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# The Future of Energy in Australia

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## US Investment in Australia

- The good news: China has become Australia's major trading partner. The US and Australia remain the closest strategic and economic partners. The US is Australia's largest foreign investor with over 25% of total FDI (twice as high as the next largest investor, the UK, and ten times higher than China).
- The not-so-good news: Australia offers investment stability but has recently been plagued by high domestic energy costs and doubts over climate policy (with tensions between Federal and State policies)
- Australia's high domestic energy costs have begun to threaten the viability of energy-intensive industries such as aluminium smelting.



## Australian investment in US

- Competitive energy prices are attracting Australian industry to the US
- Recent examples: Pratt Industries (paper and packaging), Dyno Nobel (chemicals), Macquarie Group (banking and infrastructure investment), Brickworks (brickmaking), APA Group (gas pipelines)
- Australian businesses rely heavily on access to US capital markets and employ close to 200,000 persons in the US

# Australia in a policy mess: facing decarbonisation without an agreed vision

- Domestic energy prices are rising: oil, gas, coal, electricity
- The power system is becoming unreliable with increasing penetration of weather-dependent renewables. The longstanding ban on nuclear energy is now under review
- Activists, public protests, social media fostering dissent, populist policies, Federal/State disunity
- Too many cooks, too many recipes, obvious lack of a national vision, obvious need for better energy governance

# Energy and climate policy inseparable

- Paris Agreement – target 2° C by 2050. ‘Pathways Report’ found 1.5° C target technically feasible but only if all possible options, including CCS and nuclear, are pursued
- Moves to electrification (eg Shell)
- Concerns for automobile, aviation, defence sectors
- Are coal/ LNG export industries facing future curtailment?
- No carbon price or tax. Could industry discover its own?

# Electricity

- National Energy Market (NEM) established 1998
- Fed/ state Energy Council (COAG) established 2013
- COAG Review exposed risk of unreliability 2017 and established Energy Security Board (ESB)
- ESB has recently commenced design of a long-term, fit-for-purpose, post-2025 market framework. Analogous to the DOE proposal to FERC of August 2017
- Will market review take a decade? Or will it continue to 2050 and beyond?

