

Australia Power Market Trends

Mark Hutchinson & Zi Sheng Neoh

Power & Renewables Consulting, APAC

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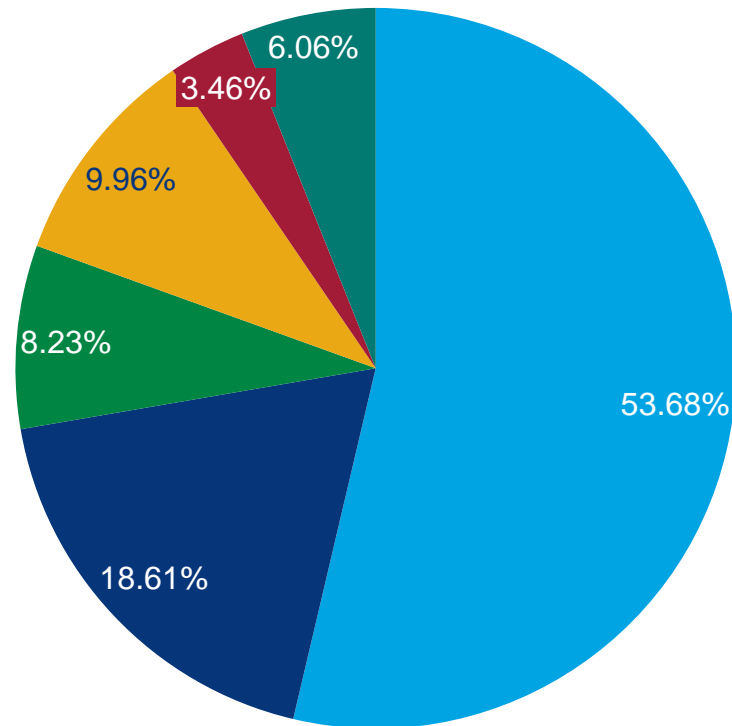




Australia Power Market Landscape

Coal still dominates the NEM energy mix at 73% in Q2 2018 generation mix

Australia Q2 2018 Generation Mix

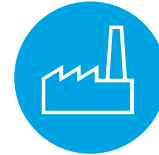


■ Wind
 ■ Solar
 ■ Hydro
 ■ Gas
 ■ Brown Coal
 ■ Black Coal

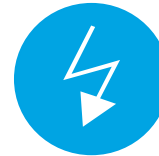
Questions in the Market



Will a new reliability policy take over from the NEG?



With emerging renewables & batteries and FCAS being a small life support to existing peaking plants; how are they going to sustain their operations under the current power market?



What will the Australian government do to drive the retail power prices down?



Will the renewables industry continue to grow without federal policies and clear support for new investments?

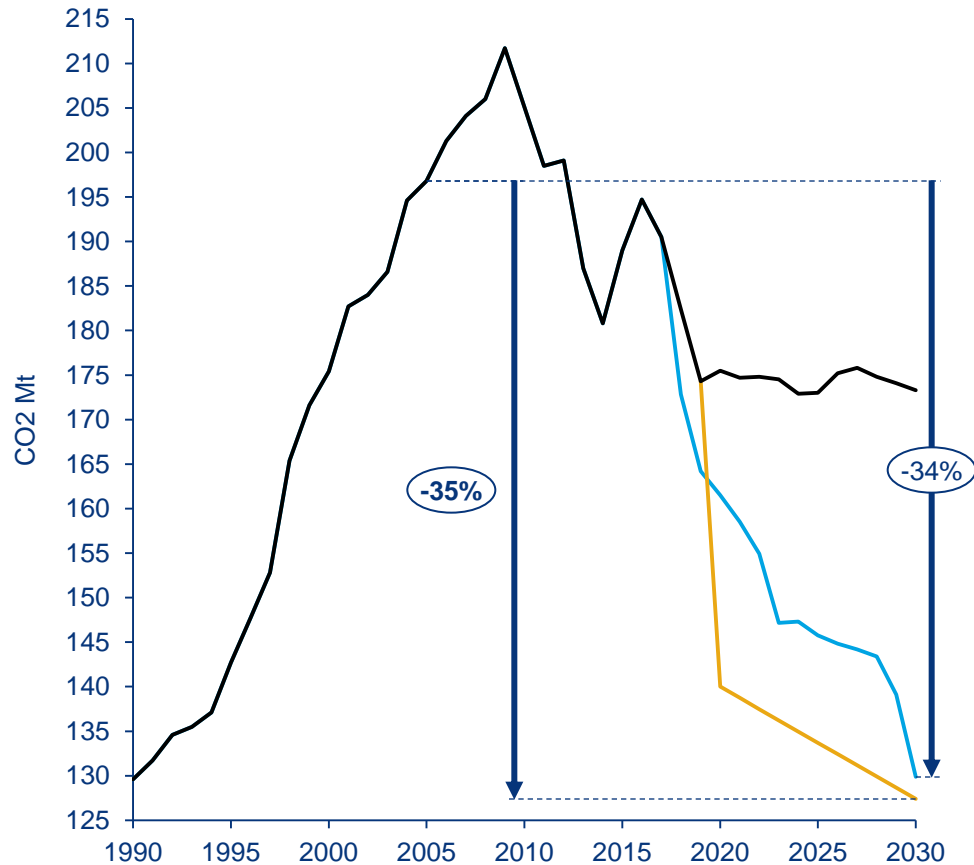


Will there be additional policies (e.g. carbon credits / LGC trading) following the expiry of the RET?

