

Developing an Engineering Framework to support Australia's Energy Transition

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FOR Q&A:
SLIDO.COM
CODE: #ESIG10

1. AEMO and the National Electricity Market
2. AEMO's Renewable Integration Study (RIS)
3. Changes since the RIS
4. Developing an Engineering Framework
5. Timeline





35GW peak demand | **14GW** min demand

Network length of **~4,500km**

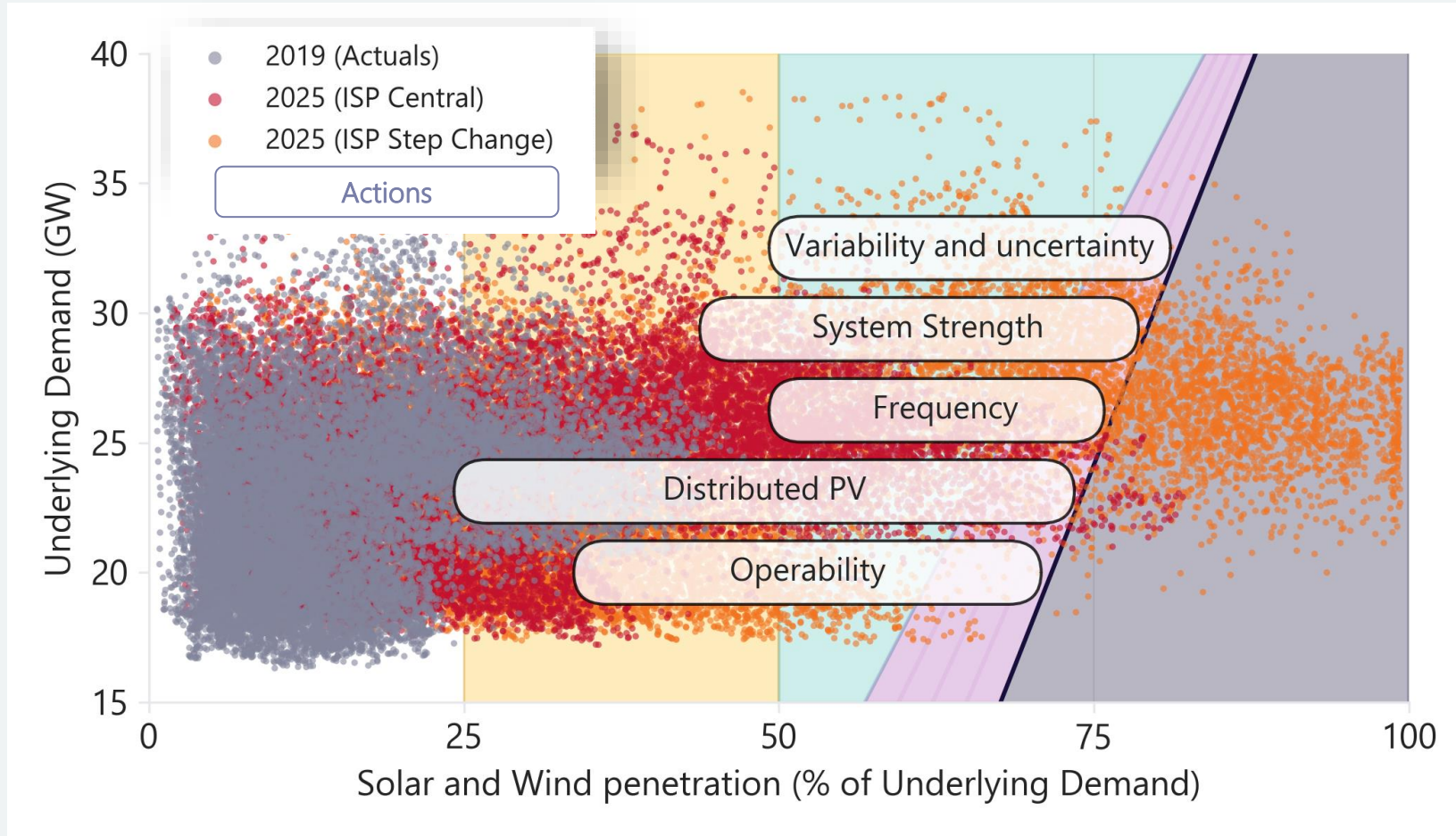
Installed generation capacity **~57GW**

Installed large scale solar and wind **~13 GW**

Capacity of Installed rooftop PV **~13 GW**

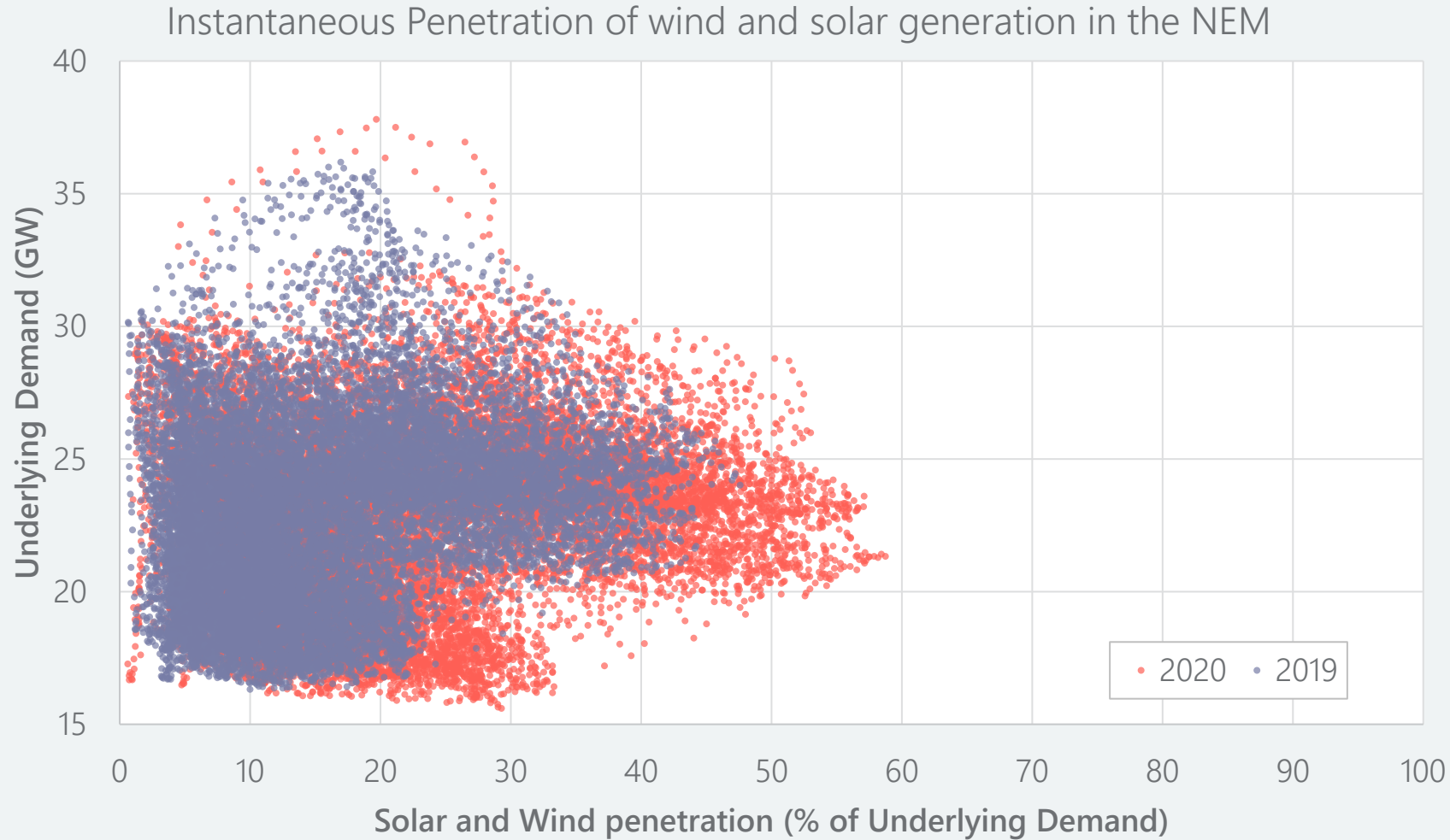
Aging coal fleet providing **52%** of energy in 2019

