



Energy Market Design and Promotion of Efficient Emissions Reductions

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A change in energy policy focus



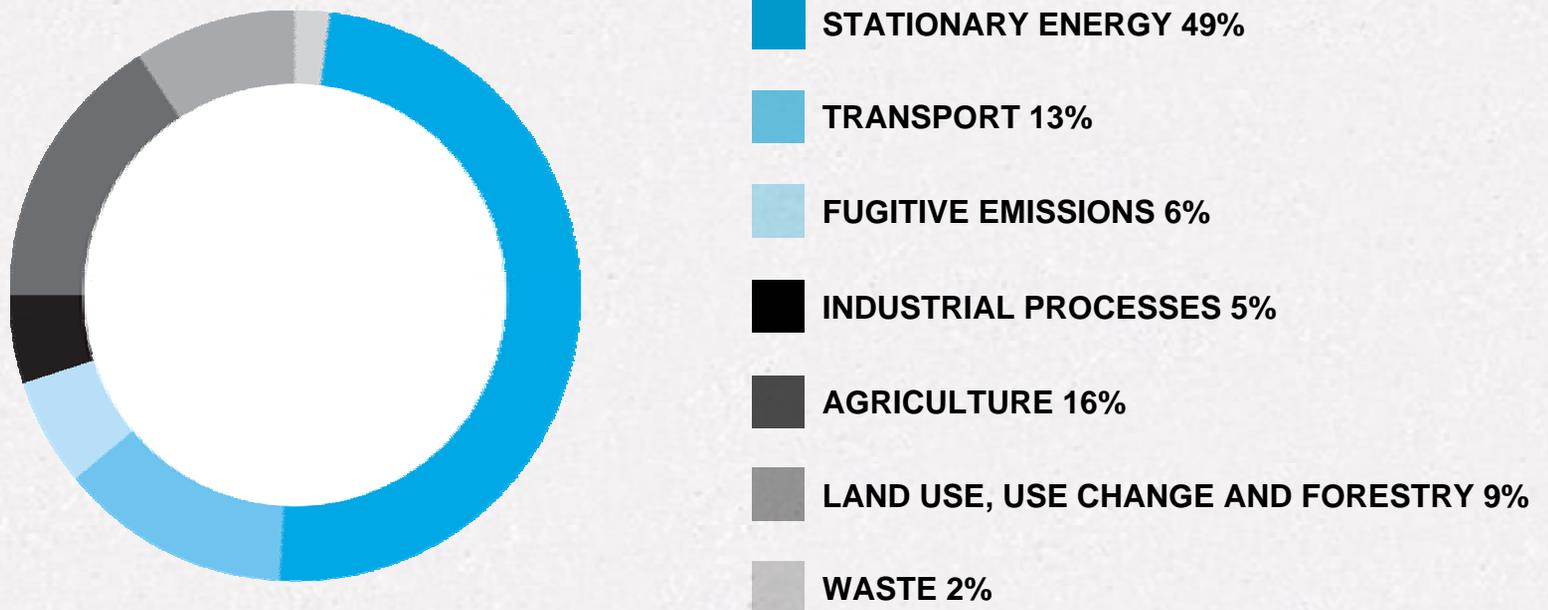
- Original motivation for energy market liberalisation was competition and efficiency
- Now charged with delivery of a different policy objective
 - lower carbon emissions with efficiency and energy security
- Are existing market structures and frameworks consistent with the new policy agenda?

Energy markets are “front and centre”



- Meaningful emission reductions require large-scale change in energy markets
- 49% of Australia’s carbon emissions are from the stationary energy sector
 - Because we rely on coal for electricity generation
- Given effective climate policy still reliant on coal medium term.

