



# Renewable Integration Study – findings and next steps

Overview for the Consumer Forum, February 2020

# Overview

1. Renewable Integration Study background and context
2. Findings and recommendations
3. What does this mean for consumers?

# Renewable Integration Study objectives



Modelling the expected renewable and non-renewable energy in the grid and its subregions in 2025

Quantifying the technical limits of the power system for this projected generation mix in 2025

Investigating when the technical limits may become an issue and what we recommend to address them

# The make-up of the power system in Australia is changing

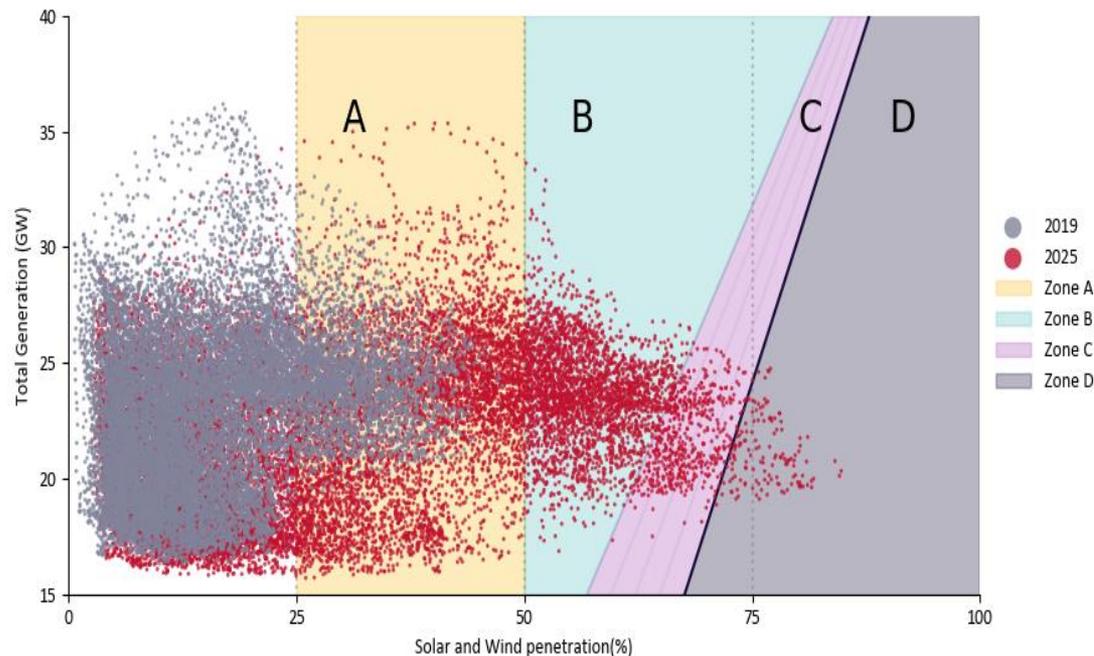


Figure 1. Penetration of wind and solar generation (including distributed PV) during all half-hour periods compared to total generation in the NEM for 2019 and 2024-25

- Half-hourly generation from wind and solar PV now regularly exceeds 25% of total generation, with a max of almost 50% in 2019
- By 2025, the RIS forecasts to wind and solar to regularly exceed 50% NEM-wide and at times reach much higher levels.
- If not addressed, **technical system limits will present barriers to the amount that can securely operate at any one time.**

# The trends indicate that we need to address:

## DER Integration

- **Visibility** and **controllability** of these small distributed devices needed.
- Minimum level of **predictable performance** during power system disturbances also needed.

## Frequency control

- Underlying **resilience** needed
- Broad-based **primary frequency control** and **minimum inertia** requirement during normal system operation

## System strength

- Australia is at the forefront of challenges in connecting wind and solar generation in areas with low system strength

## Staged transition

- Consideration should be given to how new system conditions can be **trialled safely** in the NEM and SWIS.

# What this means for consumers:

- AEMO now has the foundational engineering and modelling for how our energy system will look in 2025
- We are entering uncharted operating territory, and the change is coming quickly
- We are identifying the technical and regulatory changes that need to be made now and in the medium term to support safe, reliable and affordable power for consumers
- We are working and engaging with industry to make this transition as smooth as possible

# What's next?

- Pre-publication consultation with industry expert panel is now underway
- Report publication on/around 27<sup>th</sup> March 2020
- Call for written submissions April – June 2020
- **Roadshow of RIS workshops** for all interested stakeholders:
  - Melbourne 21<sup>st</sup> April
  - Sydney 29<sup>th</sup> April
  - Brisbane 30<sup>th</sup> April
- Summary of feedback and next steps published second half of 2020