19GW of wind and solar in 2019 providing **16%** of energy



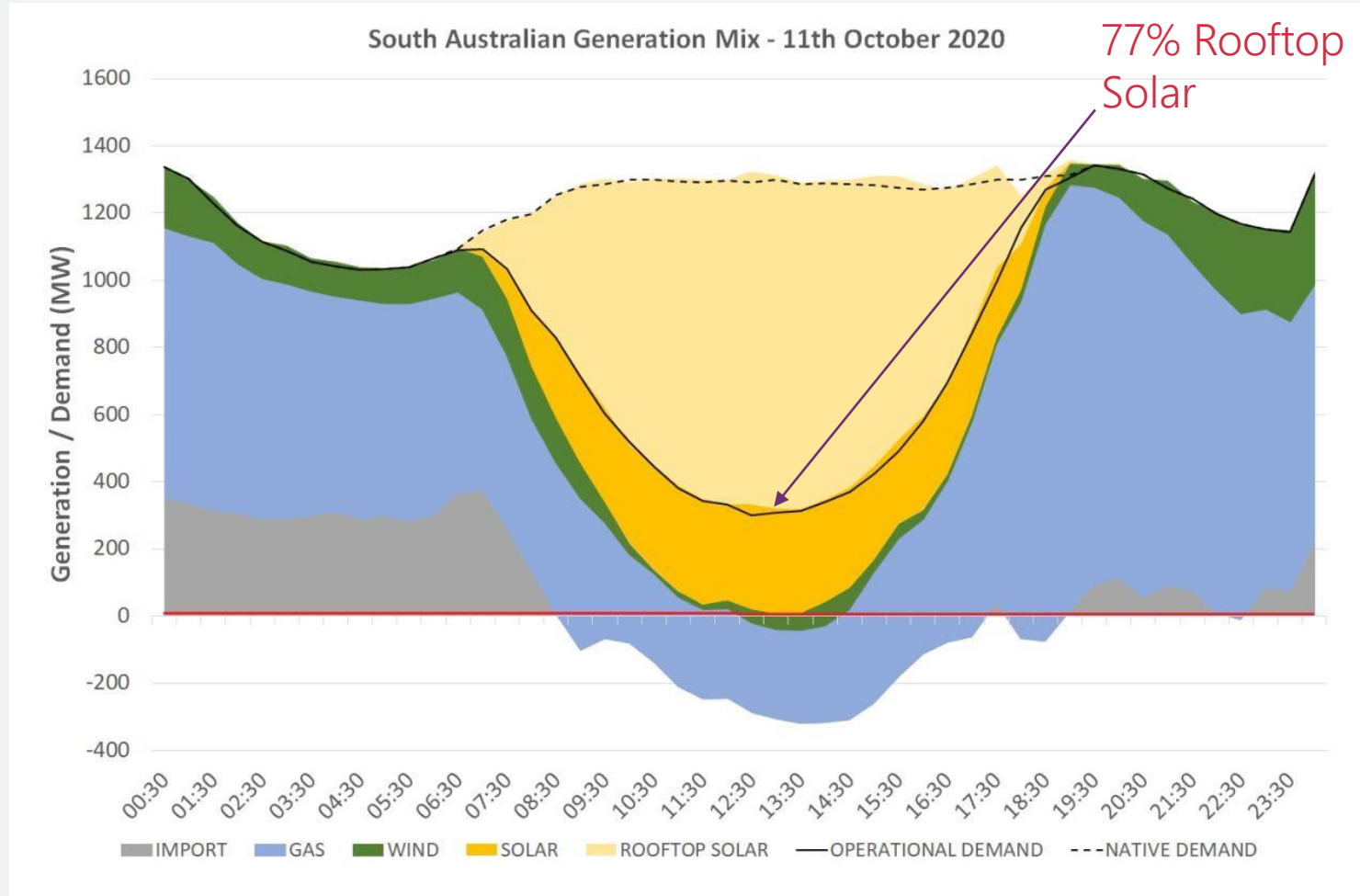
- By 2025 the instantaneous penetration of wind and solar will **exceed 50%**
- The RIS provides an **action plan to securely meet penetrations up to and beyond 75%**
- If **action is not taken**, wind and solar may be limited to **50-60%** of total generation
- No insurmountable reasons why the NEM cannot operate securely at even higher levels of instantaneous wind and solar penetration in future

