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# **RELIABLE ELECTRICITY SUPPLY IN AUSTRALIA – AT LEAST COST**

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## Key Points

- *Reliability of supply is what matters for the electricity industry – not the debate over the cost of renewables versus coal.*
- *In power system planning, the risk of early closure of ageing generation capacity must be countered by the timely procurement and installation of all necessary elements of replacement infrastructure of the required scale. The aim must be to provide whole-of-system optimisation in a timely manner at the least cost.*
- *Every power system needs its own system-specific planner. Greater interconnection with adjacent systems will increase reliability of supply but does not obviate the need for system planning. In Australia, the planning function should not be entirely delegated or subjugated to a body concerned with the ‘national interest’, given the changing features of the interconnected NEM, and given the yet-to-be-settled National Energy Guarantee (NEG) scheme.*
- *Each Australian state may need an independent strategic planning and system planning facility, working transparently and constructively with COAG and the NEM institutions, but focussing on state system-specific needs.*

## Australia's insidious power problem - unreliability and unaffordability

*'Australia is presently on track to meet its emissions reduction commitments but it has destabilised its power system and created an insidious problem of power unreliability and unaffordability. This is threatening its energy-dependent industries and its national prosperity.'*<sup>1</sup>

Australia's power problem was comprehensively investigated by the Finkel Review and reported on in June 2017.<sup>2</sup> The main outcome was the establishment of an Energy Security Board (ESB) reporting directly to the Coalition of Australian Governments (COAG) Energy Council.

How to solve the problem has nonetheless led to ongoing controversy in government, industry and community circles, egged on by the media, and has attracted the constant attention of political leaders from the Prime Minister down. What started as a well-credentialed, independent and professional review has morphed into a public war of words.

This paper seeks to briefly explain this and to identify and elaborate on the priority issues of energy policy that require to be addressed and resolved.

### Reliability of supply is the utmost concern – not the argument over the costs of renewables compared with coal

In the National Electricity Market (NEM), reliability of electricity supply is of the utmost strategic, economic and community concern. It remains a fundamental responsibility of government, irrespective of the private ownership of any system assets.

Reliability of electricity supply is of particular concern to investors, given the increasing level of ownership of energy infrastructure by the private sector. Competitive markets must continue to play the central role in energy policy. Investors remain wary of any intervention by governments in energy markets.

Much of the ongoing controversy is focussed on the rapid reduction in cost of renewables, such as wind and solar, and the claim that, when available, they are cheaper than coal. This is almost beside the point for the simple reason that generation costs in Australia constitute only 19% of final electricity prices – what matters more are system costs, as Malcolm Keay explained in an EPIA public policy paper five years ago.

*'... there is really no such thing as "the cost of renewables". Particular renewable sources, in particular locations, at particular times, within particular electricity systems, all have different costs. Renewable energy depends on natural forces. These forces are stronger at some locations than others and at some times than others so that the cost of, say, wind or solar power will depend on where the plant*

<sup>1</sup> Robert Pritchard, 'Future Energy Policy,' Public Policy Paper 4/2017, EPIA, October 2017.

<sup>2</sup> Alan Finkel et al, *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future* (Finkel Review), Commonwealth of Australia, June 2017.

*concerned is built and what time of the day or year it is generating ... most “new” renewables lead to an increase in system costs (ie the costs incurred elsewhere in the electricity system to ensure continuing security of supply); the higher the penetration of these renewable sources, the higher the costs imposed on the rest of the power system.*<sup>3</sup>

In power system planning, what matters, much more than the cost of competing generation sources, are the scale of the overall task and the time required for procurement and installation of all necessary elements of energy infrastructure to deliver whole-of-system optimisation at least cost. These necessary elements include strategic reserves, power generators, interconnections, transmission and distribution networks, storage systems, demand management services and systems to optimise the interface of all elements.

## Technology neutrality

As this author wrote in an EPIA public policy paper in December 2016:

*‘Until energy and climate policy is clarified, the Australian generation sector is likely to remain a ‘no-go zone’ for investors. It is already problematic to invest in generation in Australia without special support, such as subsidies under the Renewable Energy Target (RET) scheme or power purchase agreements (PPAs). There are however no subsidies for clean coal, clean gas, CCS or new nuclear technologies such as small modular reactors (SMRs). Nuclear power generation is still prohibited by legislation of the Commonwealth and in several states. There is a need to remove all barriers that discriminate against low- emission technologies, map out long-term pathways to all lower emission solutions and provide policy and financial support to those options that provide the best outcome in terms of low-emissions power for the lowest cost’.*<sup>4</sup>

## The ESB’s strategic energy plan


The COAG Energy Council in principle adopted the package of reforms recommended by the Finkel Review. These long-overdue reforms revolve around a national strategic energy plan to be developed and coordinated by the new ESB.

*‘The Energy Security Board will provide a single point of responsibility and accountability. It will drive implementation of the recommendations of this report, and release an annual Health of the NEM Report. The Energy Security Board will draw on the expertise of market bodies and coordinate how they exercise their separate accountabilities to keep pace with the rate of change. More rapid rule-making processes will help keep pace with the rate of change in the NEM.’*<sup>5</sup>

<sup>3</sup> Malcolm Keay, Oxford Institute for Energy Studies, ‘No Such Thing as The Cost Of Renewables? The Significance of System and Resource Costs’, Public Policy Paper 2/2013, EPIA, June 2013.

<sup>4</sup> Robert Pritchard, ‘Investing in Electricity Infrastructure in a Low-carbon Era,’ Public Policy Paper 7/2016, EPIA, December 2016.

<sup>5</sup> Alan Finkel et al, *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future* (Finkel Review), June 2017, chapter 7 page 157.



