Hz for Tasmania, like other Contingency FCAS.
- Standard fast frequency ramp rate of 1 Hz/s for the Mainland and for Tasmania.



Mainland Standard Fast Frequency ramp

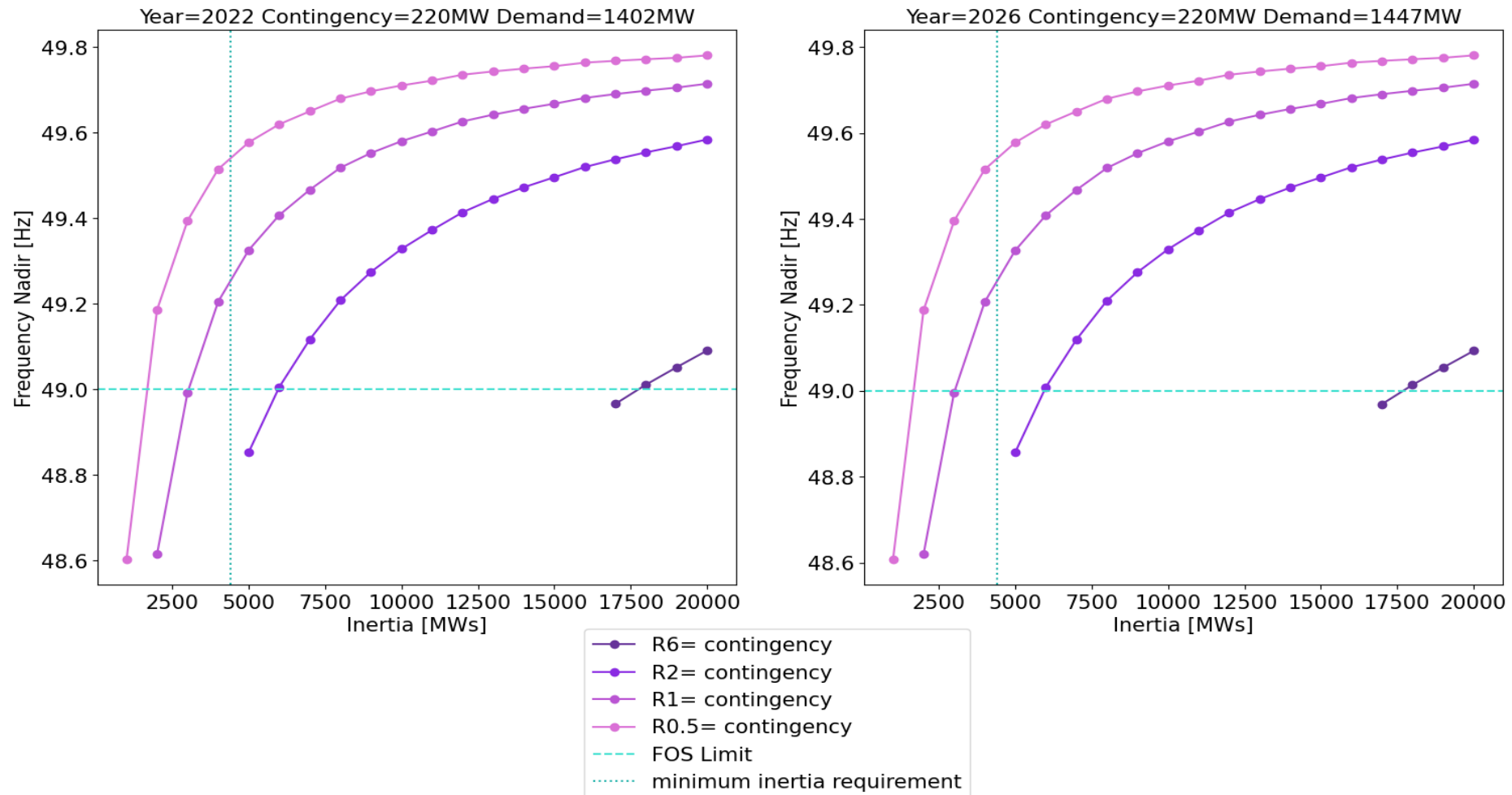


Technical justification and study

- AEMO conducted modelling to examine FOS compliance at different inertia levels
 - Examined various VFFCAS timing specifications
 - 2s option breaches FOS
 - 1s and faster meets FOS requirements (under assumed conditions)
- Key assumptions:
 - Frequency response modelled as minimum FCAS energy obligations
 - No (separate) PFR contribution assumed
 - Only Raise FCAS modelled
 - Contingency event is LCR (Largest Credible Risk)
 - Minimum inertia levels from RIS and 2022 ISP (as appropriate)

