



The state of energy markets in Australia

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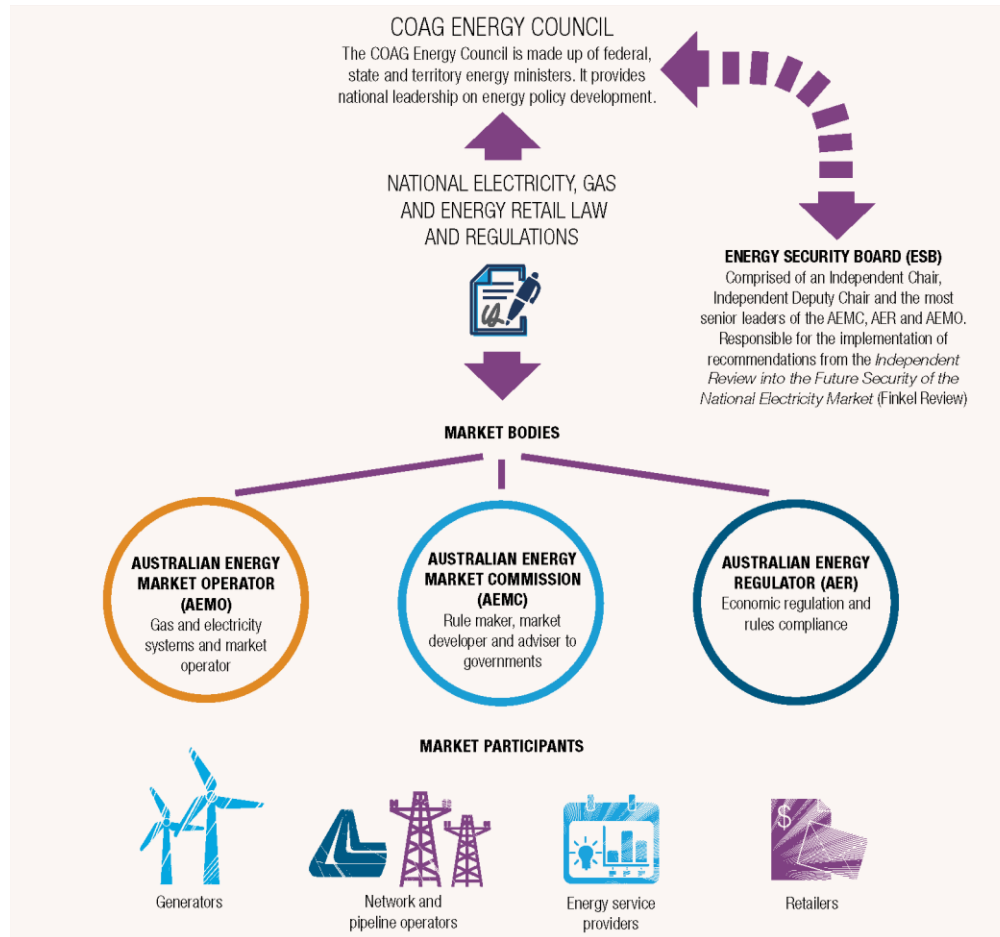
28 November 2018