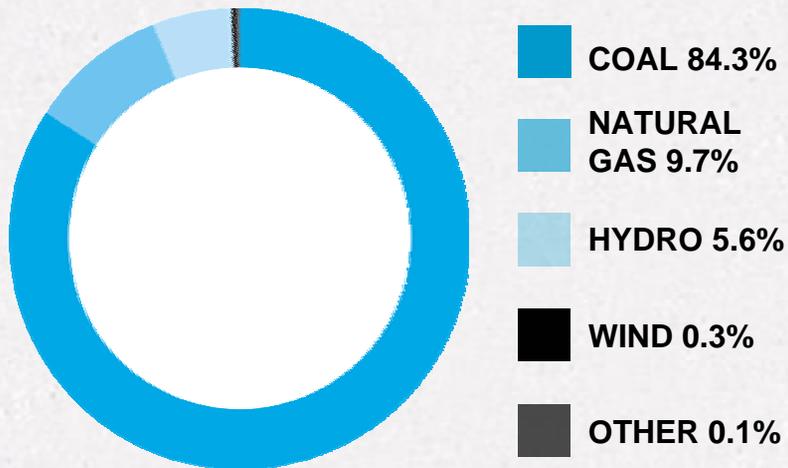
Energy 49% Australia's Carbon Emissions



Still reliant on coal in the medium term

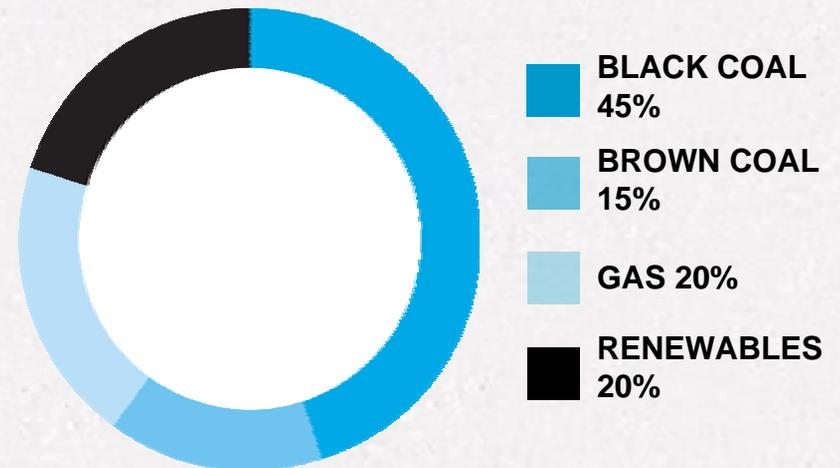


CURRENT



Source: ESAA

2020



Source: Commonwealth Treasury

Australian climate policy



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)

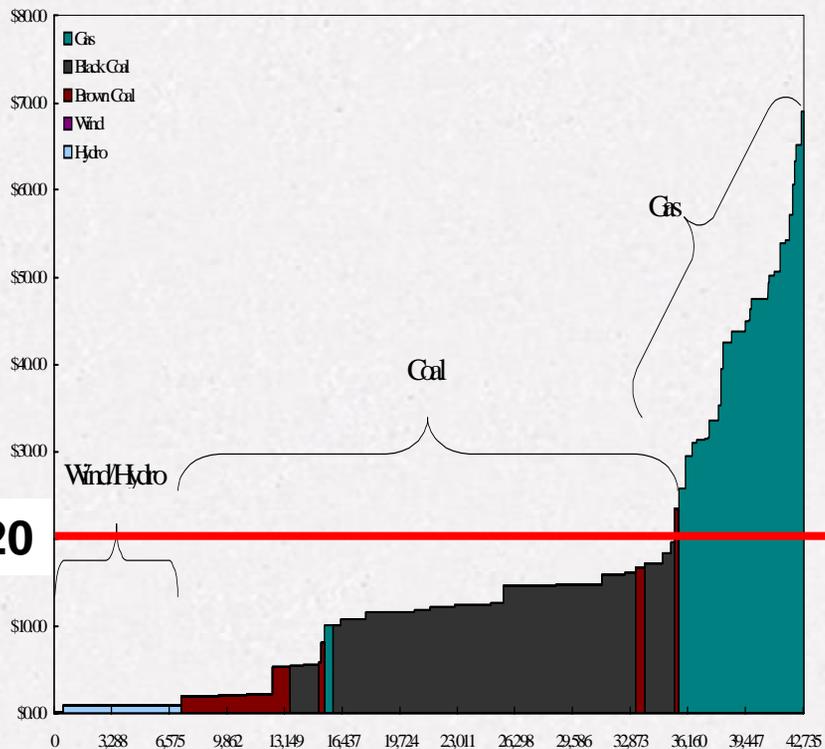
- Obligation on retailers
- % of electricity from Renewables
- Profiled to 20% by 2020

