

The National Energy Market in a Carbon Constrained World

CEDA Sydney 1 October 2009

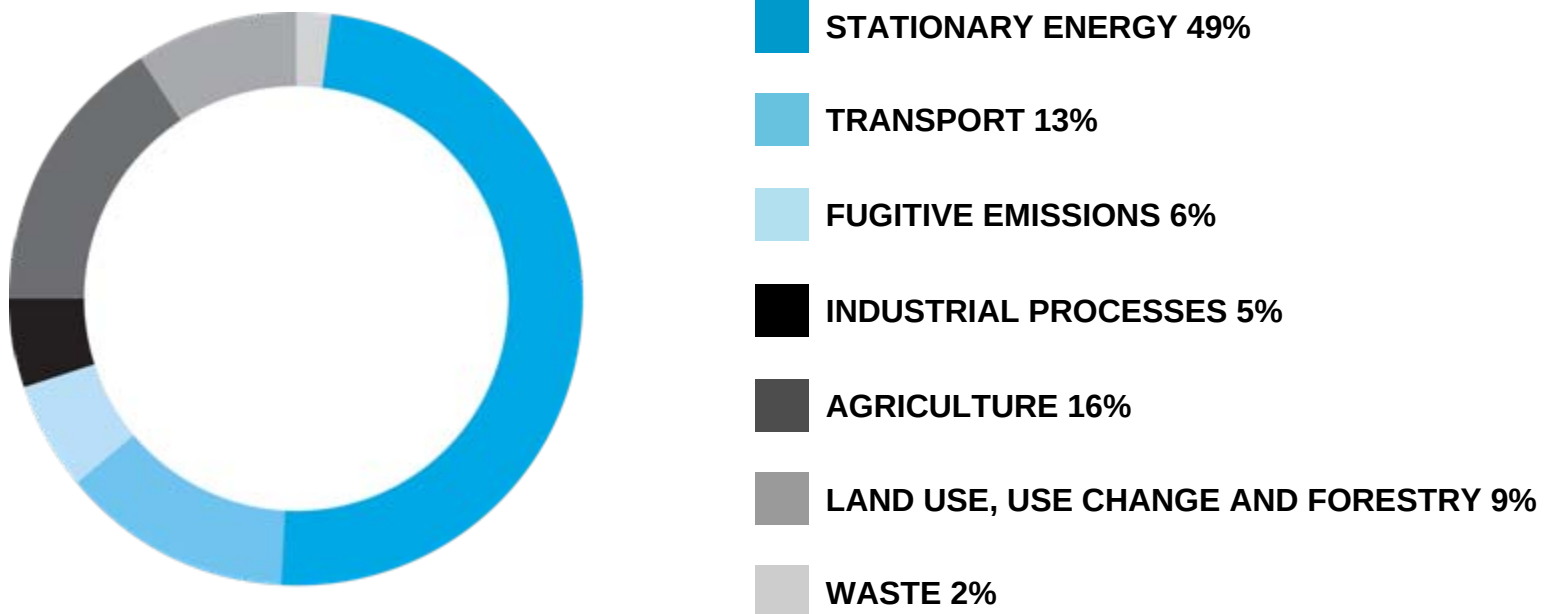


JOHN TAMBLYN
CHAIRMAN
AUSTRALIAN ENERGY MARKET COMMISSION

The challenge of reducing emissions from the energy sector



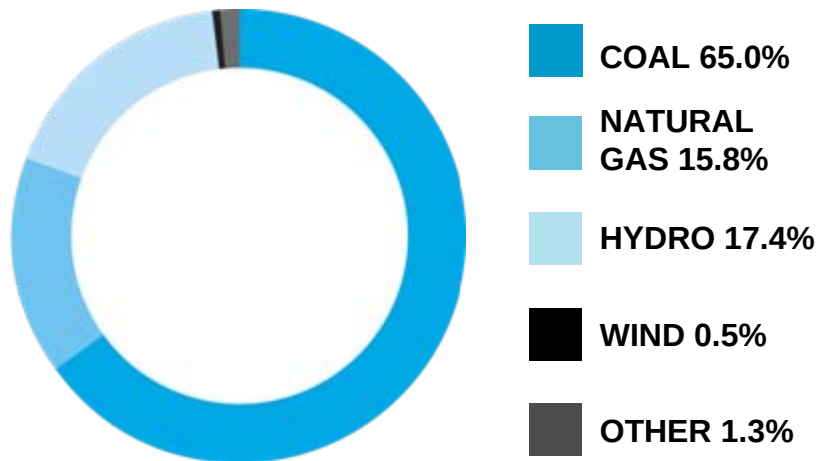
ENERGY 49% AUSTRALIA'S CARBON EMISSIONS



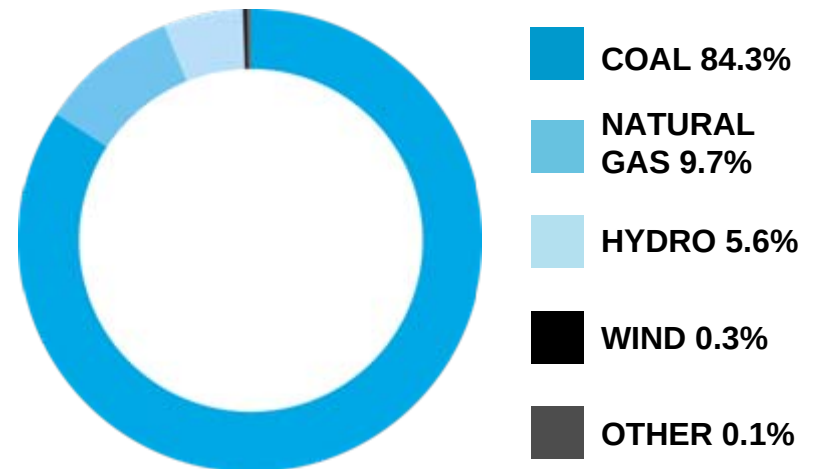
BECAUSE WE RELY ON COAL FOR ELECTRICITY