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Summary of key issues

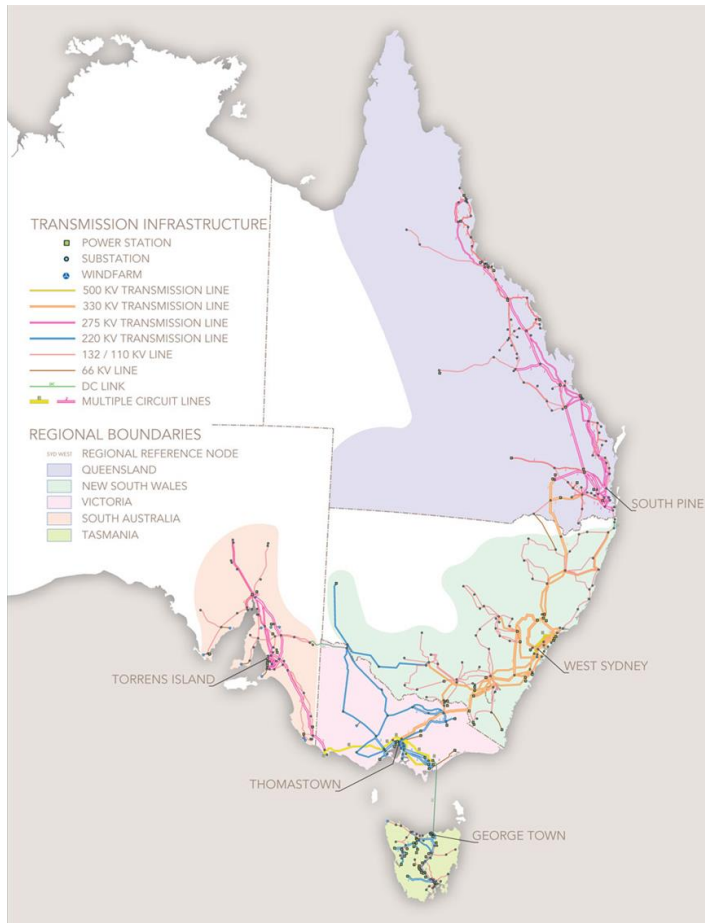
- Scale and pace of energy transformation continue unabated.
- Australia leading the world in decentralisation.
- High gas prices driven by link to international LNG and lack of domestic competition and supply.
- Change in generation patterns leading to reliability and security issues as well as driving transmission investment.
- Penetration of active and passive distributed energy resources creating challenges and opportunities as they impact distribution network and wholesale electricity market
- High political interest in a highly contested political space – navigating the energy trilemma of energy affordability, reliability and environmental sustainability.

Australia's energy governance regime



Source: Australian Energy Market Commission

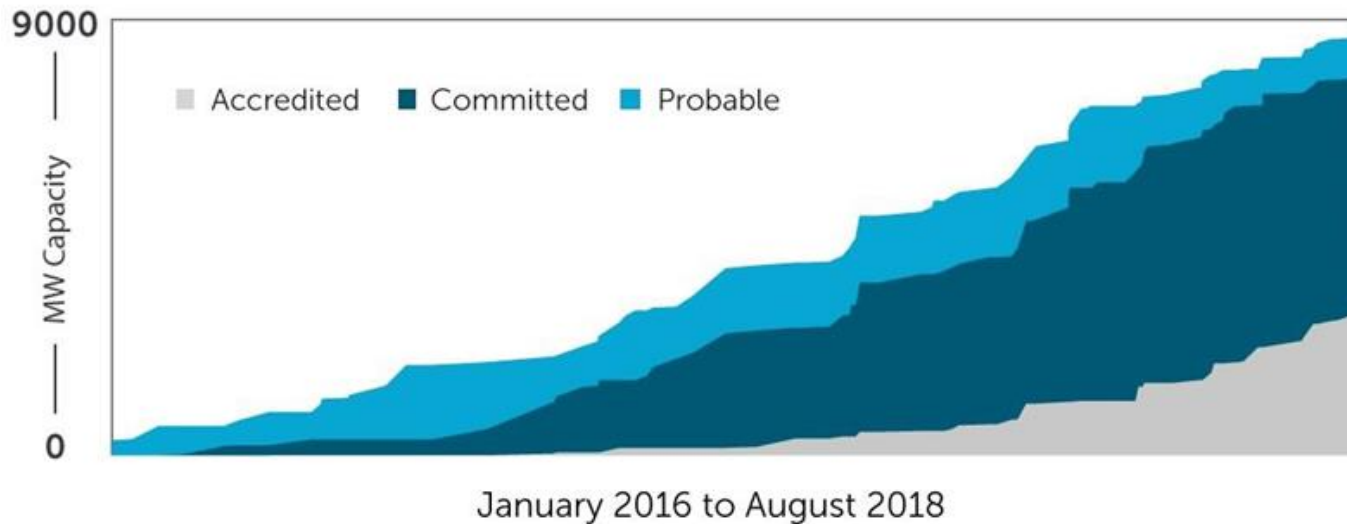
The National Electricity Market



- The longest AC grid in the world.
- Five regions with limited interconnection
- Energy only market
- Gross pool
- Real time
- Central dispatched
- Marginal pricing
- High spot price risk
 - \$14 500/MWh cap
 - -\$1000/MWh floor
- Financial markets to hedge risk
- No market power mitigation

