

Annual Market Performance Review: Final Report July 2021 – June 2022

The Reliability Panel's Annual Market Performance Review (AMPR) provides observations and commentary on the security, reliability and safety of the power system. This review is required under the National Electricity Rules. The annual review is becoming increasingly relevant as the power system faces a period of rapid transition, with the impacts of this transition already becoming apparent.

Key findings

This review covers the period from 1 July 2021 to 30 June 2022. The review found that reliability, security and safety outcomes across the National Electricity Market (NEM) were mostly acceptable, however observed some emerging areas of concern.

The review also provides Panel observations and commentary on the learnings from events that have occurred in the NEM over the reporting period, including the June 2022 market suspension event.

Key events — June 2022: Administered Price Period and market suspension

The Administered Price Period (APP) and market suspension event that occurred between 12 June 2022 and 24 June 2022 was an extreme event that arose out of a confluence of planned and unplanned thermal outages, low variable renewable energy (VRE) generation periods, high customer demand, high commodity prices, and the level of domestic price caps.

Despite the challenges in June 2022, load shedding was avoided and customers maintained a reliable supply. This was the result of the extraordinary efforts of AEMO that issued directions, activated the RERT, facilitated outage cancellations, contracted for additional reserves and worked with industry and market bodies to maintain a reliable supply to customers during this volatile period.

The Panel identifies a set of issues associated with the NER frameworks that applied in June 2022, with many processes that have occurred or are occurring to address these, including:

- There may be merit in better understanding how energy limit considerations are integrated with NEM frameworks.
- Further analysis aimed at investigating aligning the gas and electricity governance frameworks may be warranted.
- Consideration could be given to developing a process for assessing risk across the fuel and electricity supply chain.
- A review of administered pricing compensation arrangements and the other forms of compensation should be considered to determine opportunities for harmonisation and simplification.

Reliability

The Panel's assessment in this AMPR indicates that reliability in the NEM will be more challenging in the future than it has been in the past or is currently. The Panel identifies short-term reliability performance is expected to remain within acceptable levels but additional challenges are likely in the medium to long-term, particularly if there is a material acceleration in the rate of thermal generator retirements.

The Panel is considering long-term reliability risks through its review of the form of the

reliability standard and supports the ongoing work considering enhancements to existing NEM arrangements for coordinated transmission and generation investment as the NEM transitions.

The continued growth in Consumer Energy Resources (CER) also represents an opportunity for the NEM to address future reliability needs. The significant growth in solar PV capacity continues, and while only minimal when compared to solar, 2021-22 saw the highest amount of batteries installed in the NEM since reporting began.

Security

The Panel notes that system security outcomes in the NEM were mostly acceptable during the review year, driven by:

- The sustained improvement in NEM frequency performance following the introduction of mandatory primary frequency response.
- A reduction in the number of security directions in South Australia following commissioning of the four synchronous condensers.
- Generally stable levels of reviewable operating incidents and reclassifications.
- A decrease in system restart ancillary services costs following the merger of the two Queensland sub-regions.

However, there are emerging areas of concern relating to voltage oscillations continuing in the West Murray Zone, the number of protection mal-operation reviewable operating incidents and the amount of load under the control of under-frequency relays are below the levels anticipated in the NER.

In response to these outcomes and events, the Panel recommends:

- Continue investigations to understand the root cause of voltage oscillations in the West Murray Zone region and explore enhancing NER frameworks to define acceptable limits of sub-synchronous power system oscillations in the NEM and acceptable generator performance in such events.
- Monitor the load under the control of under-frequency relays in South Australia, Queensland, Victoria and New South Wales.

Safety

The Panel notes that its safety role for the purposes of this report is narrow and relates primarily to the operation of assets and equipment within their technical limits and not to the broader safety requirements governed by jurisdictional legislation.

AEMO noted that there were no incidents in 2021-22 where AEMO's management of the power system has resulted in a safety issue with respect to maintaining the system within relevant standards and technical limits.

There were also no instances in 2021-22 where AEMO issued a direction and the directed participant did not comply on the grounds that complying with the direction would be a hazard to public safety, or materially risk damaging equipment or contravene any other law.

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