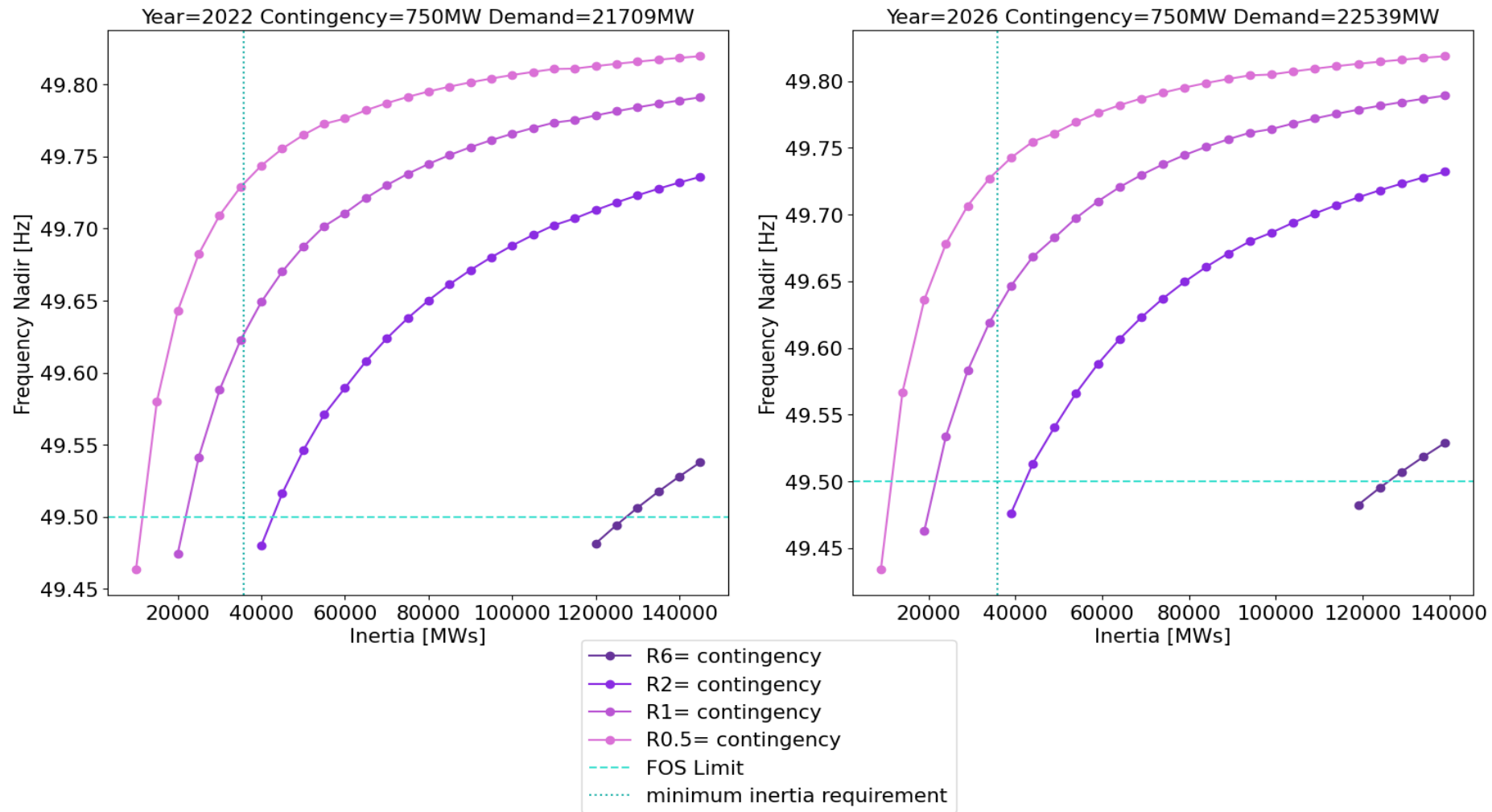
Technical justification and study

SA Frequency Nadir vs Inertia



Technical justification and study

MAINLAND Frequency Nadir vs Inertia



Questions?