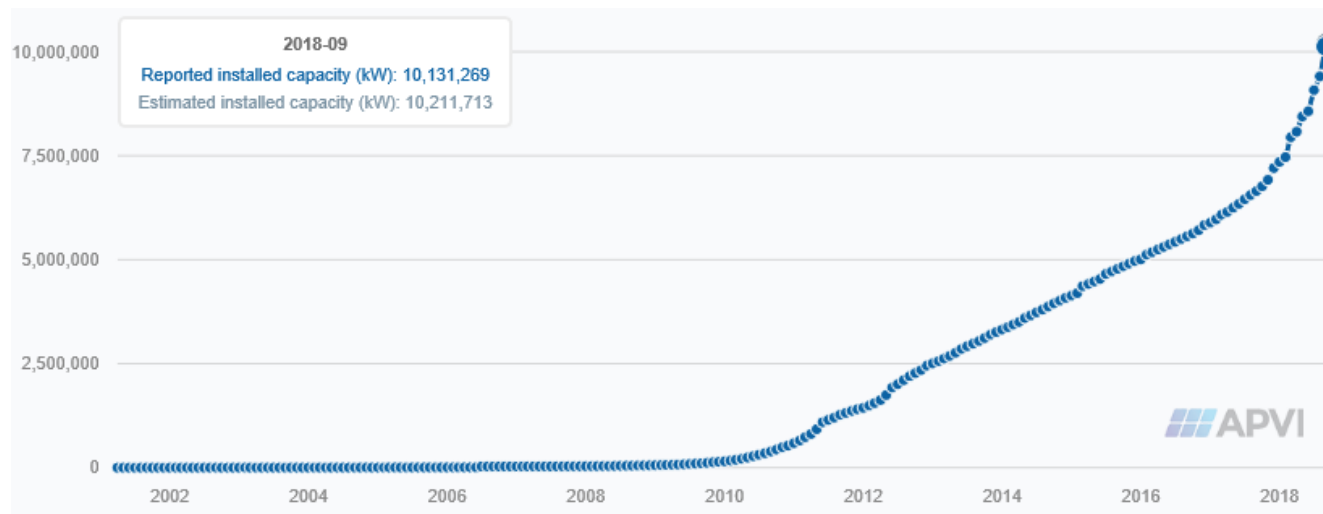
Source: Australian Energy Market Commission