Changing energy market dynamics

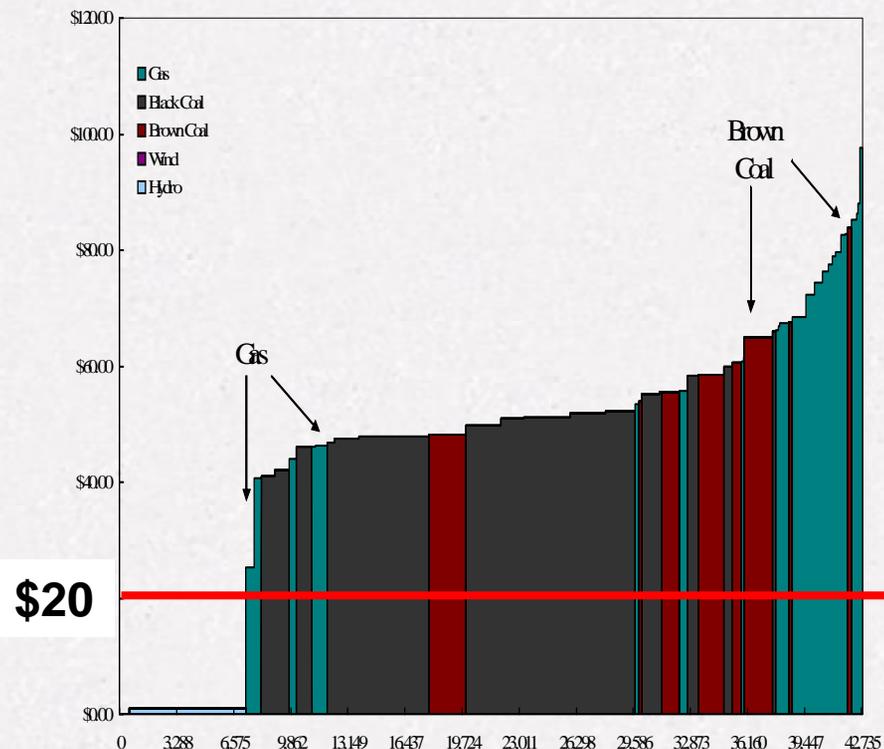


- Pricing carbon will:
 - Increase prices in energy spot and contract markets
 - Increase level of volatility of retail costs
 - Change the pattern of generation entry and retirement
 - Alter the timing and location of new transmission investment
- The obligation for retailers to buy a proportion of supply from renewable sources will:
 - Compound the change in generator entry
 - Initially, focus on wind-powered generation
 - Increase intermittent output, in potentially remote locations

