

Fact Sheet:

Untapped opportunities to reduce Australian industrial emissions



Industrial heat pumps can slash gas use in food & beverage and alumina



Existing ammonia plants are an ideal first user for green hydrogen



There is a strong economic case for prioritising cutting fugitive emissions



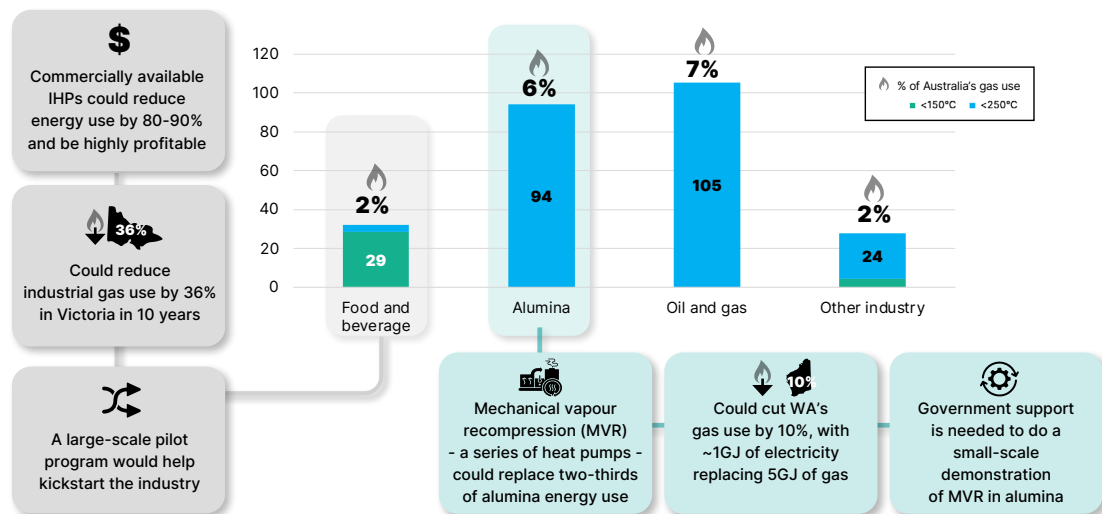
Restricting fossil fuel developments would be in Australia's best interest

Industrial heat pumps

Industrial heat pumps could replace 17% of Australia's gas use

Estimated gas use that can be electrified with industrial heat pumps (IHPs), GJ

Heat pumps could reduce energy use by 80% or more in food and beverage and alumina production, two sectors primarily located in states facing large excess gas demand in the coming decade.



Shift to green hydrogen in existing ammonia plants

Up to 30% of the gas feedstock used in existing ammonia plants could be switched to green hydrogen without major upgrades, which could create large volumes of near-term demand for green hydrogen. A proposed project in Western Australia presents a rare opportunity to demonstrate green ammonia production at scale.

Prioritising green hydrogen subsidies for applications in existing ammonia plants would deliver multiple benefits from government funds: kickstarting the green hydrogen industry; reducing Australia's emissions; and alleviating upcoming gas market tightness. Miners, who use half of Australia's ammonia in explosives, could comfortably absorb the modest residual cost premium.



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Industrial heat pumps key to addressing excess gas demand



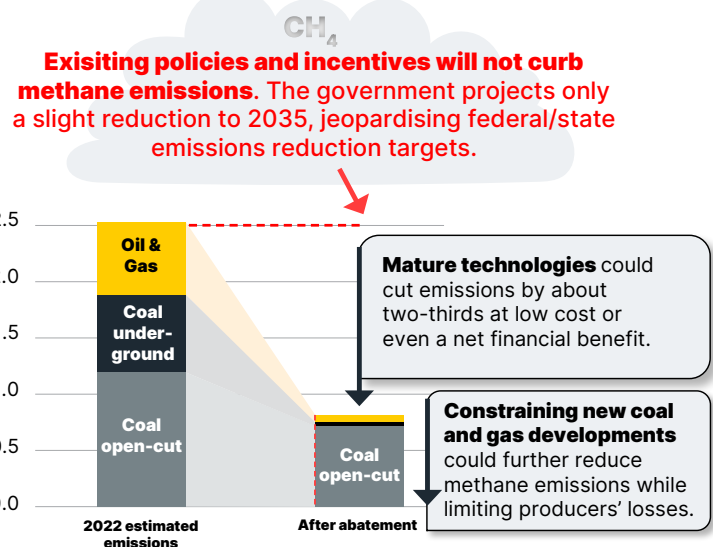
Local ammonia production the ideal early adopter for green hydrogen



New coalmines could deliver zero royalties and a methane headache for Queensland

Fugitive methane emissions reduction

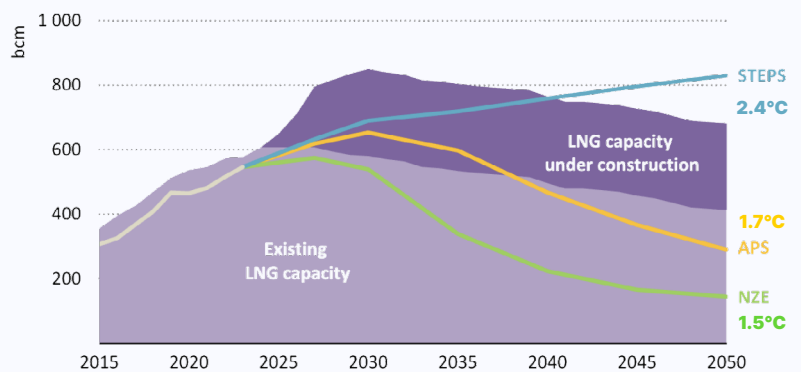
- Methane emissions from coal, oil and gas could increase under current policies and jeopardise emissions reduction targets.
- Australia could abate two thirds of its fossil fuel methane emissions using readily available technologies, at a net cost of about \$1 per tonne of coal in coalmining, and at a net financial benefit in the gas sector due to the option to sell the methane captured.
- About 76PJ of methane could be recovered each year – more than twice the amount of gas anticipated to be required for power generation in the National Electricity Market in 2025. This represents a lost value of about A\$933 million.
- Federal and state governments must act urgently to address the problem; Australia lags Europe, the United States and China in implementing effective regulation and price signals.



Restricting fossil fuel developments

- Based on projects now under construction, the world is heading for an enormous LNG supply glut. The IEA expects prices would need to drop far below production costs to absorb all new supply. Further additions to LNG supply will increase pressure on prices.
- Similarly, IEEFA has found that multiple coal mine expansions could deliver net financial losses and no royalties for governments.
- New fossil fuel projects are highly emissions-intensive. Australia should carefully consider the net cost of new fossil fuel developments with very limited economic benefits for the country.

LNG trade scenarios relative to existing and under construction capacity to 2050



Source: International Energy Agency (IEA), *World Energy Outlook 2024*

CCS is not a reliable or cost-effective solution

IEEFA's research has found that carbon capture and storage (CCS) has a history of poor performance, with a majority of large global projects failing or underperforming materially.

Two projects in Norway, touted as 'success stories' for CCS, demonstrate the material ongoing risks of CCS after they faced significant geological challenges.

CCS is unlikely to be a cost-competitive way to reduce emissions in most sectors. In the last two years, for example, the Gorgon CCS project saw costs exceeding \$200 per tonne of CO₂ captured.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy.

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