



CLIMATE ENERGY FINANCE

NGER Reporting

2023 National Greenhouse and Energy Reporting (NGER) Scheme updates

Consultation Submission

**National Inventory Systems and International Reporting Branch Department of
Climate Change, Energy, the Environment and Water (DCCEEW)**

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**Tim Buckley, Director, [Climate Energy Finance](https://climateenergyfinance.org)
(tim@climateenergyfinance.org)**

Editor: Annemarie Jonson, Director Communications
(annemarie@climateenergyfinance.org)

About Climate Energy Finance

[Climate Energy Finance](#) (CEF) is an Australian based think tank established at the start of 2022 that works pro-bono in the public interest on mobilising capital at the scale needed to accelerate decarbonisation and the energy transition consistent with the climate science.

We conduct research and analyses on global financial issues related to the global energy transition from fossil fuels to clean energy, as well as the implications for the Australian economy, with a key focus on the threats and opportunities for Australian investments, regional employment and value-added exports. Beyond Australia, CEF's geographic focus is the greater Asian region as the priority destination for Australian exports, particularly India and China. CEF also examines convergence of technology trends in power, transport, mining and industry in accelerating decarbonisation.

CEF is independent and non-partisan, working with partners in the corporate and finance sector, NGOs, government, and progressive social and climate movement organisations in Australia, and is philanthropically funded.

About the Author

Tim Buckley

Tim Buckley, CEF's founder and director, has 35 years of financial market experience covering the Australian, Asian and global equity markets from both a buy and sell side perspective. Before founding CEF as a public interest thinktank in 2022, Tim founded the Australia and Asian arms of IEEFA in 2013 and worked as the Australasian Director on the global energy transition for eight years till the start of 2022. Tim has authored well over 100 reports on the global energy transition in the last decade.

Prior to this, Tim was a top-rated Equity Research Analyst and has covered many sectors of the Australian economy over 2 decades, including spending two years as Head of Equity Research in Singapore at Deutsche Bank covering Asian markets in 1996-1998. Tim was a Managing Director, Head of Equity Research at Citigroup for 17 years till 2008, then spent two years as Head of Institutional Equities at Shaw & Partners and subsequently in 2010-2013 was co-Managing Director of Arkx Investment Management P/L, a global listed clean energy investment start-up that was jointly owned by management and Westpac Banking Group.

Tim started his career as a lecturer in Finance and Market Regulation at the University of Technology, Sydney before moving to Macquarie Group in 1988 to work in equity research. Tim has a Bachelor of Business majoring in Accounting and Finance from UTS Sydney (1985-87), has received the US SEC Series 7 (General Securities Representative Qualification Examination) and Series 24 (General Securities Principal Qualification Examination) qualifications.

KEY RECOMMENDATIONS

Our submission specifically relates to the use of Method 1 for estimating fugitive methane emissions from Queensland open cut coal mines.

We recommend the dropping of Method 1 entirely and implementation of reforms to Methods 2 and 3 such that they are modernised to incorporate the latest science and new methods available, including individual real time public disclosure of monitoring, reporting and verification (MRV) of all facilities covered by the Safeguard Mechanism.

Given the urgency of the climate emergency, we also recommend moving to an evaluation of all methane emissions on a global warming potential of 20 years (GWP20) to drive serious investment by major polluters in the short term at the level of urgency required to hold global warming to 1.5°C.

We also provide a review of the global policy shifts in the last 2-3 years that highlight how global action on climate, and accountability for global warming, is building, with the risks for Australia of its historical dependence on fossil fuel mining and export high and rising. We recommend Australia acts urgently to leverage its once in a century multi hundred billion dollar investment, employment, technology and export opportunities in decarbonisation.

Introduction

We would like to make a submission to provide feedback on the proposed updates to the National Greenhouse and Energy Reporting Scheme consultation.

The NGERs proposed amendments include:

- Introduction of an optional supplementary ‘market-based method’ for determining emissions associated with the consumption of electricity (‘scope 2’ emissions);
- An update to Method 1 for estimating emissions of methane from Queensland open cut coal mines;
- An update to Method 1 for estimating methane released from landfills (other than from flaring of methane); and
- Creation of two new fuel types, renewable paraffinic diesel and renewable paraffinic kerosene.

The amendments are proposed to commence on 1 July 2023 and would apply to NGER reports submitted by 31 October 2024 for the 2023–24 NGER reporting year.

Section 1: The Need for Accurate Measurement

The Office of the Chief Economist (OCE) estimates that in 2022/23 the Australian coal industry exported 364 million tonnes (Mt) worth A\$128 billion, that being 171Mt of coking coal (worth A\$63bn) and 193Mt of thermal coal (worth A\$65bn),¹ making Australia the second largest coal export nation globally behind Indonesia. The industry reported gross profit margins in-excess of 65%, meaning the export sector alone made gross profits of over A\$85 billion in a single year.

