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Restoring the health of the national electricity market

The Energy Security Board (ESB) today released details on the future direction of the National Electricity Market (NEM), identifying four areas of reform to address key challenges facing Australia's electricity supply. This work is in response to a request from energy ministers in March 2019.

The *Post 2025 market design directions paper* follows consultation with industry and governments during 2020. It consolidates proposed reforms to address the challenges set out in a *Consultation Paper* (issued September 2020) and in the *Health of the NEM* assessment report, also released today.

Reforms to be progressed will deliver benefits to consumers by addressing four specific areas of need:

- **Resource adequacy through the transition** – critical to ensuring reliable and affordable energy as the power system continues its transition to lower emissions and new generation technologies.
- **Essential system services and scheduling and ahead mechanisms** – building a stronger power system that can keep the lights on as change happens is the most critical issue.
- **Demand side participation** – unlocking opportunities for energy consumers to make the consumption choices that suit them best – such as shifting to off-peak use, installing more efficient appliances or investing in their own locally based generation to increase competition and deliver real benefits.
- **Access and transmission** – providing networks to meet future needs including connection of renewables, at the lowest possible cost.

The 2020 *Health of the NEM* assessment finds that real progress has been made with improved generation capacity (reliability), emission reduction, competition and network investment. But system stability (security) and investor confidence remain critical.

Falling wholesale and retail prices have improved affordability for most, but bill-shock is still a critical issue for consumers experiencing vulnerability including those who have been impacted by the economic downturn associated with Covid-19.

ESB Independent Chair, Dr Kerry Schott AO, said there are ways to address these issues by redesigning the market but the speed of change means reform is increasingly urgent.

"The *Health of the NEM* clearly shows the repercussions of rapid change in our electricity system and highlights the absolute urgency of addressing them," Dr Schott said.

"We are concerned about security constraints in some parts of the NEM and the increasing pressure on distribution networks from growing rooftop solar penetration.

"This, combined with growing large scale renewable generation and low wholesale prices, means it is vital that post 2025 reforms are put in place that can work alongside government policy schemes.

"We're moving in the right direction, but major changes are needed to unlock value to customers and ensure capital investments are made in an efficient and timely manner to deliver the affordable, reliable and secure electricity consumers need."

Today's report consolidates our previous seven market design initiatives (MDIs) into four directions which respond to stakeholder feedback and rapidly changing government policies and incentives.

The scope of reform has been narrowed, including removal of proposed measures to deal with the exit of ageing thermal generation which will instead be addressed through other resource adequacy mechanisms.

Similarly, the focus on integrating distributed energy resources (like the exponential growth of rooftop solar) becomes a key part of the pathway towards developing a two-sided market in the long term.

"We are focused on modernising the market, unlocking value for consumers and boosting consumer protection, removing red tape and making it easier for businesses to get in and offer the services customers may want to buy," Dr Schott said.

"These reforms address the critical challenges facing the energy sector – affordability for all consumers, reliability and security; renewable energy zones; integrated system plan rule changes, enabling new generators to have adequate access to the grid, and national standards for distributed energy (or behind the meter) resources.

"While many people in the energy sector have different perspectives on the possible solutions or priorities, everyone agrees on the problems we identified earlier in this process. What we have in place now is no longer fit for purpose for the energy transition and beyond.

"The time to tackle these problems is now.

"The market bodies working together have held hundreds of workshops and consultations, spoken to thousands of stakeholders and considered hundreds of thousands of pages of submissions. It's now time for tough, united, decisions. If we keep kicking this further down the road, it's going cost us all more for electricity in the future," she said.

In the months ahead the ESB will develop detailed market designs for energy ministers and their further consultation in March, before making final recommendations to government in mid 2021.

The Energy Security Board has five members:

Dr Kerry Schott AO	Independent Chair
David Swift	Independent Deputy Chair
Clare Savage	Chair of the Australian Energy Regulator
Merryn York	Acting Chair of the Australian Energy Market Commission
Drew Clarke	Chair of the Australian Energy Market Operator

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Health of the national electricity market – at a glance

This is the fourth annual report on the health of the national electricity market produced by the Energy Security Board (ESB).

It measures progress against six objectives established by the former COAG Energy Council in the wake of the 2017 Finkel Review. These are whether or not the NEM has:

1. Affordable energy and satisfied consumers

- Affordability is improving for most, but remains critical for vulnerable consumers.
- Outlook is mixed as investment is needed in transmission and dispatchable generation to integrate more renewables.
- These issues are being addressed through the actionable integrated system plan (ISP) and renewable energy zone (REZ) initiatives, alongside transmission access reforms being developed through the post 2025 process.

2. A secure electricity and gas system

- The most critical issue in the NEM because preventing blackouts is made more difficult as cheaper, variable renewables displace dispatchable thermal generation at great speed.
- Outlook is moderate to critical as low wholesale prices make coal more likely to exit.
- ESB post 2025 market design work is addressing longer-term system security issues by valuing and procuring missing system services.

3. Reliable and low emissions electricity and gas supply

- There are no immediate reliability concerns with measures recently put in place to manage unforeseen events.
- Emissions in the NEM are 25% below 2005 levels and are expected to be 50% down by 2030.
- Outlook is moderate with some concerns in NSW around 2023-24 as Liddell closes, balanced by progress on transmission links and increasing renewables.

