

Australia's Future CO₂ Geo-sequestration Potential

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Australia's Contribution to the Global Carbon Cycle

- 1 Mt CO₂ = 1 000 000 tonne of CO₂
- For the year 2000, global CO₂ emissions = 24 000 Mt CO₂ /yr
- Australia's total CO₂ emissions = 550 Mt CO₂ /yr which represents about 2.3% of the global total

Australia's CO₂ emissions by sector

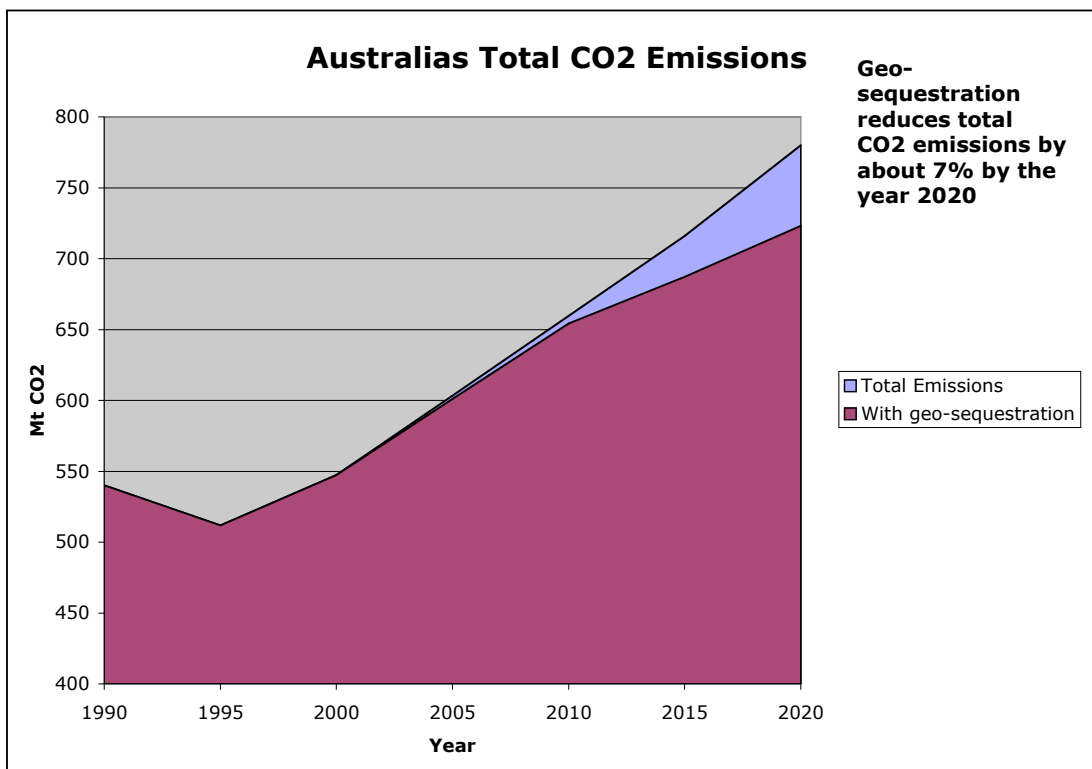
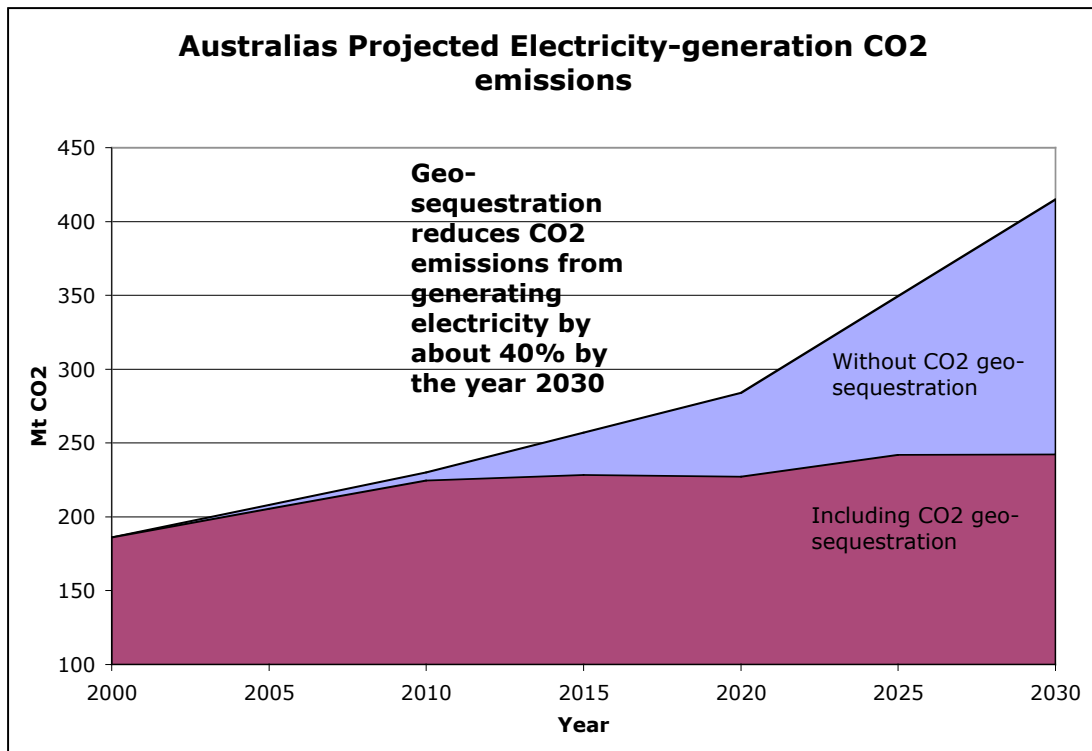
- Annual CO₂ emissions from the stationary energy sector contribute the most (48%) with agriculture (19.2%) and transport (14.4%) other significant contributors.
- Electricity generation currently emits about 190 Mt CO₂ /yr comprises about 70% of the stationary energy sector and contributes about 33% of Australia's total emissions.
- Therefore there is a large potential for reduction in CO₂ emissions from electricity generation!

Growth of Electricity Generation and its CO₂ emissions in Australia

- Electricity demand grew 4% annually, over the last 20 years
- Australia is hugely dependent on coal for its energy requirements
- Coal produced 78% of Australia's electricity needs during 2000-01 and is forecasted to grow by about 1.1% over the next 20 years
- Coal emits more CO₂ per kg than any other fossil-fuel. Therefore, it comprises 92% of the CO₂ emissions associated with electricity generation
- CO₂ emissions from electricity generation is expected to increase by about 40% from about 200 Mt CO₂ during the year 2004 to about 280 Mt CO₂ during the year 2020.

Maximum Potential Reduction in CO₂ Emissions from geo-sequestration

- NB: These numbers are preliminary and calculated from various projections within the Australian governments recent 'Securing Australia's Energy Future' white paper (http://www.dpmc.gov.au/energy_future/)



- **Summary :** Based on this analysis, carbon geo-sequestration reduces Australia's CO₂ emissions from electricity generation by ~20% during 2020 which represents ~7% of Australia's total CO₂ emissions.