NEM scheduled generation capacity and electricity supplied by fuel type (2007/08)

Capacity



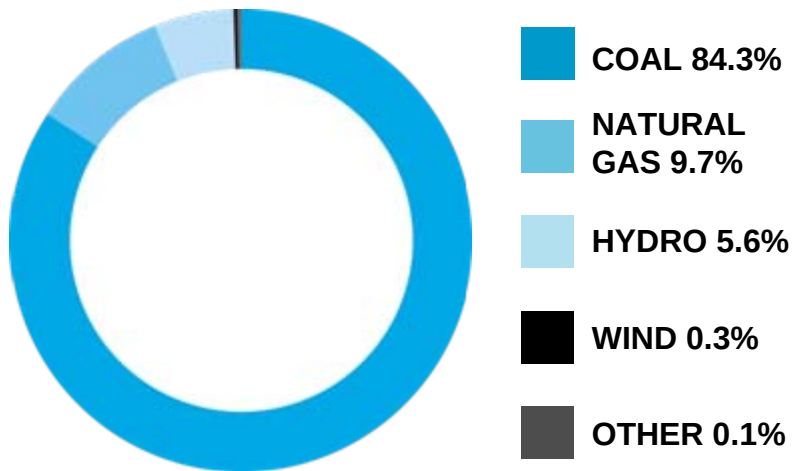
Sent out Energy



Source: Electricity Gas Australia (2009), ESAA

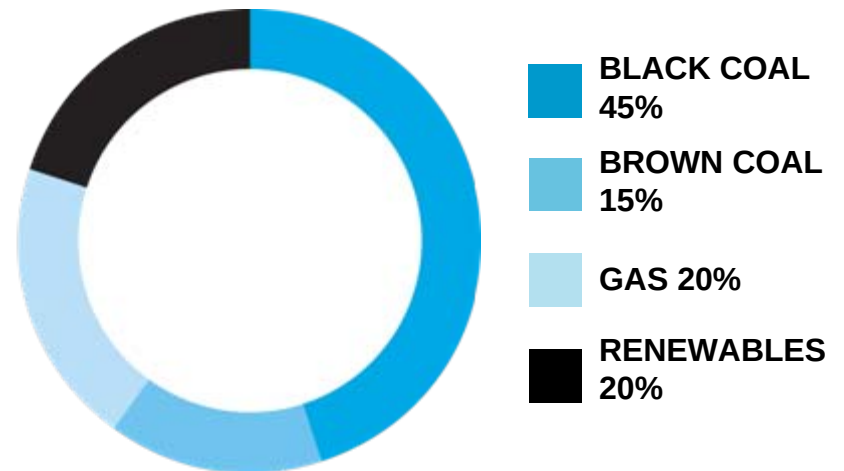
STILL RELIANT ON COAL IN MEDIUM TERM

CURRENT



Source: ESAA

2020



Source: Commonwealth Treasury

Policies to drive change and impacts on economics of energy markets



KEY POLICY INSTRUMENTS

Carbon Pollution Reduction Scheme (CPRS)

