

Australia's coal outlook in a warming world – Insights from integrated assessment models

Key messages

- Taken together, the 100+ national 2035 emissions reduction targets broadly track a straight-line path from 2030 targets to net-zero goals, underscoring continued commitment to long-term decarbonisation.
- Global action to achieve the targets countries have submitted, and limit warming to 1.5°C, even with temporary overshoot, will drive rapid declines in global coal demand, directly affecting Australian coal exports and domestic use.
- Our analysis of coal demand in Australia's key markets indicates that by 2035, thermal coal exports could fall by 64% or more, and metallurgical coal exports could drop by 28% or more in these scenarios.
- Australia's own 2035 thermal coal use is projected to be 86 to 93% lower in these scenarios.
- A proactive coal phase-out strategy is essential to manage economic risks associated with this changing demand for Australia's exports, support regional transitions, and meet international climate goals.

Policy issues

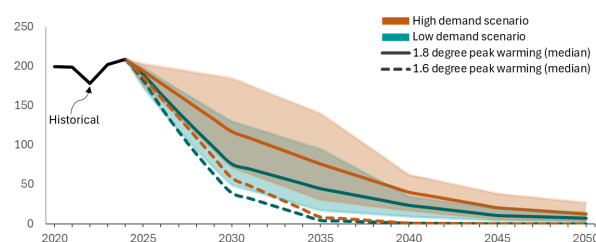
In 2024, global average temperatures surpassed 1.5°C above pre-industrial levels for the first time, marking a critical threshold and capping the warmest decade on record. The IPCC and IEA warn that, without urgent mitigation, existing fossil fuel infrastructure alone will drive long-term warming beyond 1.5°C. The economic opportunities in a well-managed energy transition have been explored in recent work, including 2025 Treasury modelling. As a major fossil fuel exporter, Australia faces risks and opportunities, during the transition. A clear national coal phase-out strategy could manage risks of economic disruption, missing clean energy investment, and falling short of Paris Agreement commitments. Given that Australia's coal exports depend on international demand, particularly from India, China, Japan, South Korea, and Taiwan, its economic outlook must be grounded in global climate action.

Findings

→ Coal demand under 1.6°C and 1.8°C scenarios

Australian Thermal Coal Exports (Mt)

Shaded bands represent 13th - 87th percentile for 1.8°C peak warming scenarios



Australian Metallurgical Coal Exports (Mt)

Shaded bands represent 13th - 87th percentile for 1.8°C peak warming scenarios

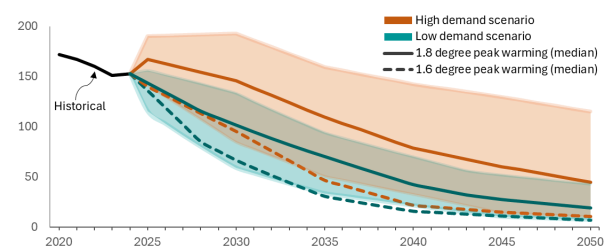


Figure: Projected changes (median and the 13th and 87th percentile range) in Australia's thermal and metallurgical coal exports – low and high demand cases – derived using NGFS5 scenarios evaluated at peak warming of 1.6°C and 1.8°C

We assess future coal demand scenarios generated by global climate models (NGFS Phase 5 (2024) that align with global action to limit peak warming to either:

- **1.6°C ('1.5°C with low overshoot')** – Warming stabilises around 1.5°C by 2100, allowing for a temporary overshoot of up to 0.1°C.
- **1.8°C ('well-below 2°C', or 1.5°C with high overshoot)** – Warming temporarily exceeds 1.5°C by a greater margin before declining.

→ Export market impacts and Australia's market share

Thermal coal exports are projected to decline significantly (50th percentile):

- By 2035 (relative to 2024):
 - Down 64–78% in 1.8°C scenarios.
 - Down 96–98% in 1.6°C scenarios.

Metallurgical coal sees slower decline:

- By 2035:
 - Down 28–54% in 1.8°C scenarios.
 - Down 69–80% in 1.6°C scenarios.

We define two cases for Australia's share in this shrinking market:

- High demand: Australia retains its current market share.
- Low demand: Key markets (China and India) preference local over Australian supply.

→ Domestic coal demand and phase-out

Australia's domestic coal consumption is also projected to fall steeply:

- Thermal coal demand drops (relative to 2024):
 - 59% by 2030 and 86% by 2035 under 1.8°C scenarios.
 - 76% by 2030, and 93% by 2035 under 1.6°C scenarios.

These declines align with AEMO's Step Change scenario, suggesting that many coal-fired power stations may retire earlier than planned from cost pressures and competition from renewables.

Policy implications and recommendations

- Export markets for coal are shrinking; failing to plan for this shift risks impaired assets and regional economic shocks.
- Thermal and metallurgical coal require distinct phase-out strategies based on their market dynamics and regional export profiles.
- Australia's energy transition is accelerating, with domestic coal demand already declining.
- Australia would be prudent to:
 - Develop a national coal phase-out roadmap, distinguishing between thermal and metallurgical coal, aligned with Paris targets.
 - Increase support for coal regions with targeted transition plans and investment in clean industries.
 - Cease approval of new coal projects, consistent with international climate guidance.
 - Develop strong implementation goals to champion globally.

Limitations of this analysis

- Projections are scenario-based and carry uncertainty due to evolving policy, technology, and market conditions; and domestic projections depend on energy market trends, investor decisions, and government policy, which may shift.
- Export assumptions vary depending on global demand and Australia's market share.
- Median results are presented, but outcomes may fall across a range (13th–87th percentile).

Full report:

Burdon, R., Talberg, A., Spiller, K., Lewis, J., & Meinshausen, M. (2025). *Australia's coal outlook in a warming world; Insights from integrated assessment models*. Climate Resource.

https://www.climate-resource.com/reports/decarb-futures/2025-12-11_Australias_coal_outlook_in_a_warming_world.pdf