

# Not Measured, Not Managed: Australia remains ignorant of its coal mine methane problem

Independent studies, collated and assessed by Ember's new [Coal Mine Methane Reporting Data Tracker](#), suggest that Australian coal mines could be emitting up to double the amount of methane they report to the government. Australia's significant coal mine methane problem shows that we must tackle this pollution at the source, with accurate measurement underpinning mitigation.

Published date: 29th November

Authors: Annika Reynolds and Dr Christiane Yeman

In recent years, Australia has sought to shift from being a climate laggard to a responsible international actor, aligned with the rest of the globe in tackling climate change, and has [legislated](#) its commitment to reach net zero by 2050.

Despite this, Australia's coal mines are leaking increasing rates of potent methane, without proper measurement or mitigation measures. In 2021, the Australian government [reported](#) that coal mines released 73% of Australia's energy sector methane emissions. Evidence is mounting, however, that these reported coal mine methane emissions could be a significant under-estimate.

Methane is a potent and fast-acting greenhouse gas, which is 82.5 times more powerful than carbon dioxide over 20 years. Cutting short-lived potent greenhouse gases, like methane, is critical for combating global heating this decade and buying time to reduce Australia's overall emissions to zero. It can no longer be ignored.

---

## All Pledge and No Action: Australia fails to meet best practice in coal mine methane reporting

Ember's new [Coal Mine Methane Data Tracker](#) tool compiles and assesses three independent studies, using different methodologies, that show that Australia's greenhouse gas and energy reporting laws are failing to capture the true extent of coal mine methane pollution.

Australia received a [score](#) of four out of six in the Coal Mine Methane Data Tracker, indicating only medium confidence in the country's reported emissions. There was a deviation of over 50% between reported coal mine methane emissions to the UNFCCC and the three independent studies assessed. Notwithstanding Australia's significant economic and scientific resources, our analysis found that the robustness of Australia's coal mine methane estimation methodologies and subsequent alignment between government reported emissions and independent estimates, was only *average*.

Australia continues to rely on outdated and inaccurate methods for estimating coal mine methane emissions. Around [80% of Australia's coal production](#) is able to, pursuant to the [National Greenhouse and Energy Reporting Act 2007 \(Cth\)](#), report their emissions using [generic factors](#) instead of actually measuring those emissions.

Despite committing to the [Global Methane Pledge](#) in 2022, Australia has so far failed to improve its coal mine methane measurement laws to underpin genuine and ambitious emissions reduction. After all, a [central pillar](#) of the Pledge is the commitment to "continuously improve the accuracy, transparency, consistency, comparability, and completeness of national greenhouse gas inventory reporting".