Electricity – the generation mix is changing



Australian large scale renewables investment

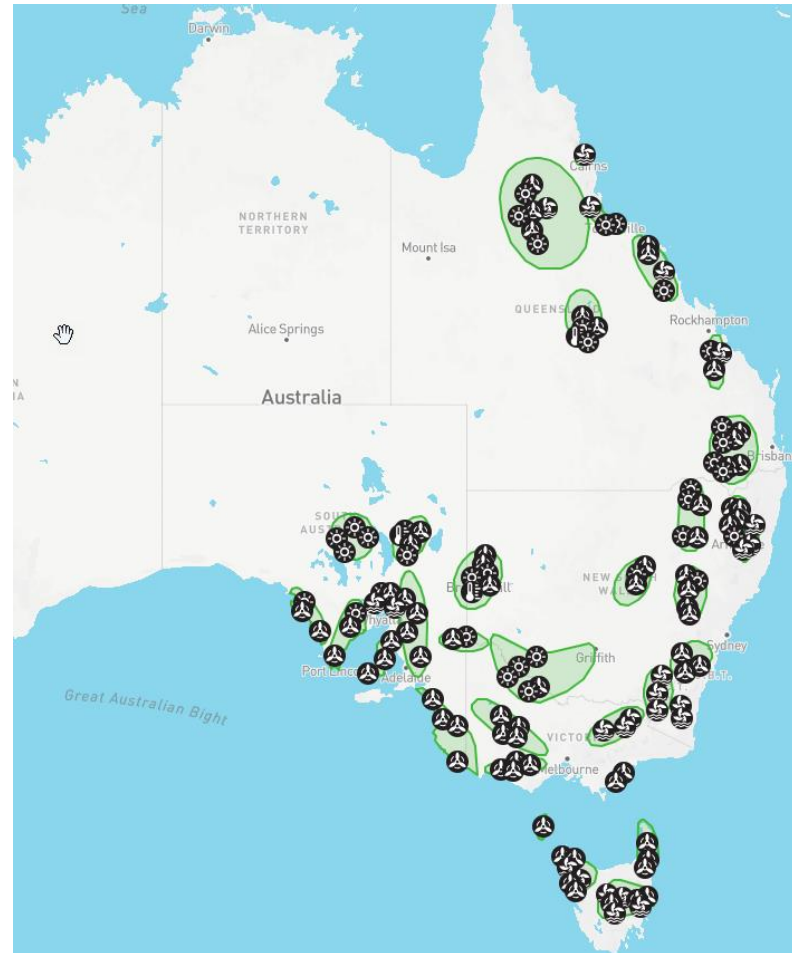
Source: Clean Energy Regulator



Australian solar PV installations since April 2001

Source: Australian Photovoltaic Institute

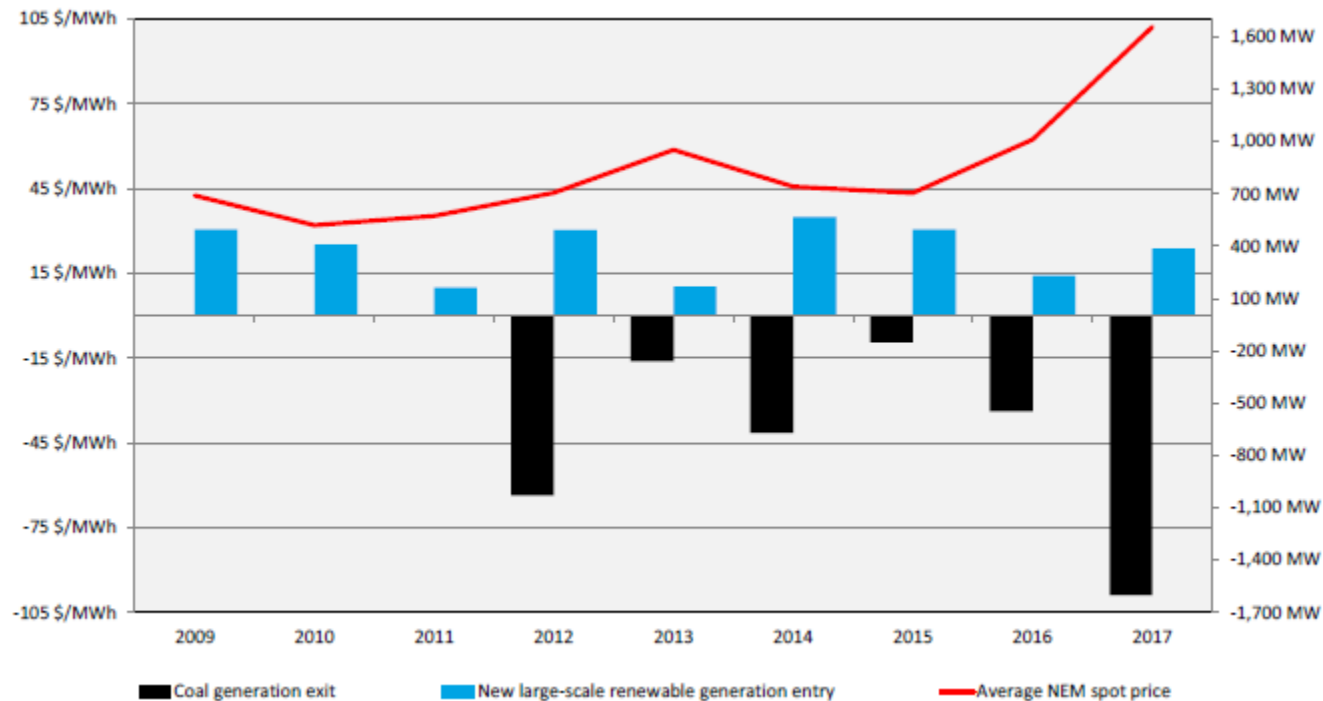
This has implications for planning of key electricity infrastructure – including transmission