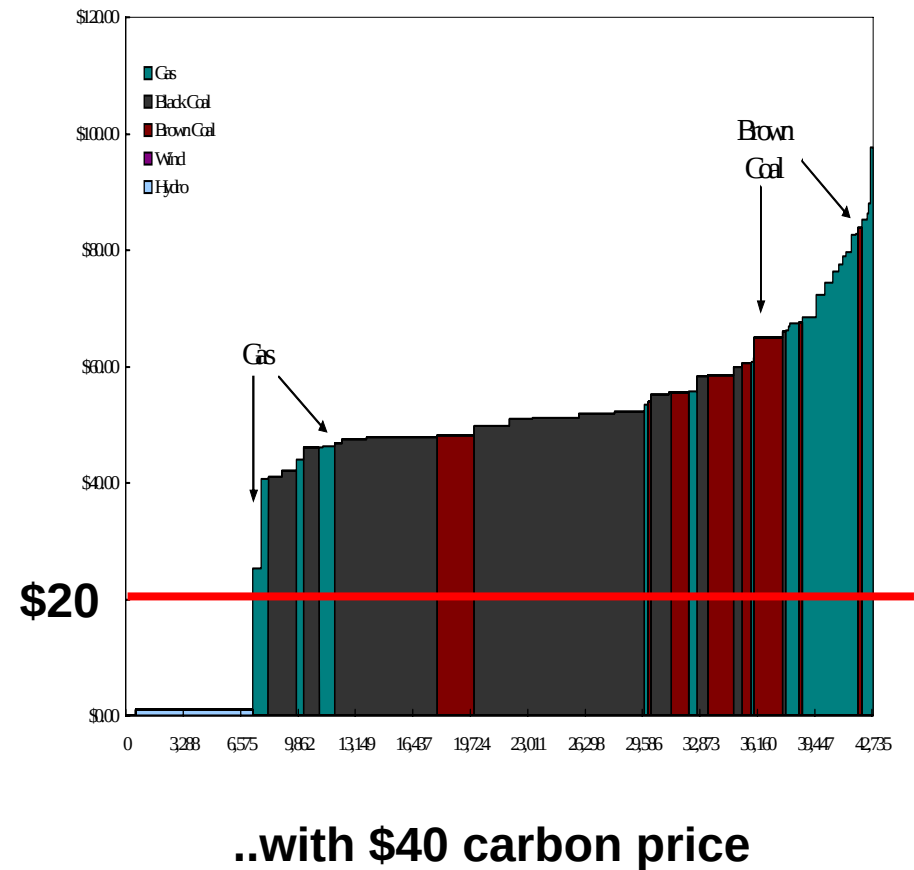
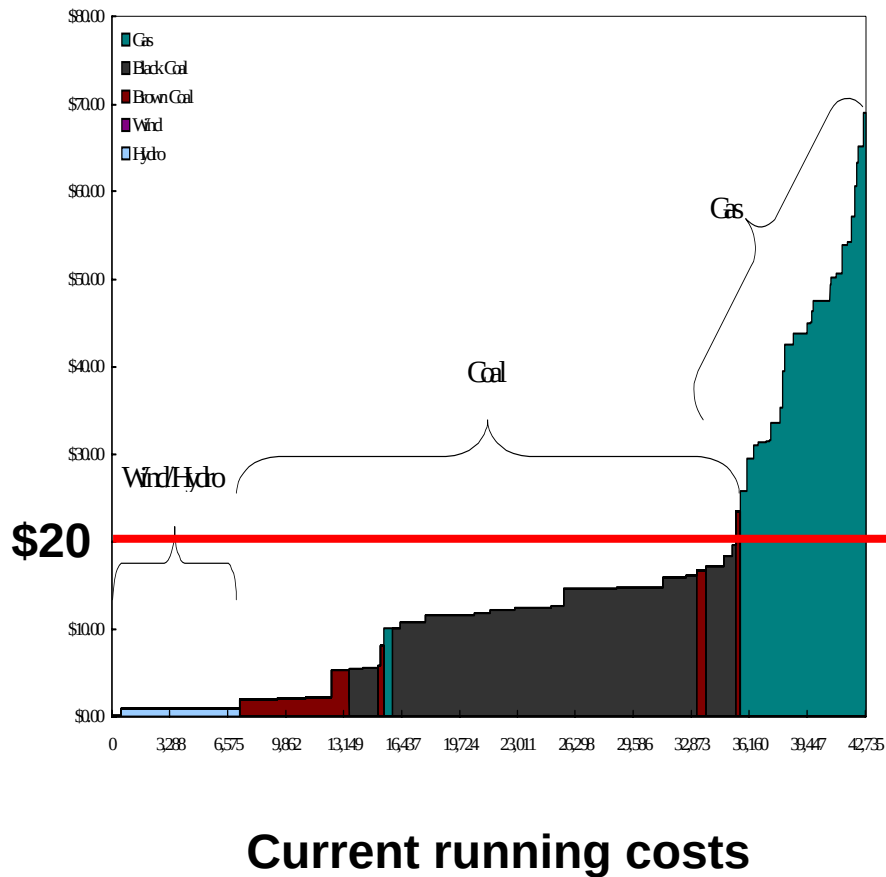
- Explicitly price CO₂ emissions
- 'Cap & Trade' design
- Proposed to commence 2011
- With \$10 cap for first 12 months

