

# WORKING ON THE NUTS AND BOLTS OF A RESILIENT POWER SYSTEM

THREE NEW REPORTS ADDRESS ISSUES OF ENERGY SECTOR TRANSFORMATION 26 JULY 2018

Because of the technology revolution families and businesses are not just electricity consumers. They can be power producers. Expanding large-scale and roof-top renewable generation and storage is an opportunity. It also means we must change how we manage the system to keep it working well. We're now at the point where we need to trade-off the costs required to build a more secure system and deliver the reliability people want as the energy sector transforms.

## Reliability

Australia needs to have enough electricity available when consumers need it, at the lowest cost. We want to encourage the right amount of investment in the power system's long-term capacity so the operator isn't forced to intervene more than necessary with higher cost safety-net options. We want to expand the framework to encourage the efficient adoption of new technologies and more transparent information.

## Demand response

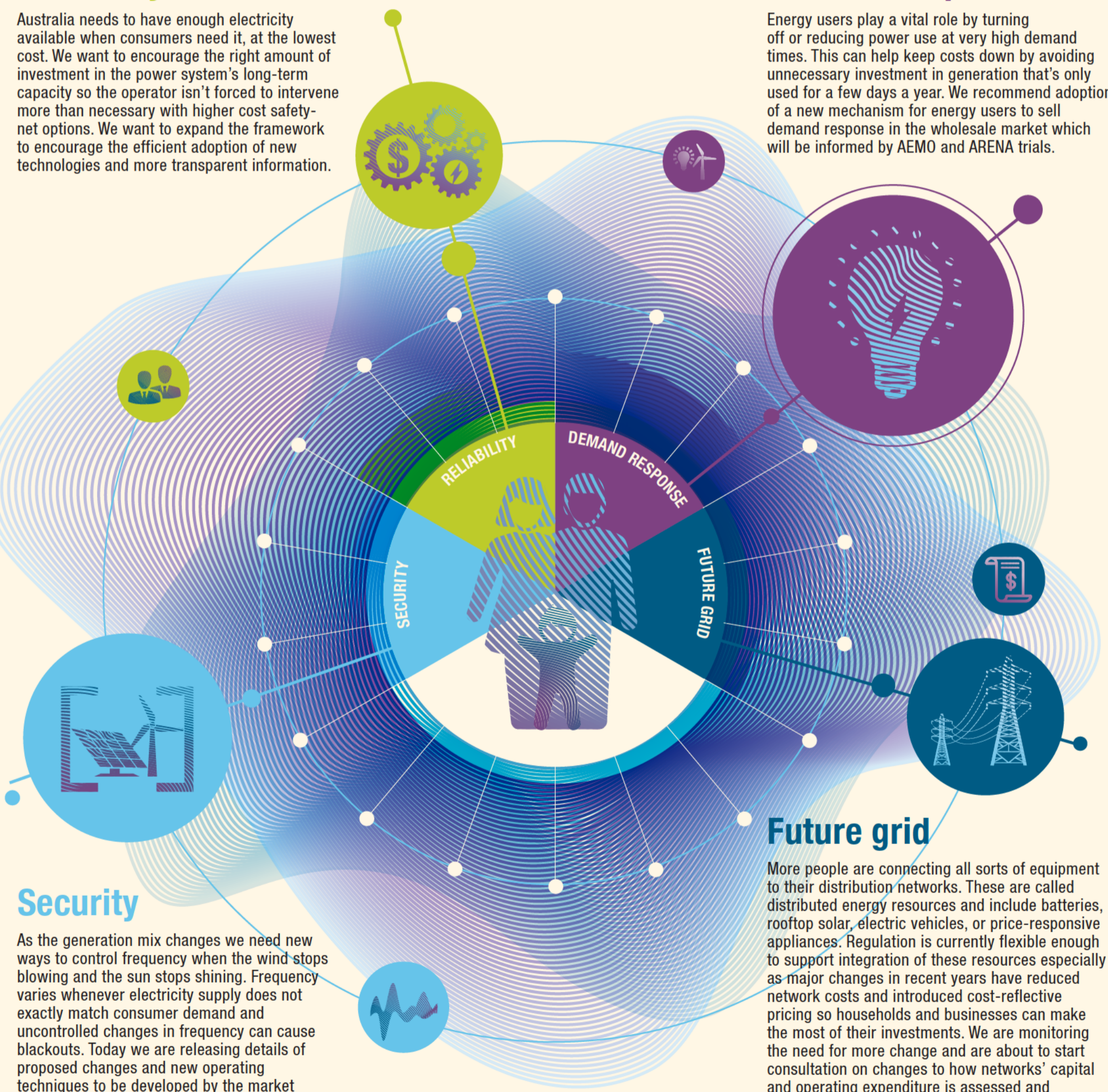
Energy users play a vital role by turning off or reducing power use at very high demand times. This can help keep costs down by avoiding unnecessary investment in generation that's only used for a few days a year. We recommend adoption of a new mechanism for energy users to sell demand response in the wholesale market which will be informed by AEMO and ARENA trials.

## Security

As the generation mix changes we need new ways to control frequency when the wind stops blowing and the sun stops shining. Frequency varies whenever electricity supply does not exactly match consumer demand and uncontrolled changes in frequency can cause blackouts. Today we are releasing details of proposed changes and new operating techniques to be developed by the market bodies to deliver better frequency performance across the system.