The development of a national energy plan and, with it, the publication of an annual report on the health of the NEM, were quickly endorsed by EPIA.

The Australian Energy Market Operator (AEMO) remains at this time the official system planner for the NEM. In the short term, as AEMO saw it late last year:

*'The NEM is not delivering enough investment in flexible dispatchable resources to maintain the defined target level of supply reliability, as the transition from traditional generation to variable energy resources proceeds. This was vividly illustrated by the load-shedding events of February 2017 and by the Finkel Review analysis. Most stakeholders see changes to market rules as the most economically efficient way to remedy this deficiency. AEMO forecasts of NEM demand and published investment plans confirm the urgency of this task and short-term measures will be necessary until a long-term solution is agreed and becomes fully effective.'*<sup>6</sup>

## Every power system needs a planner

Australia has a national electricity market but its state-based power systems remain under state control, with interconnections between most of the state-based systems. Many system assets have been wholly or partly privatised since the NEM was established.

Every power system, not just the interconnected NEM, needs its own system-specific planner. System planning cannot be unconditionally delegated or subjugated to a body concerned with the 'national interest', especially given the changing features of the NEM and the yet-to-be-settled National Energy Guarantee (NEG) scheme.

There is therefore merit in the recommendation of the recent report of the NSW Energy Security Taskforce:

*'That the Government develop an electricity strategy for NSW that identifies objectives for an ideal electricity system in NSW and can inform trade-offs, decision-making, regulatory arrangements, and program design in NSW.'*<sup>7</sup>

## The National Energy Guarantee (NEG) scheme and what it cannot guarantee

The ESB has proposed a National Energy Guarantee (NEG) scheme for the purpose of promoting investment in the NEM. The NEG is presently undergoing detailed design and review by the COAG Energy Council. As presently envisaged, the scheme will impose two obligations on electricity retailers: an emissions intensity requirement applying across all

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<sup>6</sup> AEMO, *Advice to Commonwealth Government on Dispatchable Capability*, September 2017.

<sup>7</sup> *Report of the NSW Energy Security Taskforce (O'Kane Report)*, NSW Government, December 2017.

NEM regions, and a region-specific reliability obligation, if a reliability gap is forecast in a particular region.

The NEG cannot, however, guarantee that the most efficient long-term investments will be made in every NEM region in a timely manner, nor will it have any off-grid application.

As the ESB has acknowledged:

*'The Guarantee is just one part of a multiple pronged approach to meeting the future reliability and security needs of the power system ... the Energy Security Board's Health of the NEM report noted that system security health is CRITICAL. Managing system security is becoming challenging, particularly in some regions. The risk that essential requirements for security are not present is increasing, along with the market interventions required by AEMO. While the Guarantee will not directly address these other concerns (although it may in part by driving more dispatchable capacity in the NEM), the Energy Security Board still considers these matters important, and that they should be addressed. Specifically, the Energy Security Board considers that, in addition to the Guarantee, the consideration of strategic reserves, day-ahead markets and demand response are priority issues.'*<sup>8</sup>

All states need to continue to work within the COAG framework on designing the best possible NEG scheme. However, it cannot be taken for granted that the NEG will provide investment signals of sufficient strength in a timely manner to ensure the long-term reliability of each state power system.

In its March 2018 report on reliability in the NEM, AEMO indicated that, without change in market design, the NEG will only be able to offer a partial answer:

*'The key issue is whether a market designed principally around real-time spot energy markets and bilateral contracts is sufficient, now and in the future, to achieve optimal economic outcomes for consumers and investors*

*... Based on recent experience operating the markets, AEMO believes this is no longer the case and appropriate adjustments must be made ... AEMO is concerned that the current market design is not sufficiently valuing resource characteristics of flexibility and dispatchability, and that, in the absence of a market design change, sufficient investments in new resources or existing resources that provide dispatchable capability are unlikely to occur.'*

## New South Wales

Taking New South Wales as an example, there are only three high voltage easements into Greater Sydney, electricity demand is growing both in Sydney and in regional cities, and future growth in demand is likely to be underpinned by a long-term trend towards electrification of the transport industry.

The biggest single challenge for New South Wales is in power generation: half of the State's dispatchable generation capacity (the Liddell, Vales Point, Eraring, Bayswater and Mount

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<sup>8</sup> ESB, National Energy Guarantee, Draft Design Consultation Paper, February 2018 (Appendix B)

Piper power stations) may need to be replaced over the next 20 years, requiring investments in the billions of dollars to maintain system reliability.

New South Wales' ability to address its strategic energy infrastructure challenge may be diminishing almost by the day.

### One possible solution: independent, state-based system planning facilities

A solution for some states may be to establish a strategic planning and system planning facility. Any such facility would need to engage quickly and constructively with COAG and the NEM institutions but would focus exclusively, or at least primarily, on the state's needs.

In this author's view, an independent, state-based, system planning facility would need to:

- operate transparently as well as independently
- be resourced by experienced industry professionals, not by administrative officials
- pursue a technology-neutral approach and
- be able to recommend, to its governing state, competitive tenders on infrastructure investment proposals where the market is perceived to be at risk of failing to deliver the required level of reliability in a timely manner.

A longer-term solution, as EPIA has suggested in previous papers, would be to establish a National Energy Commission to bring the governance of the entire interconnected systems under unified control.

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### About the Author

**Robert Pritchard** is Executive Director of the Energy Policy Institute of Australia.

*Robert has 50 years' experience as a lawyer and adviser to industry, governments and organisations on energy projects and policies, both in Australia and overseas, and as a director of companies in the energy sector.*

*Robert was the first chairman of the Energy Law Section of the International Bar Association and served for nine years on the Finance Committee of the World Energy Council.*