Since the RIS | Significant increases in wind and solar



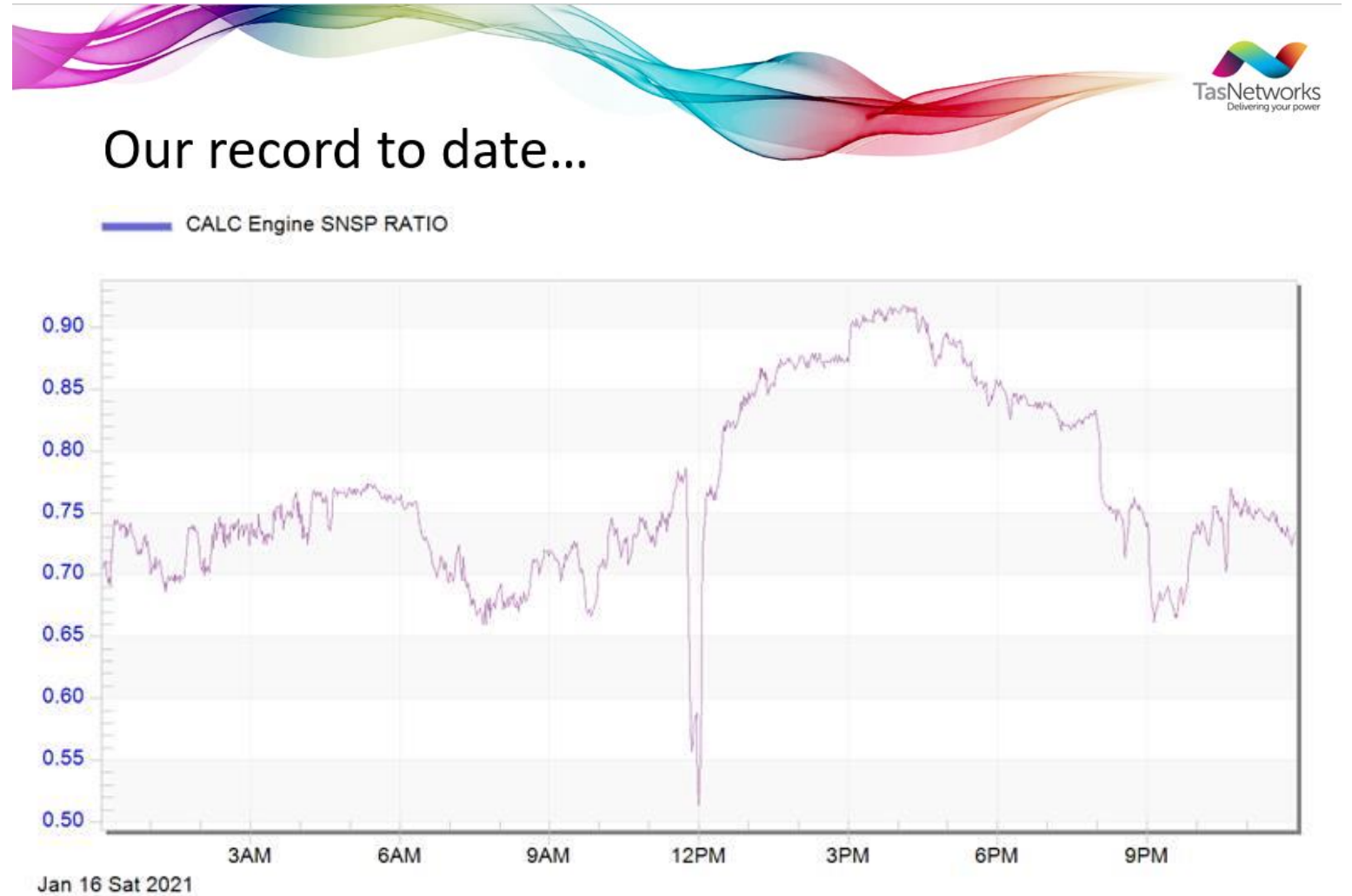
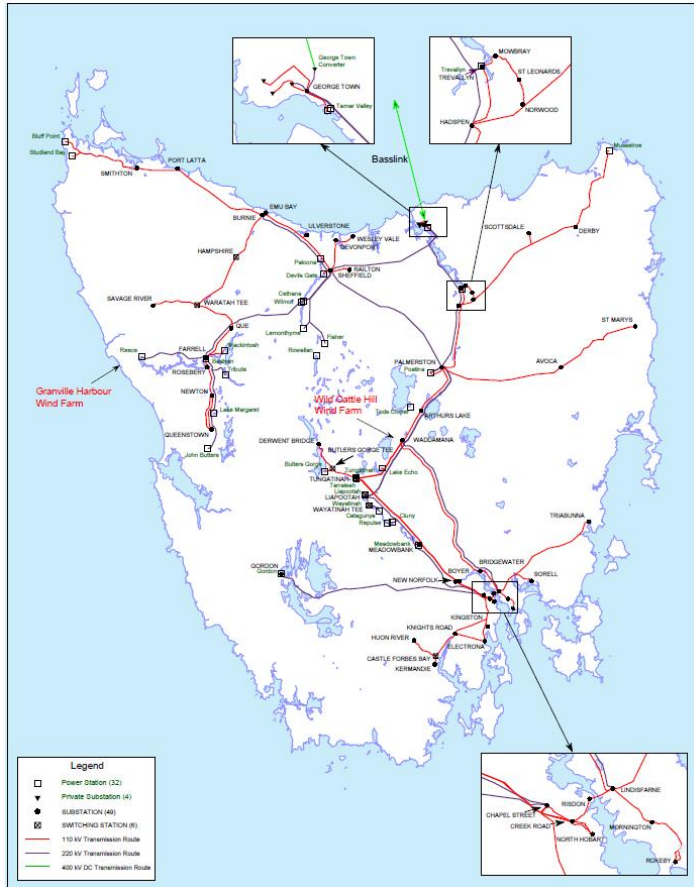
- Maximum instantaneous **penetration increased from ~50% to ~60%** in just 12 months
- RIS highlighted increasing system challenges of transitioning up towards 75% penetrations