Renewable Energy Target (RET)

- Obligation on retailers
- % of electricity from Renewables
- Profiled to 20% by 2020

Plus: a range of more focused policy initiatives at state and federal level

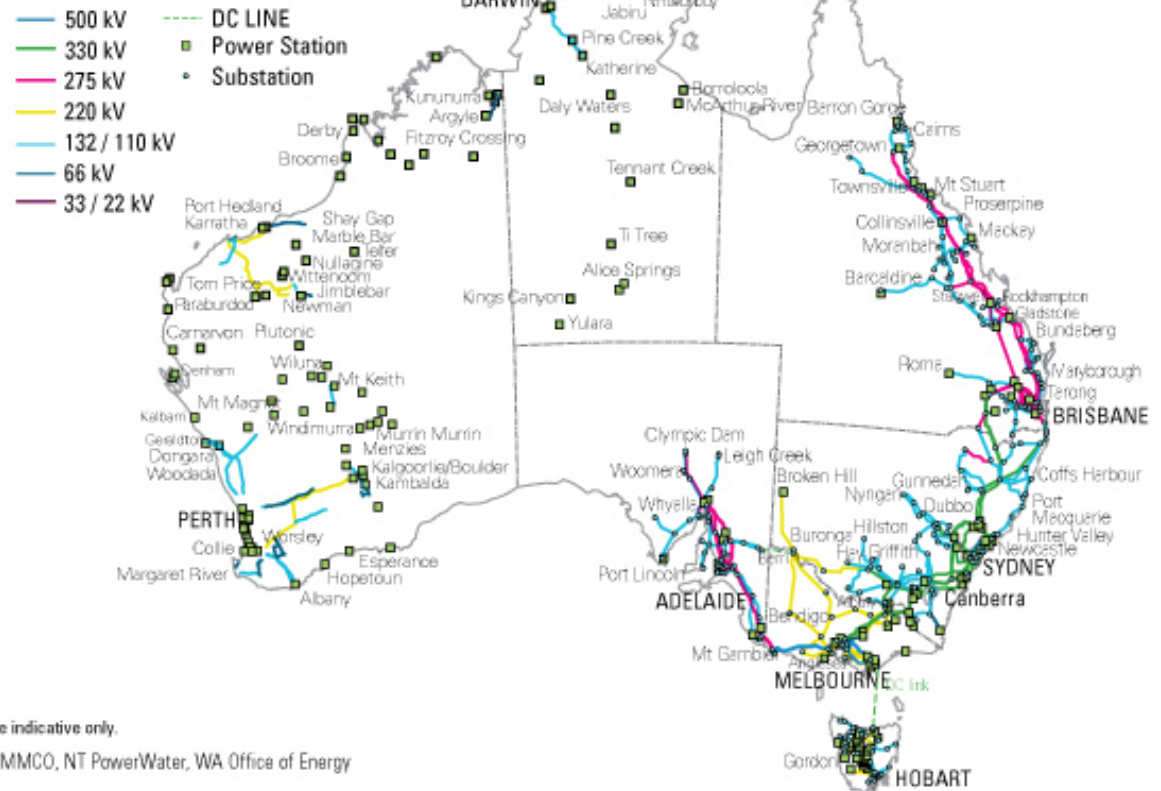
ABSOLUTE & RELATIVE GENERATION COSTS



NEW DEMANDS FOR TRANSMISSION

The Current Transmission Network

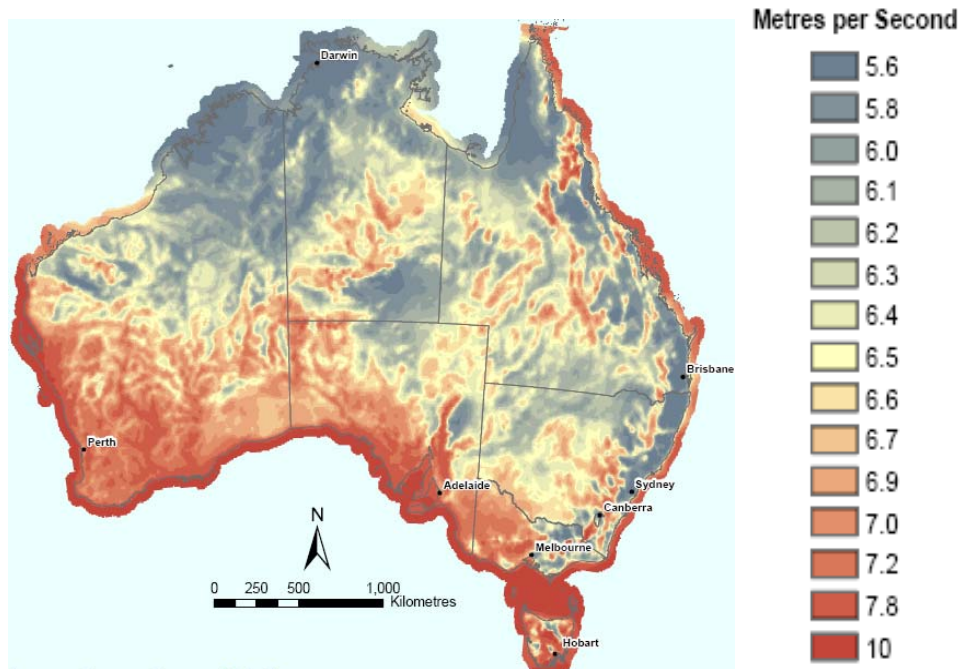
Transmission lines and generators