Absolute & relative generation costs

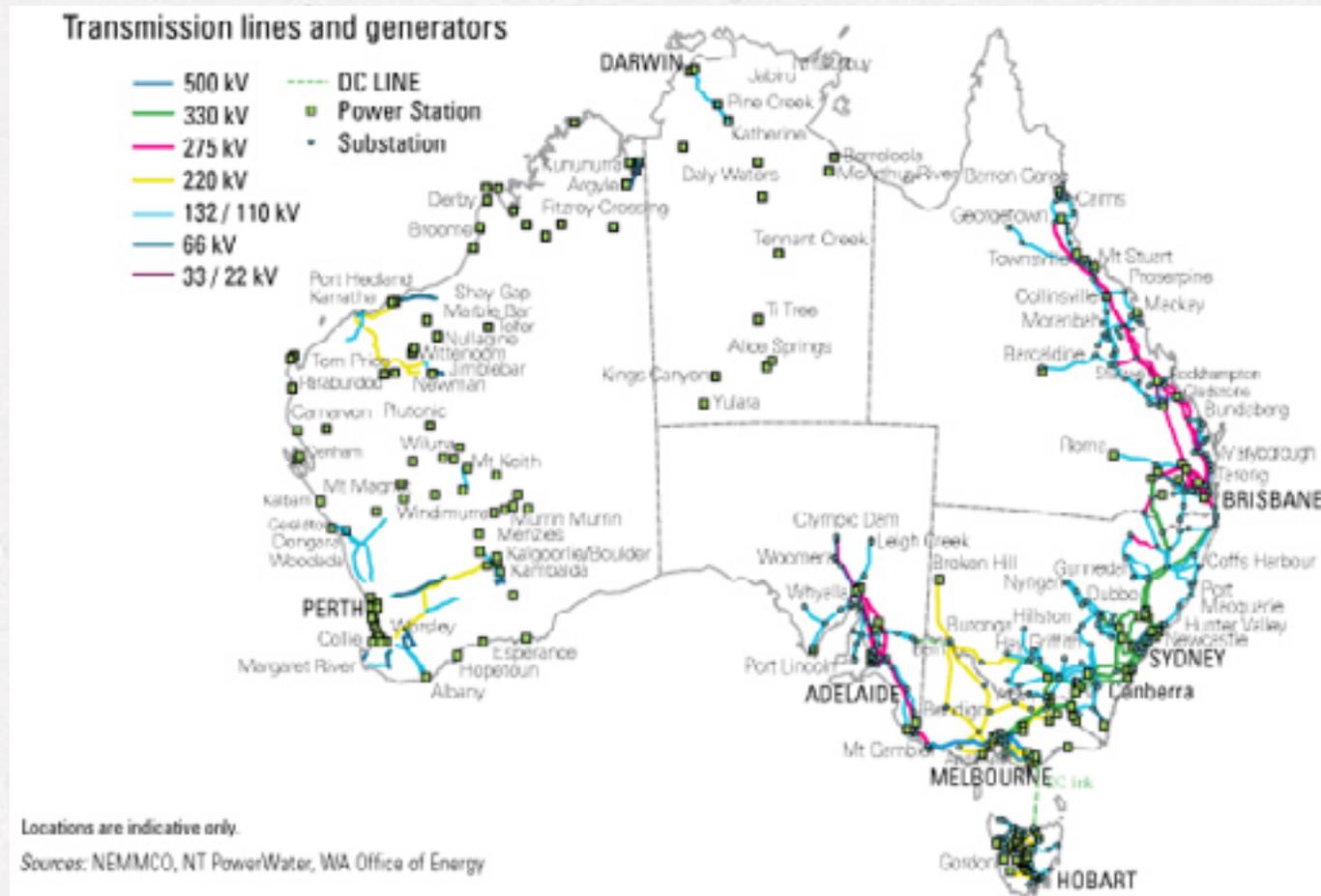


Current running costs



..with \$40 carbon price

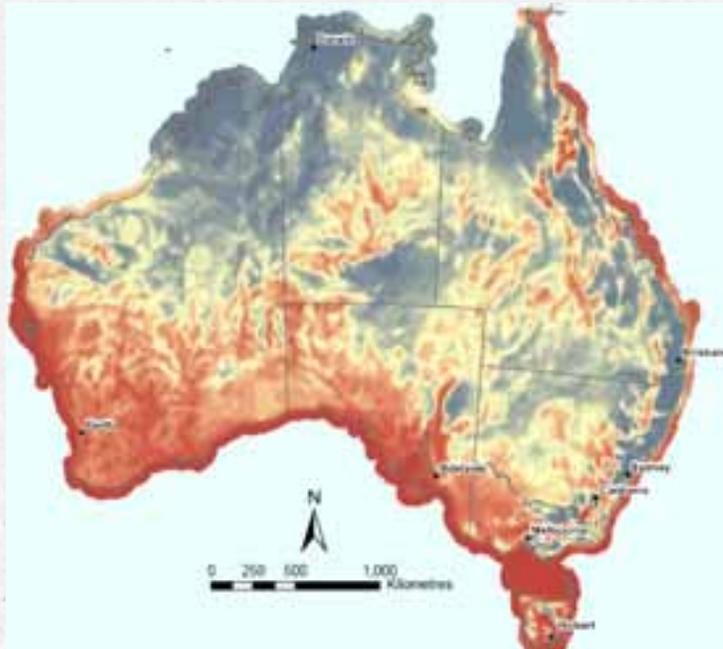
Australia's current electricity transmission and generation



