POST 2025 ELECTRICITY MARKET DESIGN

FINAL RECOMMENDATIONS 27 JULY 2021

ESSENTIAL SYSTEM SERVICES, SCHEDULING AND AHEAD MECHANISMS

ENERGY SECURITY BOARD

BACKING UP POWER SYSTEM SECURITY

Lack of essential system services has cost consumers a lot of money in recent years as a result of expensive interventions. New technical backups (frequency, inertia, system strength, operating reserves) are needed urgently now we have increasing wind and solar generation and falling levels of coal-fired power.
New technologies like large-scale batteries and flexible demand will help make the system stronger.

Energy Security Board recommendations enabling the services you need to keep the lights on

Priority actions are progressing to support the availability, investment in, and scheduling of **four essential system services** frequency, operating reserve, inertia, and system strength.

New tools to help AEMO manage the complexity of scheduling these essential system services as the generation mix changes.

ESB monitoring and advice on market conditions and need for longer term reforms like the further bundling of system services and an integrated ahead market or development of an inertia spot market.

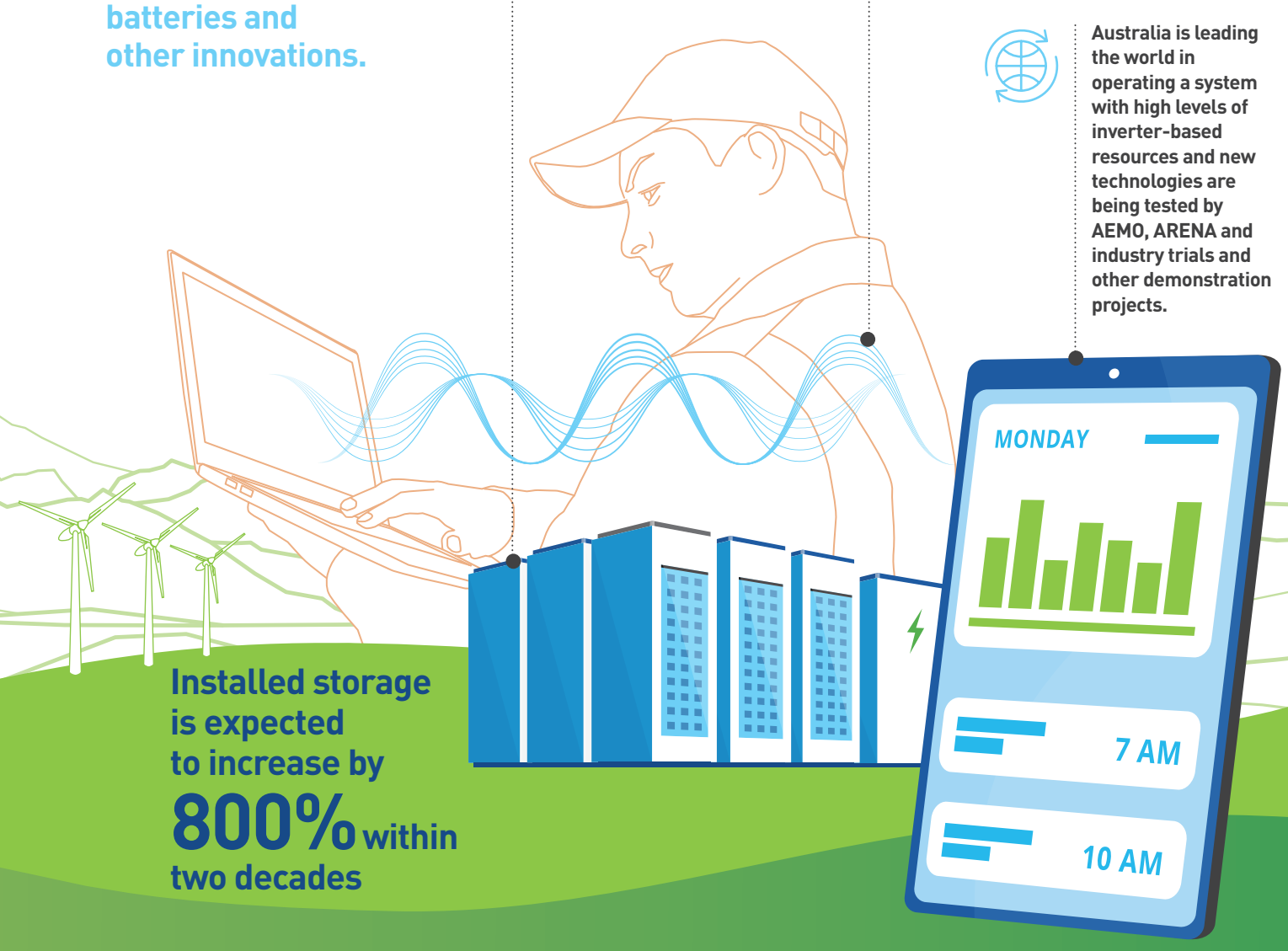
ESB data strategy to make sure data can be accessed for monitoring and forecasting of required services, and to help learning about the changing system especially variability of weather-driven generation and demand.

We must restore confidence in the system, avoid high running costs for consumers, and value the capabilities of batteries and other innovations.

We are moving to a future that will be increasingly reliant on flexible resources (like storage) to firm up the expanding volume of renewables and provide critical system security services.

AEMC has created new markets to financially reward ultra-fast energy technologies for stepping in at short notice to supply frequency control to avoid blackouts.

Australia is leading the world in operating a system with high levels of inverter-based resources and new technologies are being tested by AEMO, ARENA and industry trials and other demonstration projects.

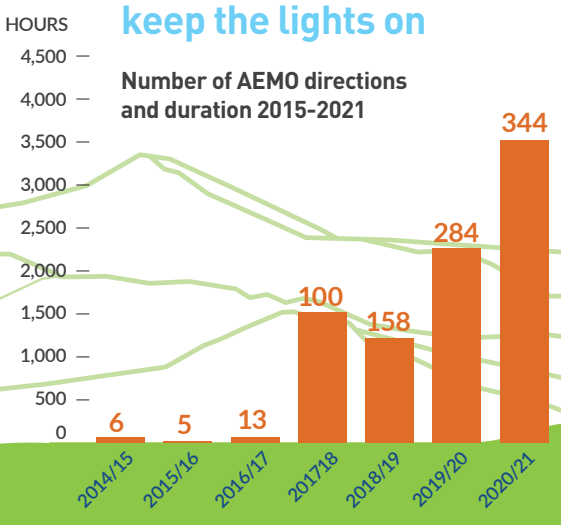


Underway

- Fast frequency response market ancillary service
- Primary frequency response incentives
- Operating reserve market
- Efficient management of system strength
- Investigation into system strength frameworks
- Synchronous services markets
- Introduction of ramping services
- Capacity commitment mechanism for security and reliability services

Stepping in to keep the lights on

Number of AEMO directions and duration 2015-2021



Note: values above each column represent number of directions issued

Installed storage is expected to increase by 800% within two decades

Security = all about the power system's ability to keep technical parameters like voltage, frequency, current flows; within safe limits and control.

Technical reforms cannot wait until 2025 so this work is already underway

The plan is focused on properly valuing all services necessary to maintain essential system capabilities and giving AEMO tools needed to efficiently schedule these services.

NOW
New AEMC rules and other rule change projects are underway to address these issues.

NEXT
Market bodies working with stakeholders on details so we can get the right scheduling tools in place for AEMO.

FUTURE
Market bodies to monitor system needs as changing generation pushes the limits of system security and operational experience.