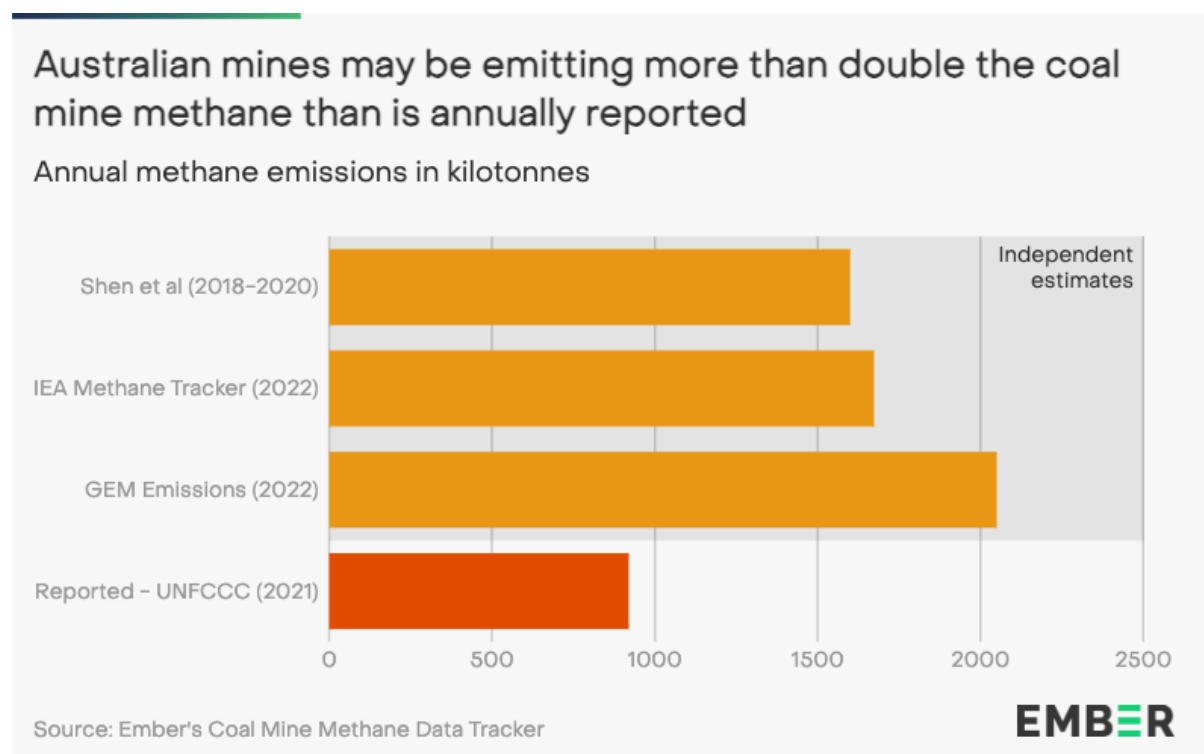
It is therefore no surprise that, in the year since signing the Pledge, Australia has made limited progress in tackling those emissions, even though reducing coal mine methane emissions globally is estimated to be [4 times cheaper](#) than addressing agricultural methane. In the dark regarding the extent and exact sources of its coal mine methane emissions, Australia has not developed a national Methane Action Plan, or set sectoral targets to reduce energy methane emissions.

## Uncertainties in Australia’s National Coal Mine Methane Emissions Inventory

In 2021, Australia [reported](#) that 920 thousand tonnes of methane were emitted from its coal mines. But a range of independent estimates, relying upon differing methodologies, casts doubt upon the accuracy of Australia’s inventory.

Compared to what is reported to the UNFCCC, the International Energy Agency’s [2023 Methane Tracker](#) estimates that Australia’s coal mine methane emissions were around 1.67 million tonnes in 2022. This indicates that Australia is under-reporting its coal mine methane emissions by 82%. Similarly, [Shen et al’s peer-reviewed satellite study](#) of global fossil fuel methane pollution found that Australia’s annual coal mine methane emissions were around 1.6 million tonnes from 2018-2020.

[Global Energy Monitor’s](#) bottom-up study of the likely methane emissions from coal mines across Australia determined that total Australian coal mine methane emissions could be as high as 2.05 million tonnes in 2022. This estimate indicates that Australia is not reporting over half of all of its coal mine methane emissions.



These independent estimates indicate that, every year, Australia may be under-reporting its emissions by between 680,000 and 1.1 million tonnes of methane. This could add up to 20% to Australia's reported methane emissions from all sources. Due to the potency of methane, if we consider the 20 year impact, Australia's coal mines are belching out the equivalent of an additional 56-91 million tonnes of CO2 above what is reported. These un-reported methane emissions strain Australia's climate targets and the integrity of the federal government's [safeguard mechanism](#).

At home and abroad, Australia is being urged to tackle its methane under-reporting and commit to a national plan that prioritises a [75% cut in fossil fuel methane by 2030](#). In October 2023, Prime Minister Albanese met with President Biden and [recommitted](#) to "take strong action at home on methane". Since then, China has released its own methane action plan and the EU has passed global-first [Methane Regulations](#). In Australia, The Superpower Institute has released its *National Emissions Monitoring Roadmap*, that sets a path for Australia to institute accurate methane monitoring standards, as the first critical step to understanding the abatement opportunities.

The technologies for measuring methane are already available, and verification techniques are rapidly improving. With a concerted effort between international partners, the scientific community in Australia and the government, understanding and mitigating this methane source is a feasible, rapid solution to slow near term global warming.

**"Ember's global coal mine methane tracker shows that the Australian government is still in the dark about the scale of methane pollution from our coal mines. We need urgent reform to greenhouse gas monitoring and reporting laws. The technology is there to directly monitor coal mine methane emissions, all that is needed is the political will to implement these solutions."**

**Annika Reynolds**  
Climate Policy Advisor, Ember