Australia's wind and geothermal resources



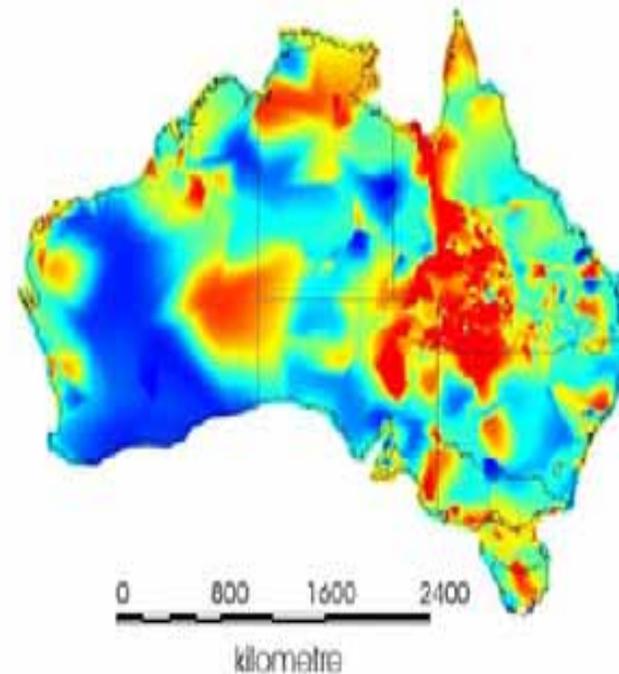
Mean Wind Speed



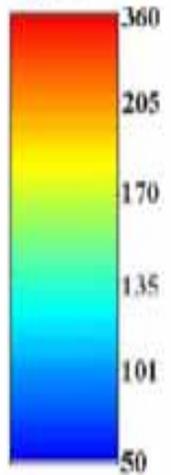
Metres per Second



Heat Flow Map



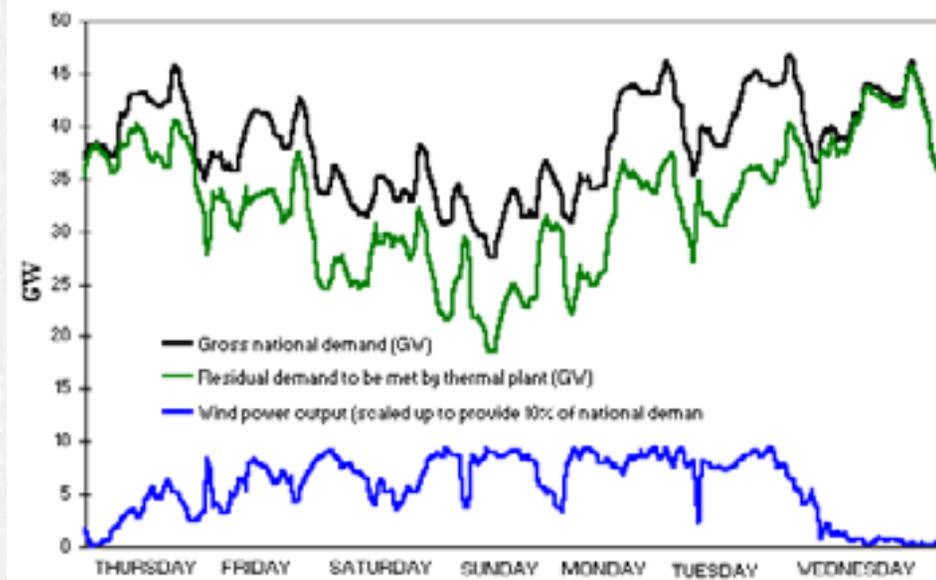
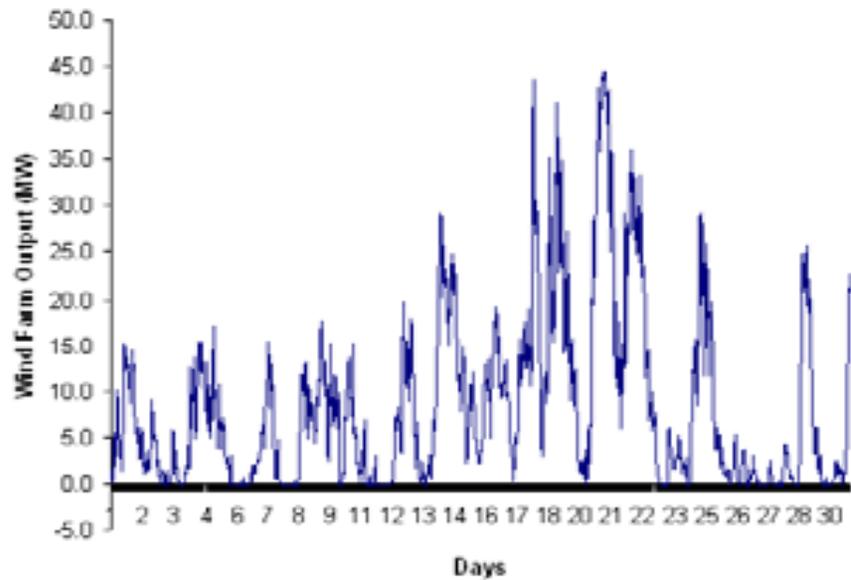
Degree C



Source: www.environment.gov.au/renewable/atlas

Source: <http://www.rise.org.au/info/Res/geothermal/index.html>

More highly variable generation output



AEMC Review



- Directed to undertake a review on behalf of Australia's council of energy Ministers
- Stress test of current market frameworks against ETS and 20% Renewable Energy Target
- Reported to Ministers last month, following 14 months of analysis and consultation
- Key findings:
 - many aspects of the framework appear resilient
 - but a number of changes are required

Delivering generation and network investment



- “Energy Only” market can signal required generation investment.
 - Ability to raise price cap
 - Climate policy changes signals does not invalidate market mechanism
- Economic regulation of networks can incentivise and finance efficient investment
- But some refinements proposed

Findings (1)



- **Retail**
 - Price regulation, where maintained, needs to be more flexible to cope with uncertainty in carbon inclusive energy costs
 - Necessary to mitigate risk of regulation-induced retailer financial distress
- **Transmission investment planning**
 - Regulatory framework needs to provide for investment in initially ‘over-sized’ connection assets to support prospective new (particularly remote) generation clusters
 - Benefits because of large scale economies – but also risks of asset stranding

Findings (2)



- **Transmission cost recovery**
 - Greater inter-regional flows mean cost recovery on a regional basis is increasingly problematic
 - Proposal for inter-regional transmission charging regime
- **Generation**
 - Significant new entry and exit highlights need for robust locational signal
 - They can mitigate trading risks from network congestion, and risk of inefficient transmission investment
 - Proposal to develop ‘deeper’ connection or use-of-system charges for generators