# NEM current reporting framework

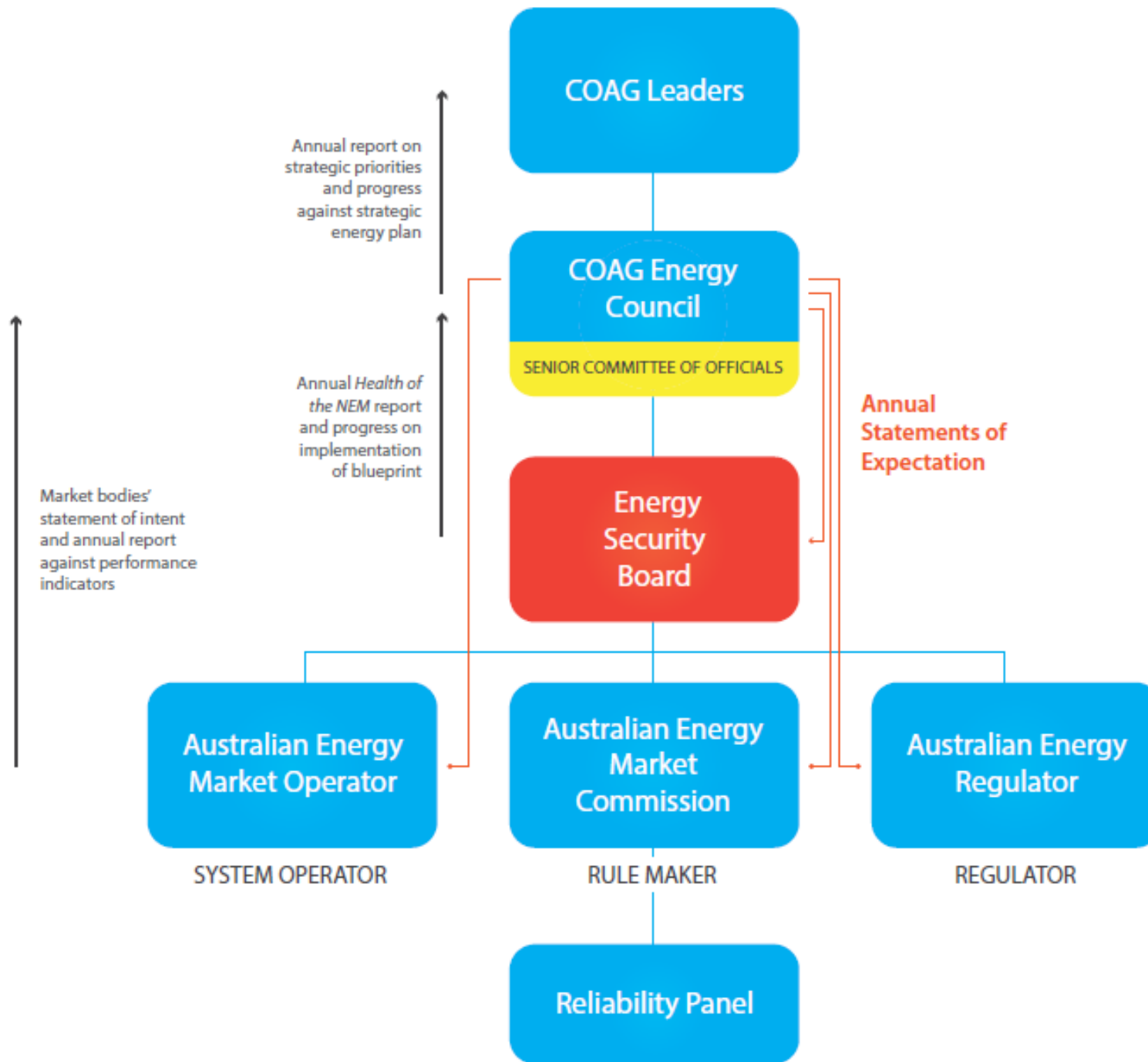




Figure 1.2  
National Electricity Market



Source: AER.

## The NEM as it now is

- 5 Eastern States interconnected
- 300 registered generators
- 47,000 MW installed capacity
- 30 retailers (now to incl Shell)
- 10 m customers