Since the RIS | South Australia 100% solar



- South Australia operated with 100% penetration of solar on 11 October 2020
- 77% of this came from rooftop PV

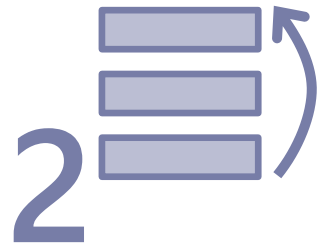
Since the RIS | Tasmania reached SNSP 94%



We are developing the Engineering Framework to ...



Help stakeholders **stay informed** of changing system needs and **current work** to meet these needs



Provide **transparency on emerging priorities** for technical, regulatory, and market reforms

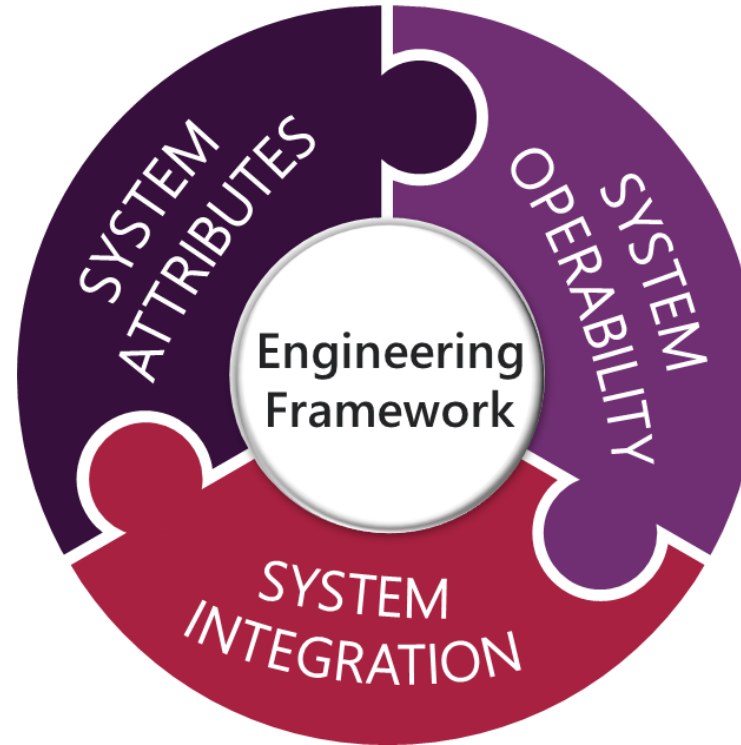


Identify where technical insights are needed to **support reform** and where AEMO has **prioritised technical projects**