## Future grid

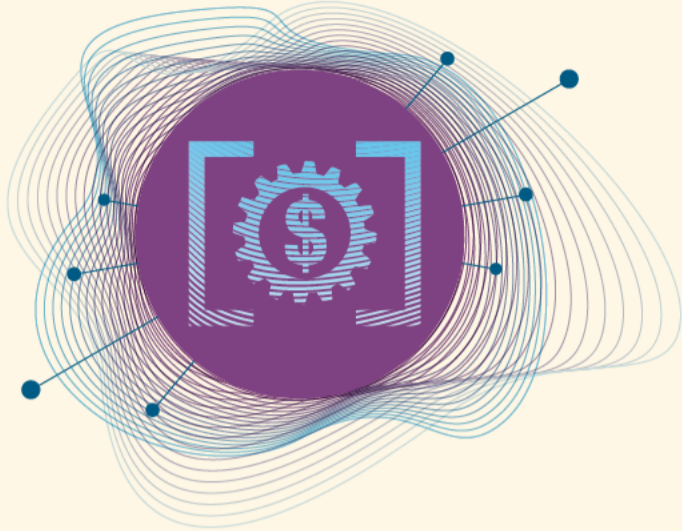
More people are connecting all sorts of equipment to their distribution networks. These are called distributed energy resources and include batteries, rooftop solar, electric vehicles, or price-responsive appliances. Regulation is currently flexible enough to support integration of these resources especially as major changes in recent years have reduced network costs and introduced cost-reflective pricing so households and businesses can make the most of their investments. We are monitoring the need for more change and are about to start consultation on changes to how networks' capital and operating expenditure is assessed and remunerated so they can efficiently solve local network capacity problems with lowest cost mix of investment and demand response.



# KEY PROJECTS UPDATE

We are updating rules and regulations so everyone can be confident about the certainty of electricity supply. Today's reports focus on supporting a reliable and secure power system at least cost to consumers.

## Final reports



### Reliability frameworks review recommendations

Improve the information available to the market about the transparency of forecasts so decisions made by market participants, the operator, regulators and policy makers are better-informed.

Adapt the intervention framework – including directions, instructions and strategic reserves – so it is fit for the purposes of a changing power system and only used when necessary.

**Integrate more demand response into the wholesale market by adopting:**



A wholesale demand response mechanism, supported and informed by demand response trials proposed by AEMO and ARENA.

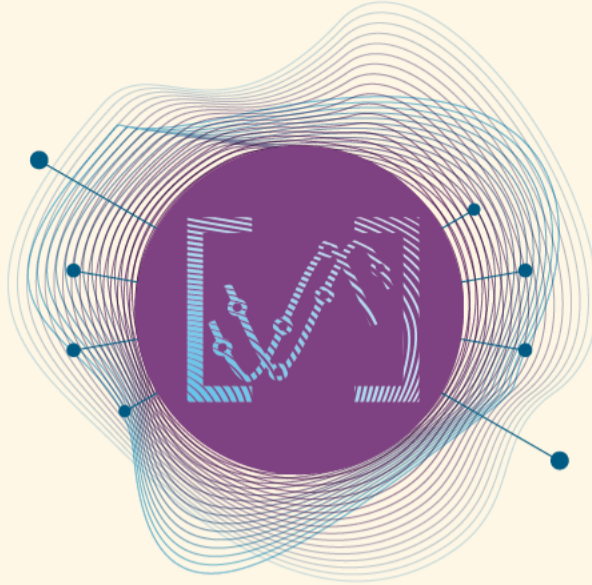


A voluntary, short-term forward market to allow trading of financial contracts closer to real time and so increase price certainty for demand response.



More opportunities for consumers to offer their demand response in the wholesale market including giving consumers the ability to contract with multiple retailers or aggregators at the same connection point.

Finishes three key Finkel recommendations.



### Frequency control frameworks review recommendations

New rules to enable new technologies and service providers to provide frequency control services.

Regular reporting by AEMO and the AER on frequency outcomes to promote transparency and help market participants make investment and operational decisions.

Detailed consideration of ways to procure essential frequency services in the longer term in a way that recognises the capabilities of all potential technologies and service providers.

AEMO-led trials and other actions to determine how frequency performance can be improved in the short term and new business models like virtual power plants can be integrated.

Finishes all Finkel recommendations on security.



### Electricity network economic regulatory framework review

This is our latest annual report on promoting efficient investment in the grid of the future.

It analyses how financial incentives for network businesses need to change over time so networks embrace new technology where it's the cheapest way to help manage the grid, and how the regulatory framework may need to change more broadly to support a grid with more decentralised, local renewable generation.

Our 2019 review will look at how networks' capital and operating expenditure should be assessed and how those business revenues should be regulated.

This report fulfils the Finkel recommendation to analyse capital expenditure bias in the current regulatory framework and recommends broader powers for the Australian Energy Regulator to review imprudent capital expenditure.

## Working together on least cost solutions to technology shocks

The single biggest reason for electricity price changes is structural change in the wholesale generation sector



### Massive change

New wind and solar generation is entering the market. At the same time families and businesses are not just electricity consumers – more people are generating, storing and selling the power they make into the grid.



### Technical impacts

Increased reliance on renewable generation affects technical characteristics of the system. More services will be needed to secure the system and may affect prices long term.



### New ways to operate

We need to operate the new-look power system differently.



### Evolving the framework

The COAG Energy Council and market bodies are making change happen all across the supply chain to cut the cost of transformation for consumers.



### Integrating policy

Integrating energy and emissions policy will send clear investment signals to the market so the right generation can be built in the right place at the right time.



### Orderly transformation

The key to an orderly restructure of the electricity sector is to keep making market reforms that don't add unnecessary costs for customers. The Energy Security Board is working on the design of the national energy guarantee which will put downward pressure on wholesale prices.