Source: Australian Energy Market Operator

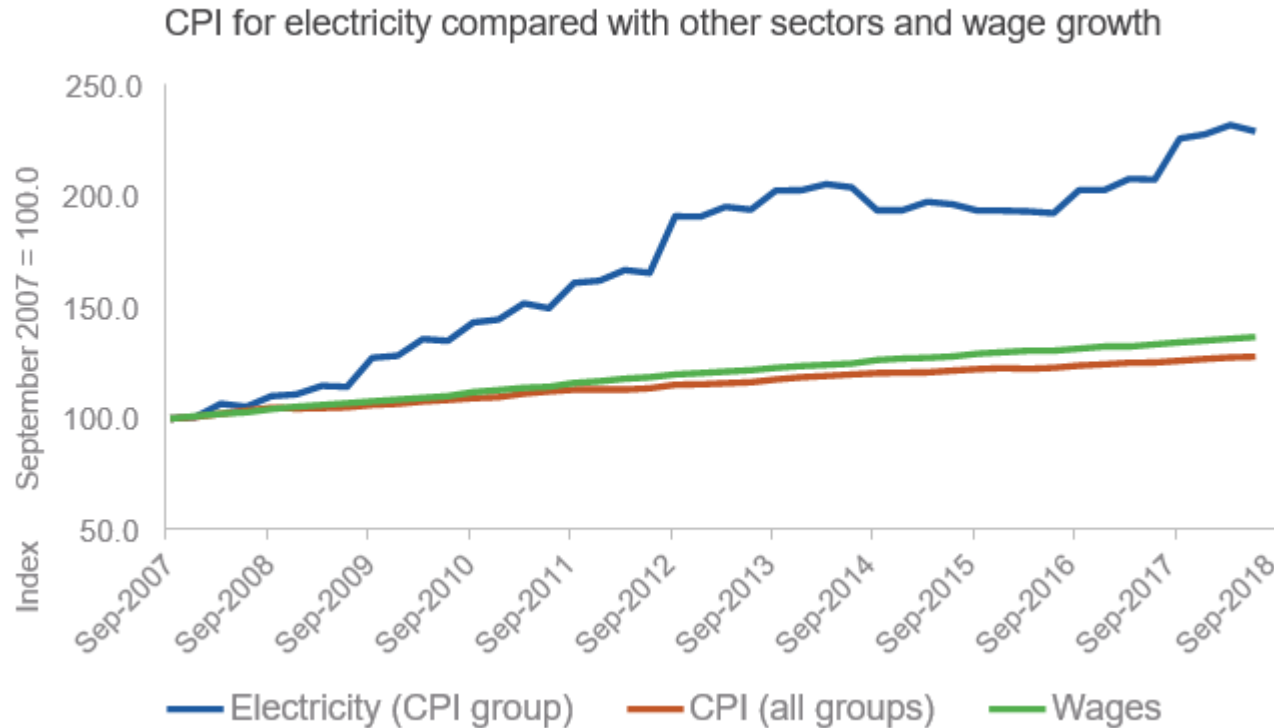
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The changing generation mix has coincided with increases in prices