NEW DEMANDS FOR TRANSMISSION

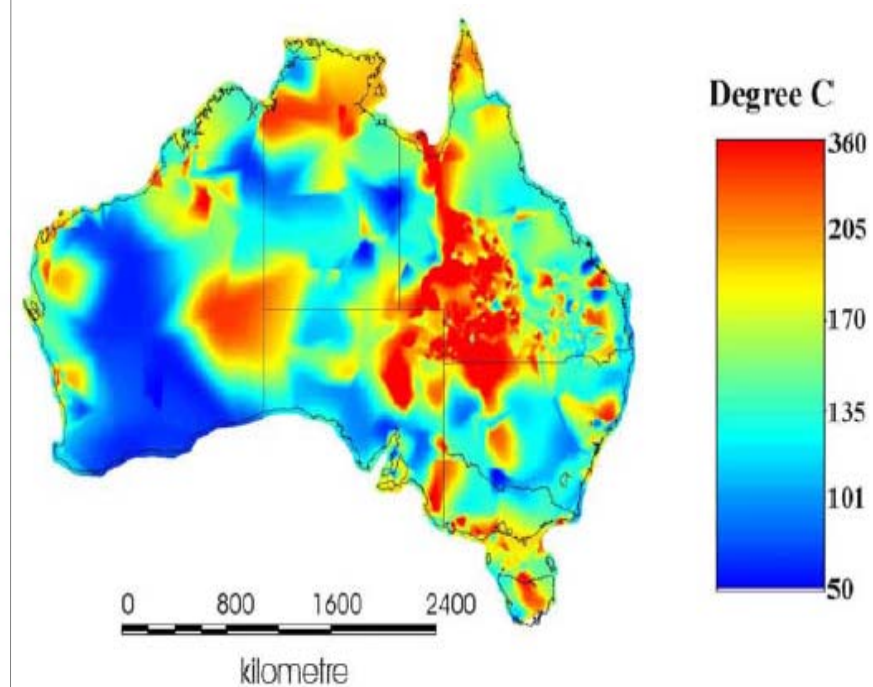
WIND RESOURCES

Mean Wind Speed



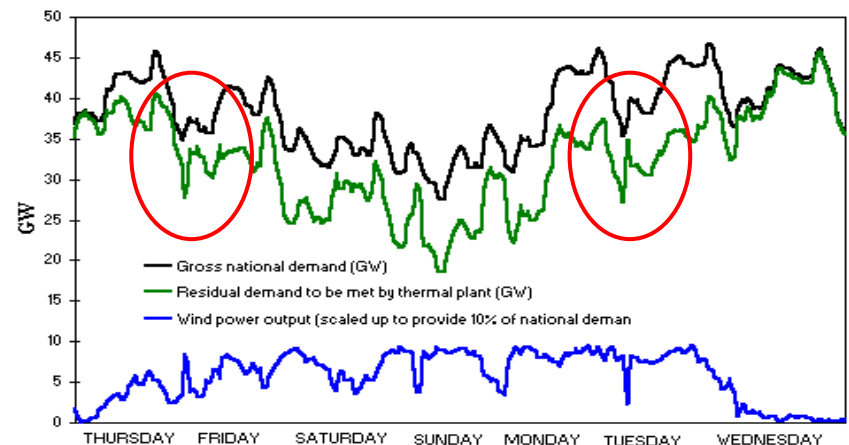
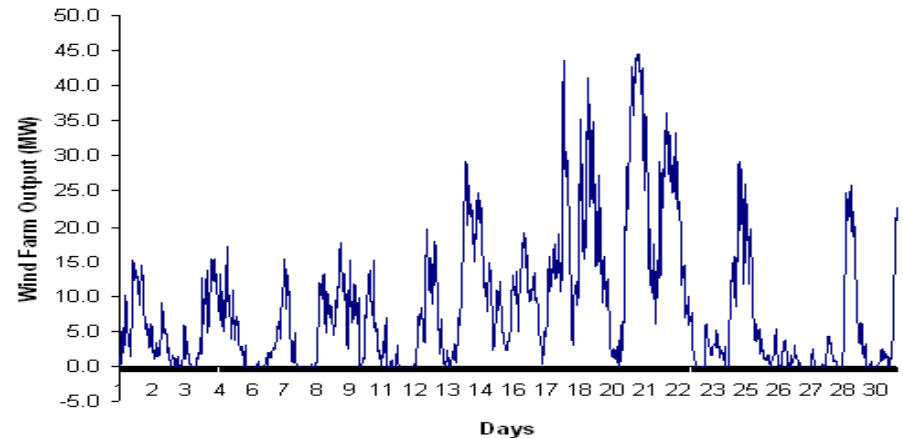
GEOTHERMAL RESOURCES

Australia Heat Flow Map



MORE GENERATION – HIGHLY VARIABLE OUTPUT

- RET accelerates entry of renewables over and above incentives from CPRS
- May stimulate 8,000 MW of new, renewable plant
- Wind turbines are the most viable technology in short term
- Output from wind turbines is relatively uncontrollable
- System operation challenges
- Drives need for complementary new investment



The role of the Australian Energy Market Commission



THE AEMC

Statutory functions

- Under National Electricity Law and National Gas Law
- Make Rules for electricity and gas markets
- Market development
- Provide advice at the request of Ministers