Proposed changes to Fast FCAS specification

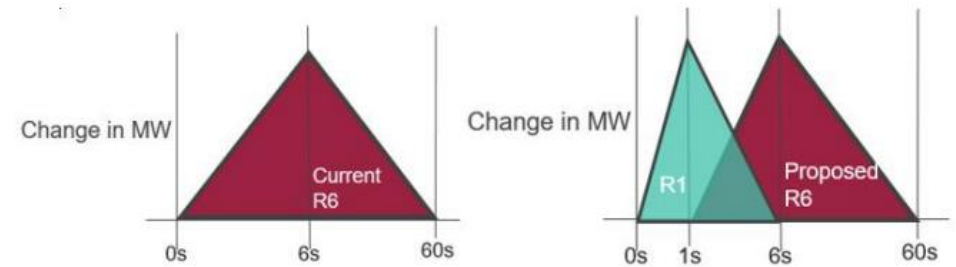
AEMO is proposing that Fast FCAS is compressed in time to accommodate ‘Very Fast’ FCAS

- Impact on the maximum registered Fast FCAS capacity of most providers.
 - Re-assessment required when registering for Very Fast FCAS.
 - Limited number of facilities participating in Fast FCAS (not Very Fast FCAS) would need to undergo a new assessment.

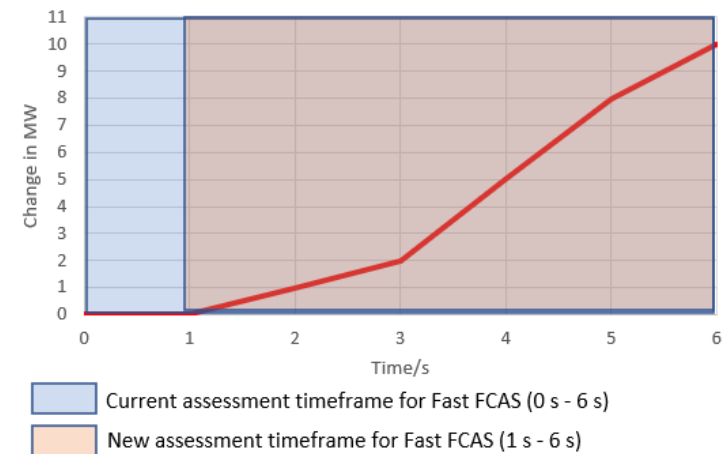
- Potential increase in the Fast FCAS capacity of some providers as shown under Table 6 of Issues Paper.

- AEMO considered pros and cons of a maximum response initiation time, but no firm view yet on this requirement.

Comparison between current and proposed Fast FCAS timeframes



Time Average calculation



Proposed changes to FCAS capacity registered

AEMO is proposing to cap the maximum registered FCAS capacity to the peak active power change.

- Important to ensure that physical added capacity after a power system incident is equal to the lost capacity (notwithstanding effects of load relief)
- Current methodology to assess FCAS capacity relies on average change in active power over time
 - FCAS capacity delivered exceeds the peak active power change for a number of facilities
 - Discrepancy is more noticeable for facilities delivering their maximum response within less than 6 seconds from the FDT
- Accelerated response will be recognised through the Very Fast FCAS registration

Very Fast FCAS measurement requirements

AEMO is proposing to apply a discount on the Very Fast FCAS capacity delivered if a provider is capturing data at a slower sampling rate.

- Analysis to determine the applicable discount if a provider continues to use their Fast FCAS metering installation to participate in the Very Fast FCAS markets
- Actual measured FCAS response from different technology types and FCAS controllers has been shared by registered providers
- Applicable discount must be reasonable and a measurement sampling rate exceeding 50 ms may not be adequate
- University of Melbourne engaged to complete analysis of measurement sampling rate
- UoM findings will be published 2 weeks prior to the deadline for the written submissions. AEMO may allow more time for the submissions if UoM's report is not published at the end of May.

Questions?

Close



Please ensure any formal submissions are sent to mass.consultation@aemo.com.au by 5.00pm (AEST) on 14 June 2022.

AEMO encourages stakeholders to use the [Response template](#) on the MASS consultation webpage for their submission.

Thank you for your participation in this forum and the consultation.



For more information visit

aemo.com.au