Electricity Sector Carbon Emissions

Australia is committed to reduce overall greenhouse gas emissions to 26–28% below 2005 levels by 2030 – Wood Mackenzie projects a 34% reduction in electricity sector CO₂ emissions

Electricity Sector CO₂ Emissions (M t CO₂)



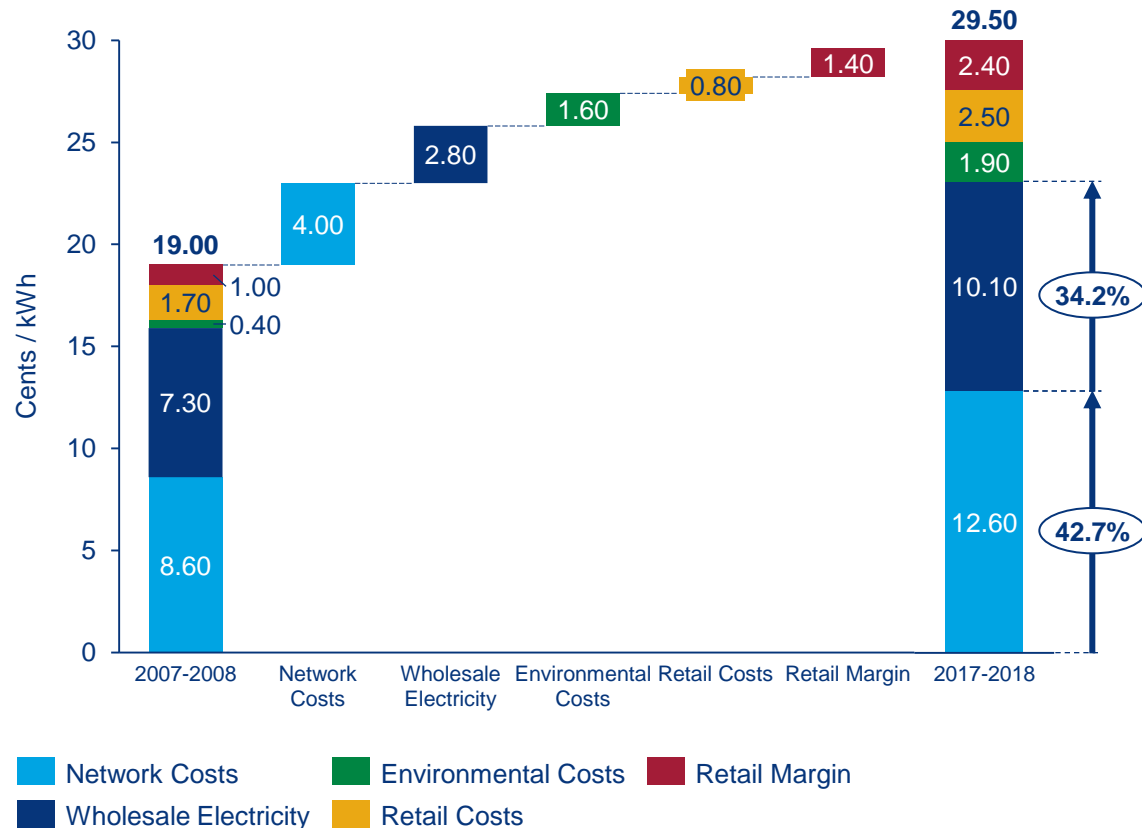
— Wood Mackenzie Trajectory — AEMO Reduction Trajectory — Australian Govt Forecasts - 2017

- Based on WM's emission forecasts, the CO₂ emissions from the electricity industry is expected to reduce by 34% by 2030 from the 2005 levels.
- Based on AEMO's base case CO₂ emissions trajectory from the electricity industry is expected to reduce by 35% by 2030.

Network Cost is part of the equation

What is being done to ensure networks costs do not increase?

Change in average residential customer effective prices (c/kWh)



What is causing network costs to increase?

- New transmission and distribution lines investments
- “Firming Costs” of renewables – Costs associated to maintain the reliability of the grid.
 - Ancillary service (FCAS) payments / firming costs are recovered from Electricity Retailers or “Market Customers” under the AEMO context

Increasing penetration of renewables without a proper reliability based / capacity market mechanism will potentially cause the firming costs and power prices to fluctuate, towards a higher trend.