OUR REVIEW

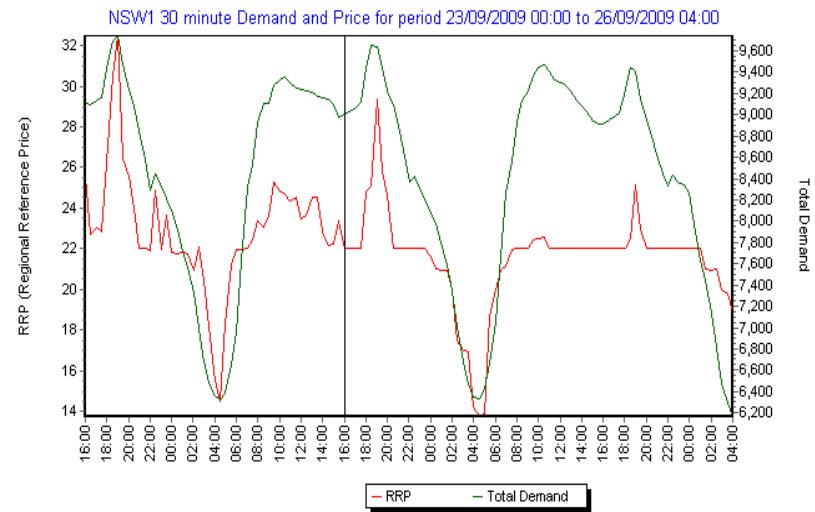
- Test resilience of energy markets..
- ..to changes that CPRS and RET will drive
- Will frameworks promote efficient outcomes for consumers?
- What framework changes will improve resilience?
- Final report submitted to Ministers
- Extensive consultation process

DRAFT FINDING: Energy market frameworks need to be refined, not re-designed



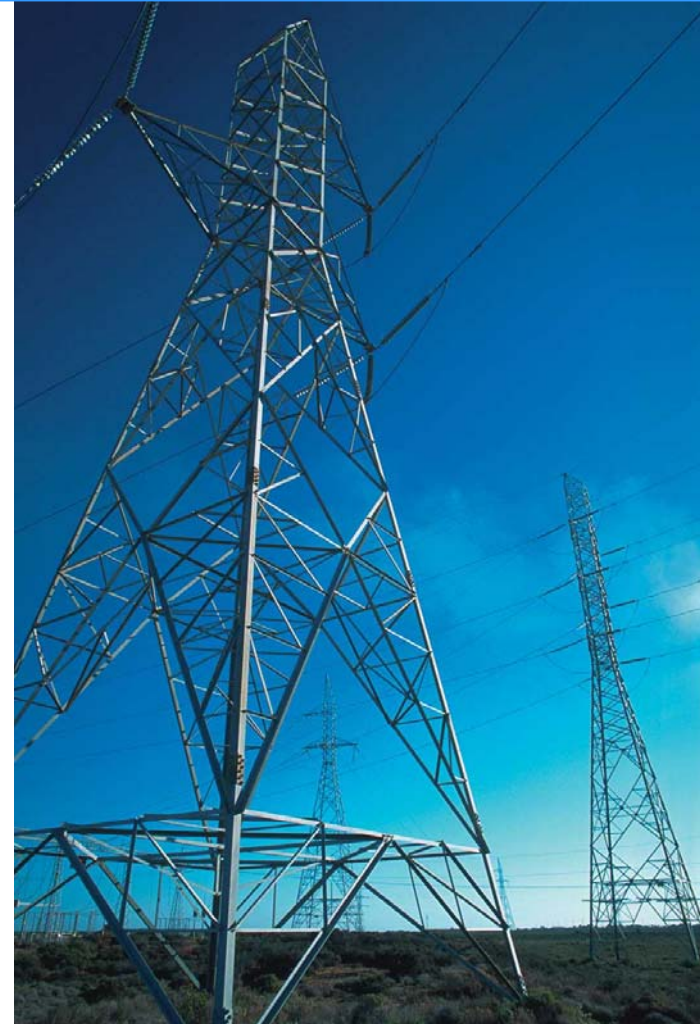
DELIVERING GENERATION INVESTMENT

- “Energy only” market with high price cap
- Spot prices calculated every 30 minutes for each NEM region
- Exchange-traded and OTC contract market
- Collectively signalling value for capacity and energy
- Investment consistent with reliability target
- CPRS and RET will change signals, but not invalidate the mechanism for signalling



DELIVERING NEW NETWORK INVESTMENT

- Periodic reviews of revenue requirements
- Under framework defined in the Rules
- Economic incentives for efficiency and for specific output measures
- Obligations to consult on investment plans
- Strengthened by new National Transmission Planner function for AEMO
- Draft recommendations for refinements in three areas



Retail price regulation arrangements will need to become more flexible



RETAIL COMPETITION AND PRICE REGULATION

- CPRS introduces uncertainty, volatility in future energy costs
- Retail price regulation continues in some States carries risk of regulatory errors / inflexibility
- Creates risks for retailers, consumers and competition
- Effective competition best consumer protection
- **Draft recommendation to increase flexibility in price regulation in tandem with removal of price regulation where competition is shown to be effective**
- Accompanied by effective consumer protection regime and “White Paper” income transfers.