Source: Australian Energy Market Commission

Electricity – affordability challenges



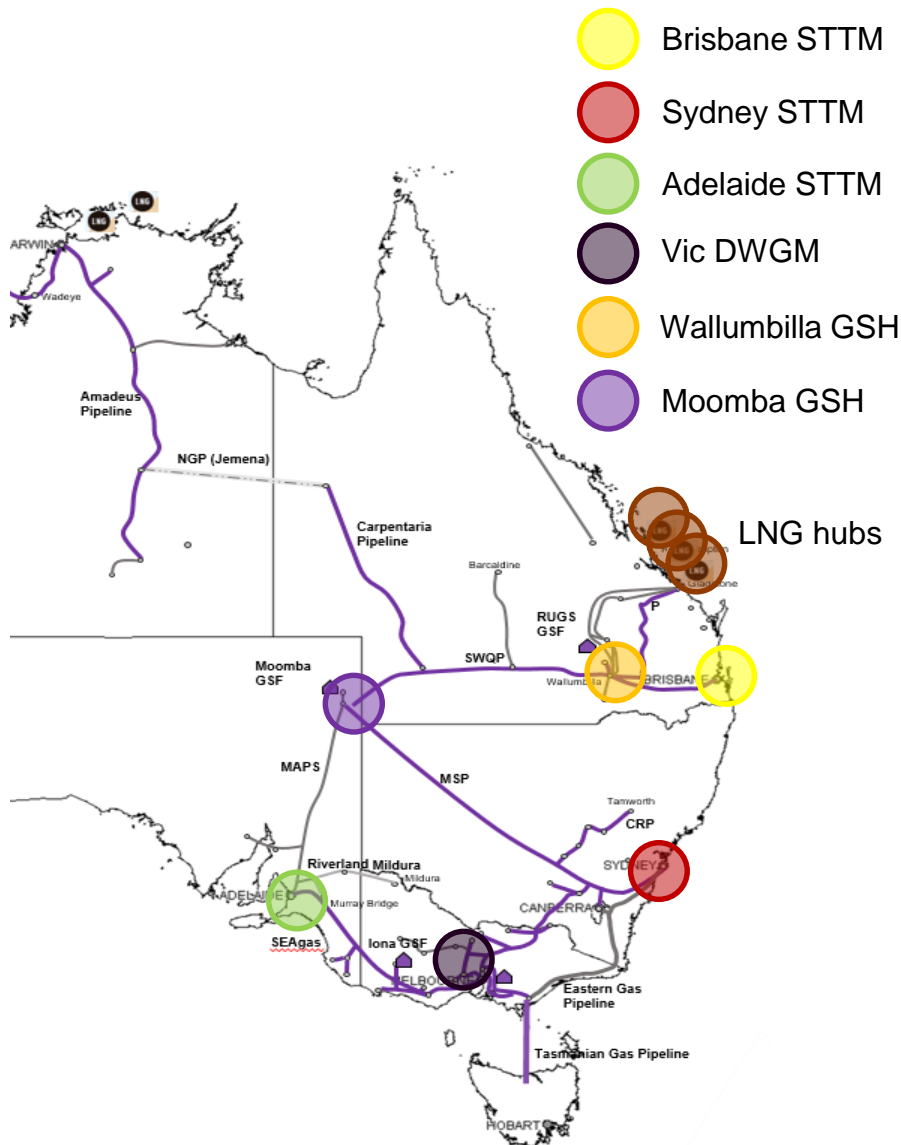
Source: Australian Bureau of Statistics

Key electricity reforms

- Implementing recommendations from the Finkel report.
 - Energy Security Board formed to coordinate this work.
- Implementing recommendations from the Australian Competition and Consumer Commission's Retail Electricity Pricing Inquiry.
 - The Australian Energy Regulator has commenced work on a default market offer price and reference bill.
- Retailer Reliability Obligation.
- Coordination of Generation and Transmission Investment and Integrated System Plan.



