Institute for Energy Economics and Financial Analysis

Fact Sheet

Reducing industrial emissions is not always hard and costly

We identified 6 opportunities to reduce industrial emissions and cut costs

Many deliver other benefits, such as improved productivity, working conditions and energy security

Australia lags other countries on their uptake due to lack of effective policy incentives

Energy management



Companies which implement best practice energy management cut energy use by:

▶ 11% in years 1-3

▶ 25% in years 7-9

with no/low-cost measures. For every dollar saved on energy, other benefits can add > $1 in value.

✘ Australia has the lowest rate of energy management certification and policy of top 25 energy-consuming countries.

✓ Many countries have implemented energy management regulation, while others rely on voluntary schemes. Financial incentives are also used.

Low grade heat electrification



▶ Industrial heat pumps (IHPs) can save 80-90% of energy use in the food and beverage sector, reduce water use and improve throuput.

▶ This could cut industrial gas use by 36% in Victoria, mitigating forecast gas shortages.

✘ Implementation is still emerging in Australia, with many barriers including lack of metering, supply and skills gaps and time for grid upgrades.

✓ New Zealand has captured >1/4 of its potential, with a comprehensive program including incentives and data.

Mining electrification



▶ A mine found electrifying its fleet would lower its electricity use due to cooling and ventilation savings.

▶ Adapting mine design to electrify can be profitable, e.g. to use an electric hoist instead of diesel trucks.

▶ Mines have used electric drills, draglines and shovels for decades.

✘ Most miners have delayed their electrification plans to the late 2030s in Australia, with mining diesel use expected to continue to grow at pace.

✓ In 2024, already 15-30% of new haul trucks were battery electric vehicles in Canada, thanks to tax incentives.

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Not so hard to abate

Renewables in remote mines



▶ Since 2023, mining and resources companies have been the largest buyers of renewable electricity, to reduce diesel costs, emissions, and improve energy security.

▶ Many mines are now using 80%+ renewables, through private build-own-operate arrangements.

✘ In the Pilbara, renewables account for just 2% of electricity generation.

✓ Chile adopted a 90% renewables target by 2030 for the mining sector. Companies including BHP, Rio Tinto and South32 committed to the target. BHP already achieved 100% renewables in Chile in 2022.

Clinker substitution



▶ Clinker makes up ~90% of cement emissions, but can be replaced by other cleaner materials.

▶ Some substitutes can be cheaper than clinker, such as limestone or industrial byproducts such as slag or fly ash.

✘ Australia's clinker to cement ratio sits at 84%, materially higher than the global average of 71%.

✓ Germany reduced its clinker to cement ratio from 83% in 1990 to 69% in 2023. Updating building product standards was a key enabler.

Methane capture in coal and gas



▶ Captured methane can be used or sold. 76PJ of methane could be recovered each year, more than last year's gas use in the NEM.

▶ >50% of gas methane emissions could be cut for a net benefit. The rest could be cut for a cost lower than Australian carbon offsets.

✘ Australian coal and gas companies are preferencing carbon offsets to reducing their methane emissions.

✓ China mandated methane capture in underground coalmines (~80% of its coal methane emissions) from 2025 for new mines and from 2027 for existing mines.

Policy reform is needed to capture this potential

Safeguard Mechanism reform

▶ The Safeguard Mechanism has not been effective at driving uptake of these opportunities.

▶ The use of carbon offsets needs to be constrained, especially when companies have access to emissions reduction opportunities at lower cost.

▶ Coalmine baselines should also be reformed so that open-cut coalmines face a requirement to reduce their emissions.

Complementary policies

Countries which are making progress on those opportunities all have policies in place that directly target them, including:

▶ Energy management policies

▶ Financial incentives for decarbonisation plans and clean technologies

▶ Cement standards update

▶ Mining renewable electricity targets

▶ Methane capture requirements

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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