Achieving efficiently scaled network investment to support new generation connections?



NETWORK CONNECTIONS AT EFFICIENT SCALE

- Transmission demonstrates very large economies of scale – hence need to regulate
- Context of ‘clusters’ of new generation entry over time – some of which likely to be remote
- Incentives to connect at efficient scale
- Balance of risks – losing economies of scale but greater risk of asset stranding
- **Draft recommendation for new framework to plan, price and allow revenue recovery for scale connection assets in limited circumstances**



Improving transmission cost recovery arrangements

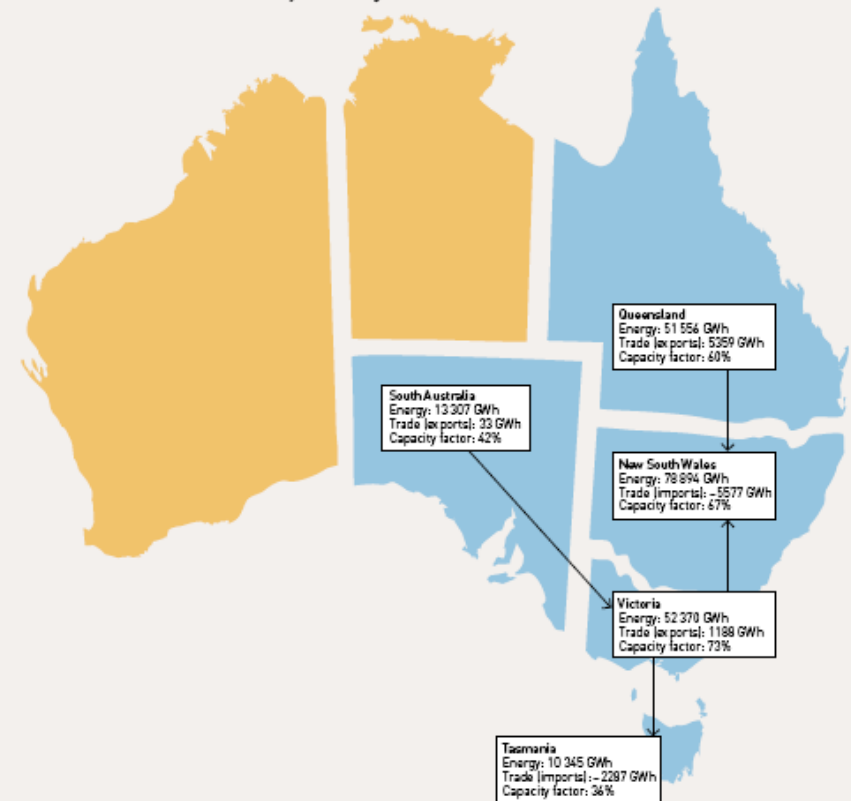


INTER-REGIONAL TRANSMISSION CHARGES

- Single interconnected network across NEM
- Investment to facilitate flows of electricity between regions likely to become more important
- Recovering transmission costs by region is unlikely to be cost-reflective
- **Draft recommendation to oblige transmission businesses to levy charges to serve notional 'loads' at region boundaries**

Figure 2.5

Trade flows across National Electricity Market regions in 2007–08



GWh, gigawatt hours.

Notes:

1. Energy refers to electricity consumption.

2. Capacity factor refers to the proportion of local generation capacity in use.

3. The Snowy region (not shown) was a net exporter of 1809 GWh in 2007–08. The region was abolished on 1 July 2008. The area formerly covered by the Snowy region is now split between the Victoria and New South Wales regions of the National Electricity Market.

Sources: NEMMCO, AER.

INCENTIVES FOR EFFICIENT NETWORK CONNECTION, INVESTMENT AND USE



STRENGTHENING LOCATION SIGNALS

- Signals for generation location are partial
- No signal of impact on shared network costs, or within-region congestion
- Larger potential economic costs in period of accelerated entry and exit
- **Draft recommendation for generators to face use of system locational charges and incentives to more actively manage pockets of within-region congestion**



CONCLUDING REMARKS