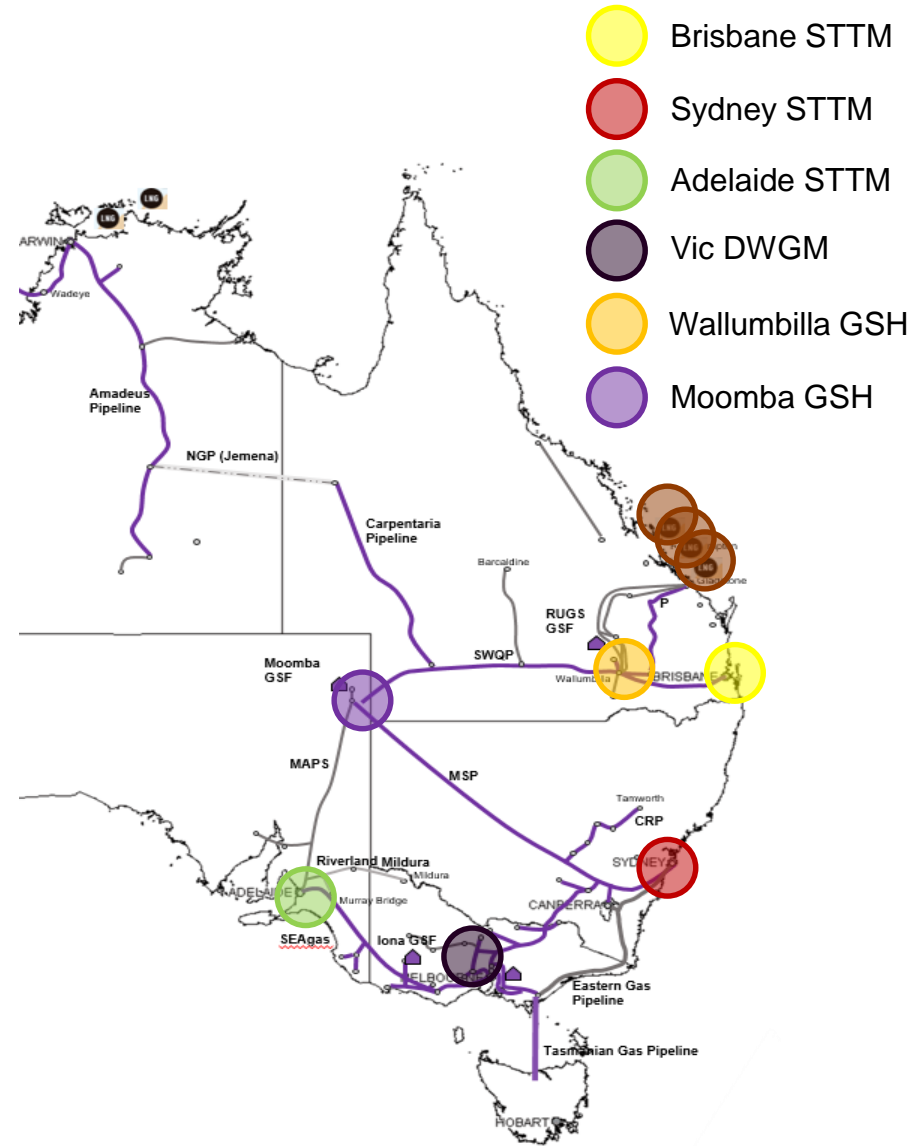
About the eastern gas market



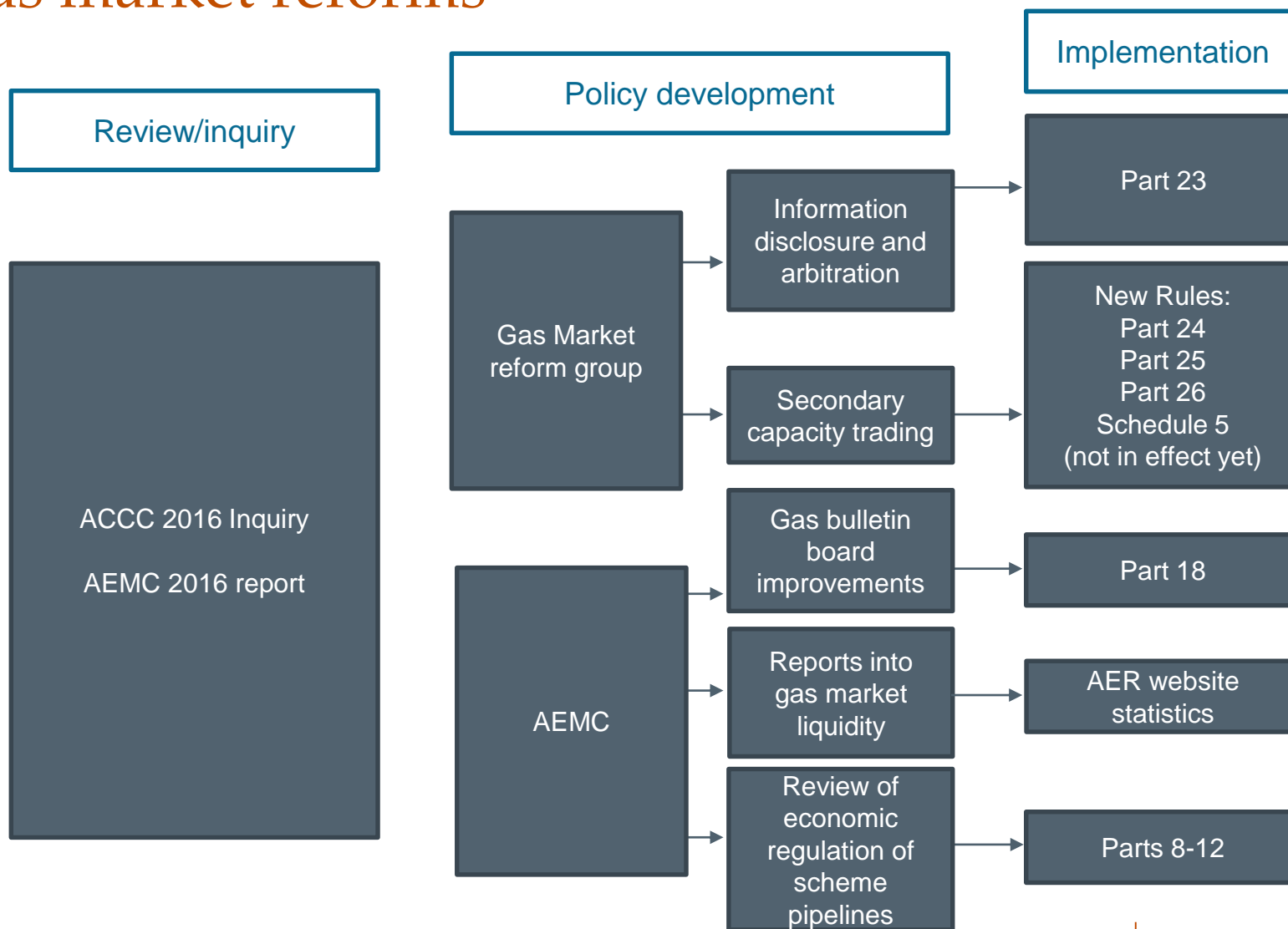
- Gas is procured through long term confidential agreements.
- To manage risks of over or under supply users utilise gas markets.
- Three different types of markets:
 - Declared wholesale gas market (DWGM) – Victoria
 - Short term trading market (STTM)
 - Gas supply hubs
- DWGM and STTM are balancing markets.
- GSH are genuine exchange markets.

The eastern gas market – key challenges

- Three LNG projects commenced export from Queensland in 2015, connecting the east coast gas market to international prices.
- Prices are volatile and customers are being offered offers for supply in the high \$8-\$11/GJ range.
- Lack of competition, transparency and liquidity on east coast.
- Moratorium on onshore conventional gas exploration and production in Victoria and Tasmania.
 - Northern Territory has recently lifted its moratorium.
- Victorian offshore fields depleting.



Gas market reforms



Thank you – any questions?