Show how these **pieces fit together** and how stakeholders can **engage**

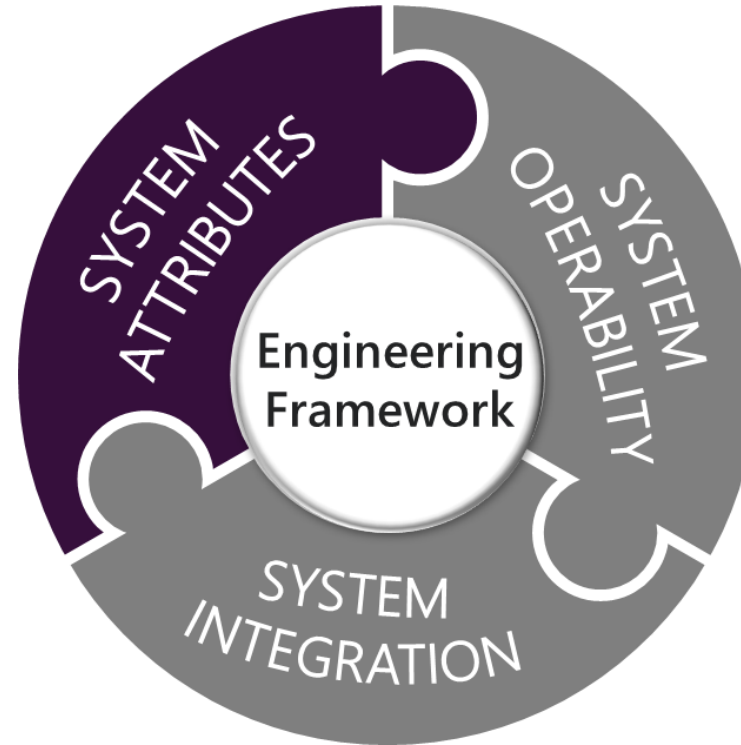
- Resource Adequacy
- Frequency Management
- System Strength
- Voltage Control
- System Restoration