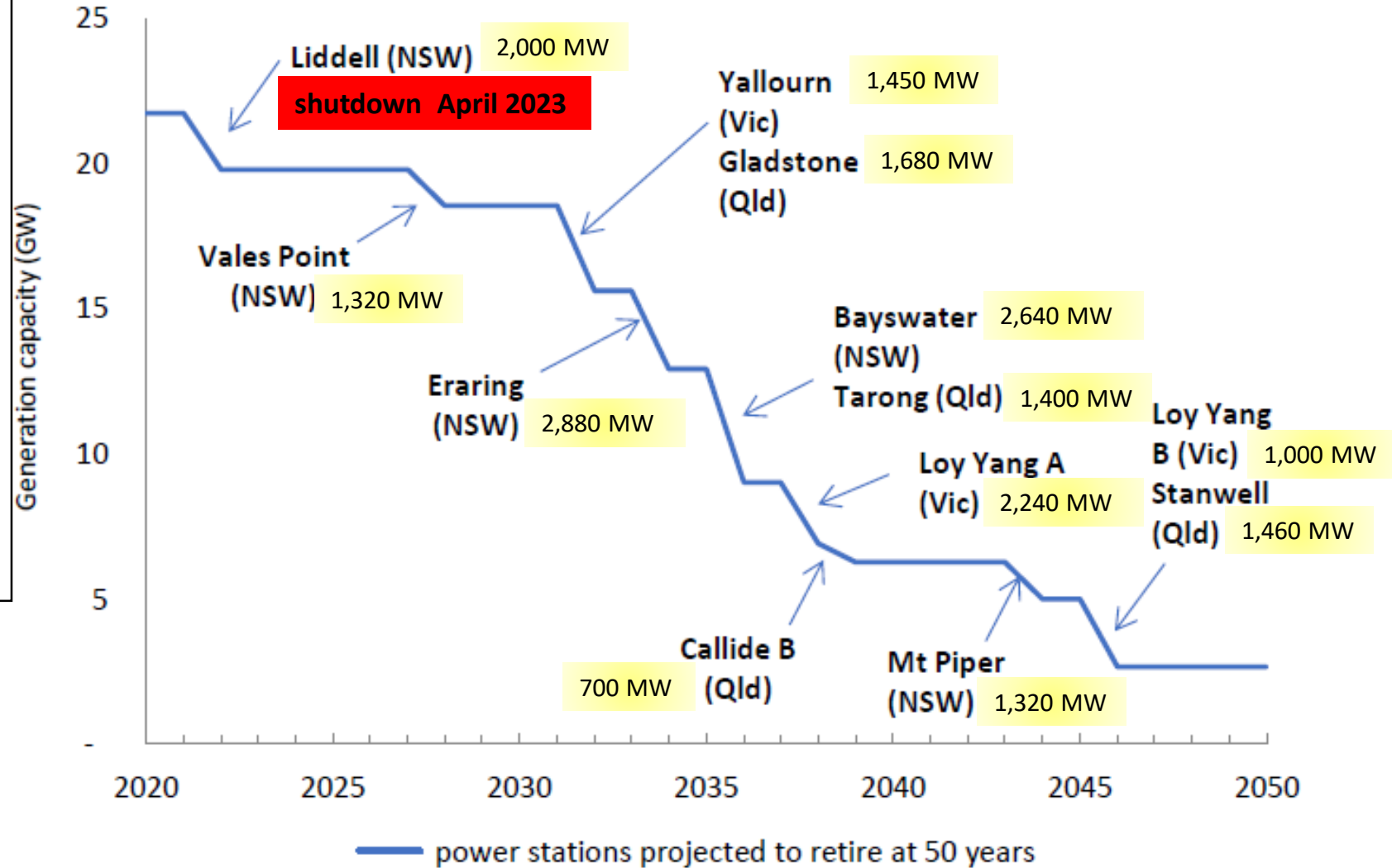
# What is the real problem with the NEM? Replacement of old generation



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Source: AEMO NEM Generation Information

## Coal and gas resources

- The LNG export industry remains buoyant despite restrictions on natural gas development in some states
- Coal production may have peaked. It took 10 years to approve the new Adani coal mine.
- New coal projects facing risk of being quarantined by future climate constraints. State-level environmental authorities are demanding zero emissions (including ‘class 3 emissions’)

# Uranium mining and nuclear power

- Nuclear is the only low-emissions energy form that does not depend on the weather. With renewables, modern nuclear could supply all of Australia's electricity needs and eliminate generation emissions
- Modern SMRs may provide a technology breakthrough.
- Parliamentary Inquiries under way to consider repeal of ban on nuclear power generation.
- Community concern over nuclear safety and disposal of spent fuel may be addressed by transparent, best-practice regulation with community representation

## Resource development: can we speed up?

**Minister for Resources, Senator Canavan, ‘The Australian’, 6 June 2019:**

*“To develop [our] resources we need to attract long-term investment and that requires the major parties to support those investments through the political cycle. The sooner we can re-establish unity on Australian resources, the sooner we can attract the capital investment that will create jobs and enhance our nation’s wealth.”*

**EPIA: This is not a problem of money: it’s a lack of long-term vision and sound policy**

## Is energy policy obsolete?

- Despite obvious need for better energy governance, there is no single, secure pathway to the future. Is energy policy as we have historically understood it obsolete?
- Can industry and investors lower their expectations of government? Can investors proactively create their own energy policy, addressing climate change and involving communities?
- Diversification is vital – so are versatility and ‘switch-ability’



# Where can investment opportunities be found in an era of obsolete energy policy?

- Where is the growth? Electricity, carbon reduction?
- How to manage risk? Diversification, vertical integration?
- Operate near existing hard and soft infrastructure?
- Engage with compatible, competent, ethical, incorruptible partners offering access to technology, transport, markets and money?





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# **We must be open to new ideas from everywhere in the world**

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