4. An effective development of open and competitive markets

- Competition in wholesale markets is delivering good outcomes for consumers with spot prices at their lowest level in five years.
- Retail competition is stable despite Covid-19 impacts and retailers following new requirements to manage customer debts and hardship.
- Competition is underpinning a boon in innovation with capital technology costs expected to fall significantly in coming decades.

5. Efficient and timely investment in networks

- Improving with critical investments on track, interim rules concerning planning for REZ developments are under consideration, and a workplan for DER integration is underway.
- Outlook remains at moderate rating as challenges emerge in building the expanded transmission network in time to connect renewable generation.
- Significant distribution network investment is needed as DER integrates further into the system.

6. Strong but agile governance

- Current status and the future outlook for governance has improved and remains vital to manage the pace of change in the NEM.

TABLE 1: CURRENT 2020 STATUS AND FORWARD OUTLOOK FOR THE NEM

	2020 ratings		Last year's ratings	
	Current status	Outlook	Current status	Outlook
Affordable energy and satisfied consumers	Moderate-Critical	Moderate	Moderate-Critical	Moderate
Secure electricity and gas system	Critical	Moderate-Critical	Critical	Critical
Reliable and low emissions electricity and gas supply	Moderate	Moderate	Critical	Moderate
Effective development of open and competitive markets	Good	Good-Moderate	Moderate	Good-Moderate
Efficient and timely investment in networks	Good-Moderate	Moderate	Moderate-Critical	Moderate
Strong but agile governance	Moderate	Moderate	Moderate	Moderate

The national electricity market covers Queensland, New South Wales, Australian Capital Territory, Victoria, Tasmania and South Australia.

Post 2025 market design directions paper – at a glance

The December 2020 discussion paper sets out the reforms to be pursued to the next stage of our national electricity market redesign project.

Detailed designs for each of the reforms will be developed for further consultation in March, before final recommendations are made to government in mid 2021.



Four consolidated reform directions will be pursued over the next three months to deliver the post 2025 project:

Resource adequacy through the transition – ensuring reliable and affordable energy as the system continues its transition to lower emissions and new technologies.

- Developing an operating reserve (to ensure flexible, dispatchable resources are valued so they are available when they are needed).
- Exploring new options to enhance the retailer reliability obligation (RRO) and address concerns about its complexity, effectiveness and compliance burden.
- Investigating a potential NEM-wide, common approach to integrating jurisdictional underwriting or investment schemes.
- Establishing ways to ensure the orderly exit of thermal plants as they retire from the power system.

Essential system services and scheduling and ahead mechanisms – building a stronger power system that can keep the lights on as change happens is the most critical issue.

- Pursuing short-term structured procurement approaches through AEMC rule change processes which are already underway.
- Developing a spot market approach for valuing and procuring inertia.
- Progressing development of the unit commitment for security (UCS) through the operational timeframe rule changes on synchronous services (proposed by Delta and Hydro Tasmania).
- Defining new system services markets through the rule change process (including system strength, FFR, operating reserves).
- Assessing the potential size of additional resources that could be bought into the market and then proceeding with more detailed design work of voluntary ahead scheduling of energy and services.

Demand side participation – unlocking opportunities for consumers to use their energy consumption to increase competition and deliver real benefits.

- Working with jurisdictional governments to increase integration of customer-side behind-the-meter resources (e.g. hot water, smart air-conditioning, solar, storage and electric vehicles) to enable a more efficient, active grid.
- Looking at ways to support the increasing shift towards active solar PV based on state needs.
- Examining options to modify existing mechanisms to support the ‘turn-up’ or ‘time shifting’ of load to better utilise and balance the system.
- Considering approaches to reduce the barriers to participation in the real-time energy market and allowing the entry of innovative products and services.
- Quantifying the potential increase in consumer participation, together with ARENA, consumer groups and other industry stakeholders
- Further developing participation models to enable flexible trading arrangements that would enable innovative products such as bundling energy with consumer appliances.
- Evaluating options for supporting and augmenting the existing tariff reform agenda with more flexible, locational price signals.
- Defining roles and responsibilities required to support an effective two-sided market through a Maturity Plan to be published for consultation in early 2021.
- Working to progress the development of a consumer protection framework alongside consumer groups by June 2021.

Access and transmission – providing networks to meet future needs including connection of renewables, at the lowest possible cost.

- Continuing to action changes to the planning framework to action the integrated system plan (ISP) via AER guidelines.
- Developing a REZ framework as a stepping stone towards the long-term goal of locational marginal pricing and financial transmission rights. The ESB has already progressed planning arrangements for REZs through stage 1 of its REZ work program, and is now considering connection, access and pricing frameworks for REZs. The accompanying consultation paper sets out issues associated with REZs, in particular how to coordinate and collaborate with state based REZ plans.
- Improving market information and visibility about where congestion exists, and what is forecast in future to reduce transitional risks from uncertainty in moving to the enduring locational marginal pricing and financial transmission rights framework.

Next steps:

The ESB will continue to work with the post 2025 project advisory groups, jurisdictions and other stakeholders to develop detailed market designs for these options ahead of further public consultation in March 2021.

A number of accompanying papers have been released seeking feedback on elements of the post-2025 reform agenda.

- Interim renewable energy zones framework stage two – ESB consultation paper
- Integrating energy storage systems into the NEM -AEMC options paper
- Reserve services in the NEM -AEMC directions paper
- Frequency control rule changes – AEMC directions paper
- Demand response in the national electricity market – Energy Synapse consultant report
- Expert advice on the cost of establishing a second connection point – Energeia consultant report

Ends