- Control Room and Support
- System Analysis

- Resilience
- Technology & Innovation
- Distributed Energy Resources

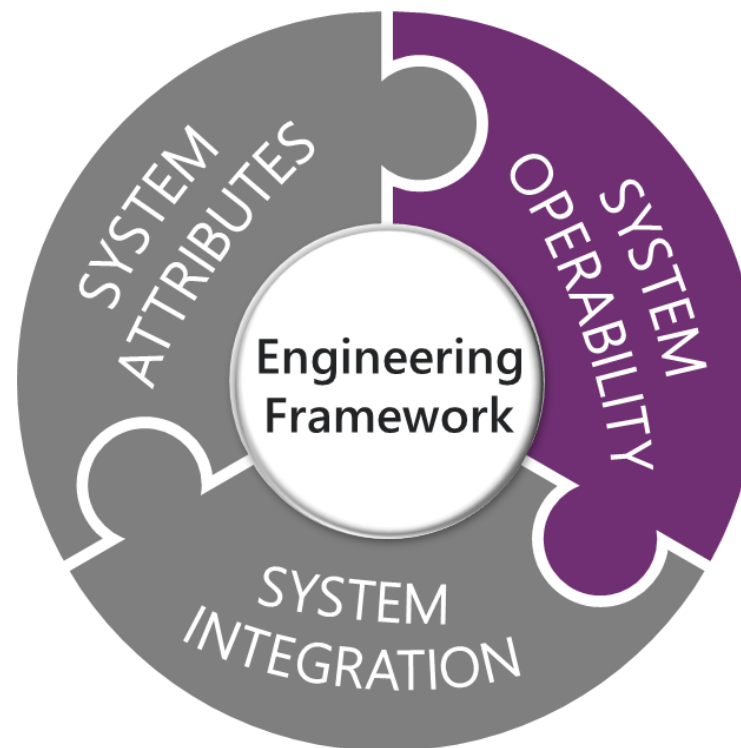
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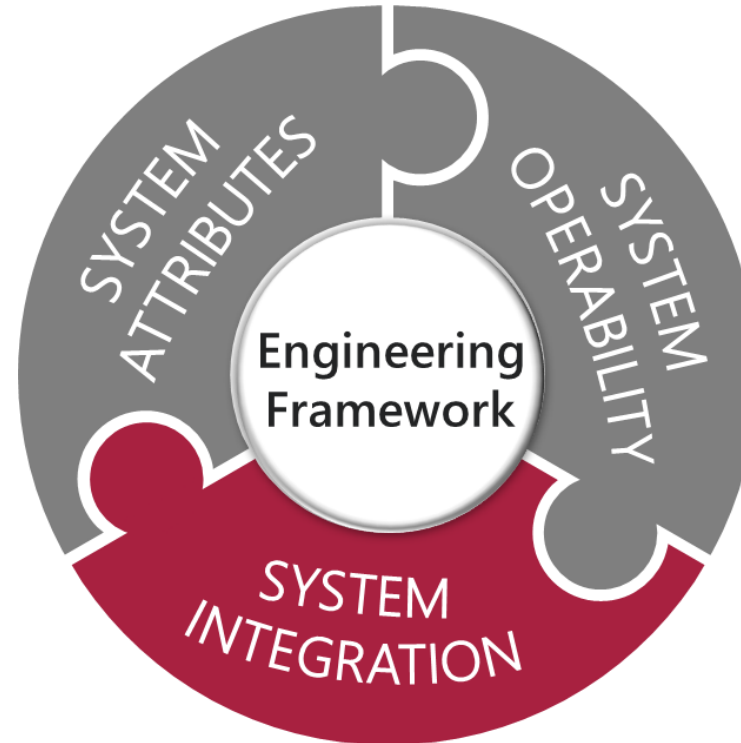
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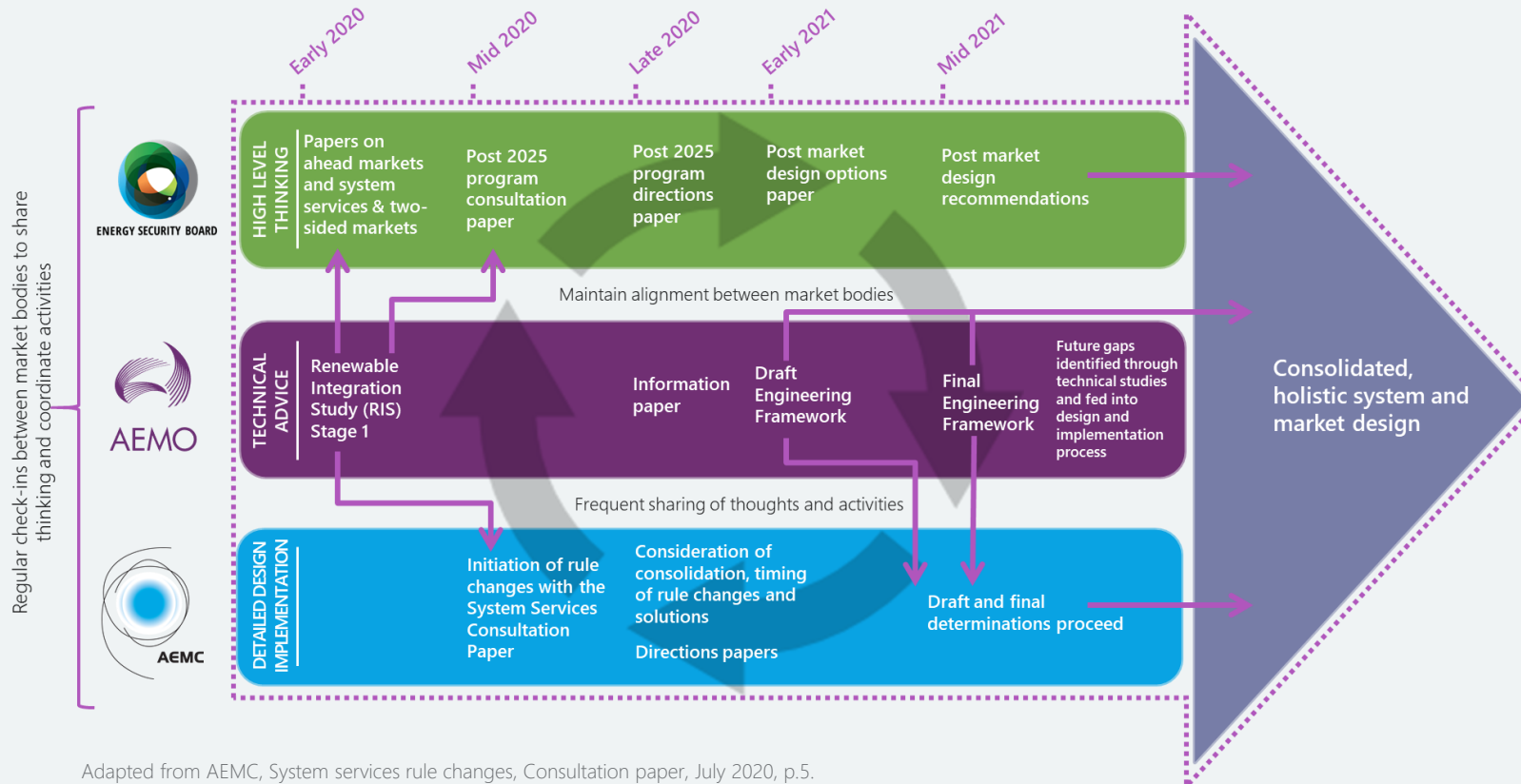
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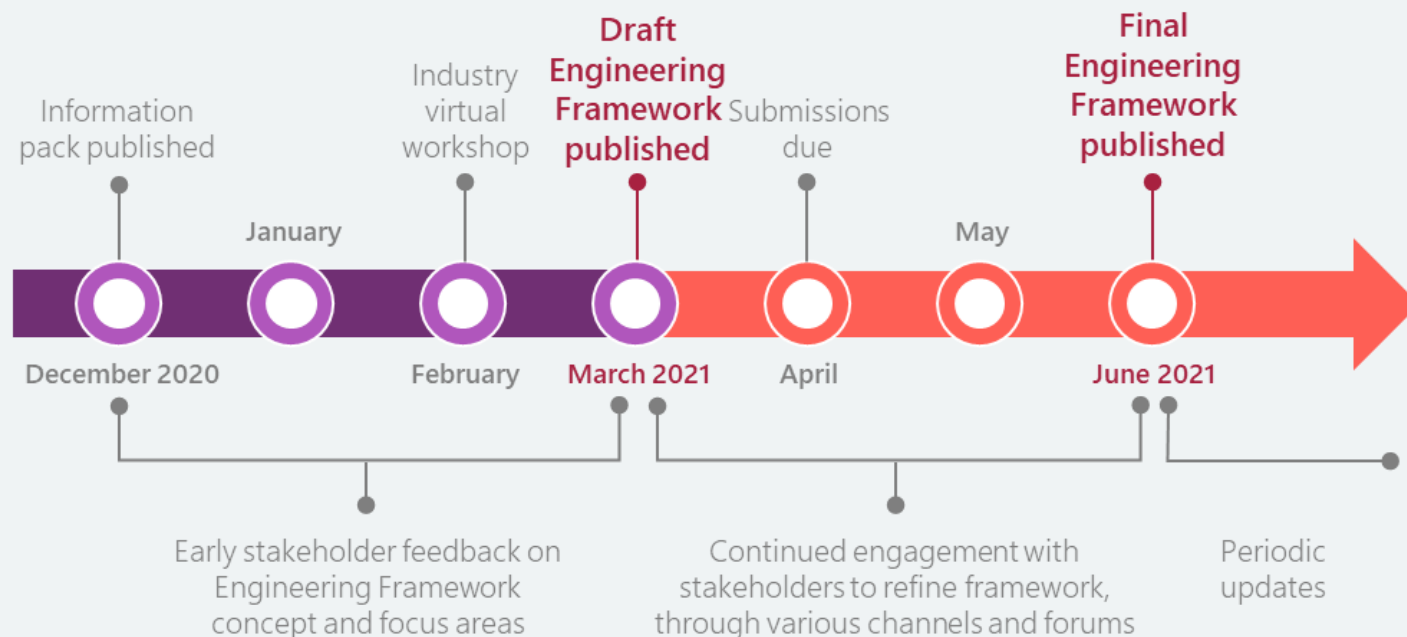
Coordination between Australian market bodies



Adapted from AEMC, System services rule changes, Consultation paper, July 2020, p.5.

This Engineering Framework is intended to:

- Be a vehicle to provide transparency to current technical work and thinking across industry around future system operability
- Promote informed industry discussion around the prioritisation and accountability of tasks that are important to the NEM's transition



More information?

Information on the Engineering Framework and links to other related projects are available on [AEMO's website](https://www.aemo.com.au).

For further enquiries please contact FutureEnergy@aemo.com.au.

For more information
please visit www.aemo.com.au