Australia meanwhile is concurrently suffering a domestic energy crisis as a result of policy failure combined with the hyperinflation of fossil fuel commodity prices, both in the domestic and global markets. Additionally, the climate crisis is growing more evident with every year.² The adverse impact on the state and federal budgets is likewise increasingly clear, and more adverse with every year.³

Adjusting for measurement errors and a 20-year global warming potential (GWP20) of methane, the coal mining sector of Australia alone is responsible for some 50% of total emissions from the top 215 facilities covered by the Safeguard Mechanism in 2020/21 – refer Table 4, Section 2 below.

Australia now has a Climate Act targeting a 43% national emissions reduction by 2030⁴ and in October 2022 Climate and Energy Minister Chris Bowen signed Australia up⁵ to join the Global Methane Pledge,⁶ a commitment by over 100 countries to reduce anthropogenic methane emissions by 30% on 2020 levels by the end of this decade.

With all this increased ambition to move Australia to become a leader in decarbonisation, in our view, it is ludicrous that Australia is still relying on a three-decade old desktop study by the CSIRO from 1993⁷ which measured methane fluxes in just four valid samples to calculate a Queensland methane emissions factor.

Yet the department⁸ somehow suggests this antiquated desktop study is more reliable than the European Space Agency satellite ‘Sentinel 5p’ to make ‘top-down’ estimates of methane fluxes across Australia and around the world. We note that this satellite tracking is seeing significant global investment, including the [MethaneSAT](#) initiative led by the Environmental Defence Fund as well as a growing number of other initiatives e.g. [EnMAP](#), [Carbon Mapper](#), [CHIME](#) and [EMIT](#), and will expose Australia’s systemic underreporting and greenwash if we don’t move to address accurate and comprehensive reporting practices as soon as practical.

Climate Energy Finance would suggest an industry booking gross profits of \$85 billion in a single year should be able to fund onsite measurements of methane emissions across all its Safeguard Mechanism facilities to allow real time public monitoring, reporting and verification and reporting

¹ Office of the Chief Economist, Resources and Energy Quarterly, March 2023

² [IPCC Sixth Assessment Report](#), March 2022

³ Australian Financial Review, [Chalmers warns of budget hit from natural disasters](#), 12 January 2023

⁴ Parliament of Australia, [Climate Change Bill 2022](#), 8 September 2022

⁵ The Hon Chris Bowen MP Minister for Climate Change and Energy Press Release, [Australia joins Global Methane Pledge](#), 22 October 2022

⁶ [Global Methane Pledge](#)

⁷ Williams & Saghafi (1993) Methane emissions from coal mining – a perspective, Australian coal journal, vol.41, pp.37-42

⁸ Department of Industry, Science, Energy and Resources (2021) Quarterly Update of Australia’s National Greenhouse Gas Inventory: March 2021.

(MRV), particularly now the Safeguard Mechanism legislation requires a formally recognised cumulative budget and a significant 4.9% annual reduction in collective emissions across all major facilities.

We note that the requirement in the Safeguard reforms for producers to conform to international best practice for new fossil fuel production projects is a step forward, where best practice in new gas fields is defined as zero scope 1 emissions.

For methane and nitrous oxides, separate public reporting is also now mandated, distinguishing these greenhouse gases from CO₂. This is a big advance in terms of disclosure. Additionally, the Climate Change Authority has been mandated to review methane MRV and implement any improvements to be brought in by 1 July 2024, a signal of increasing rigour in accounting, and a cornerstone of meaningful emissions reductions – which must happen this decade and next to avert climate catastrophe, not mid century or next century.

As was clearly reported in the Bowen Basin Sadavarte et al 2021 study,⁹ methane emissions intensity can vary very significantly across individual coal mine sites. Applying a single, excessively conservative standard rule of thumb that is entirely inconsistent with the measured top-down methane emissions is completely inappropriate.

The Department suggests in addition to Method 1, two other methods are also available for estimating fugitive methane emissions released during the extraction of coal from open cut mining:

- Method 2: involves estimating the total gas contained by gas bearing strata, modelled, sampled and analysed in accordance with the Australian Coal Industry’s Research Program (ACARP) guidelines and relevant Australian Standards.
- Method 3: is the same as Method 2, but with an increased expectation on standards used. Specifically, AS 2617—1996 Sampling from coal seams or an equivalent standard, and AS 2519—1993 Guide to the technical evaluation of higher rank coal deposits or an equivalent standard.

Even allowing for the proposed 35% increase in the emission factor in Method 1, Methods 2 & 3 are highly preferable to move in line with the factor already being used by the government in its international reporting.

Further, there is a growing and near unanimous body of evidence showing that fossil methane emissions are dramatically under-reported (refer Section 2), such that Method 1 should be abolished entirely for both Queensland and NSW coal mining.

This has been reviewed in detail by independent climate thinktank Ember,¹⁰ who examined the multiple sources of coal mine methane (refer Chart 1) and concluded that in “Queensland, the two gassiest mines emitted 24% of reported scope 1 emissions from coal mines, while in New South Wales the two gassiest mines emitted 29%. Not all coal is equally gassy – the gassiest 25% of coal emits 68%

⁹ Sadavarte et al (2021) Methane Emissions from Super-emitting Coal Mines in Australia quantified using TROPOMI Satellite Observations, Cornell University.

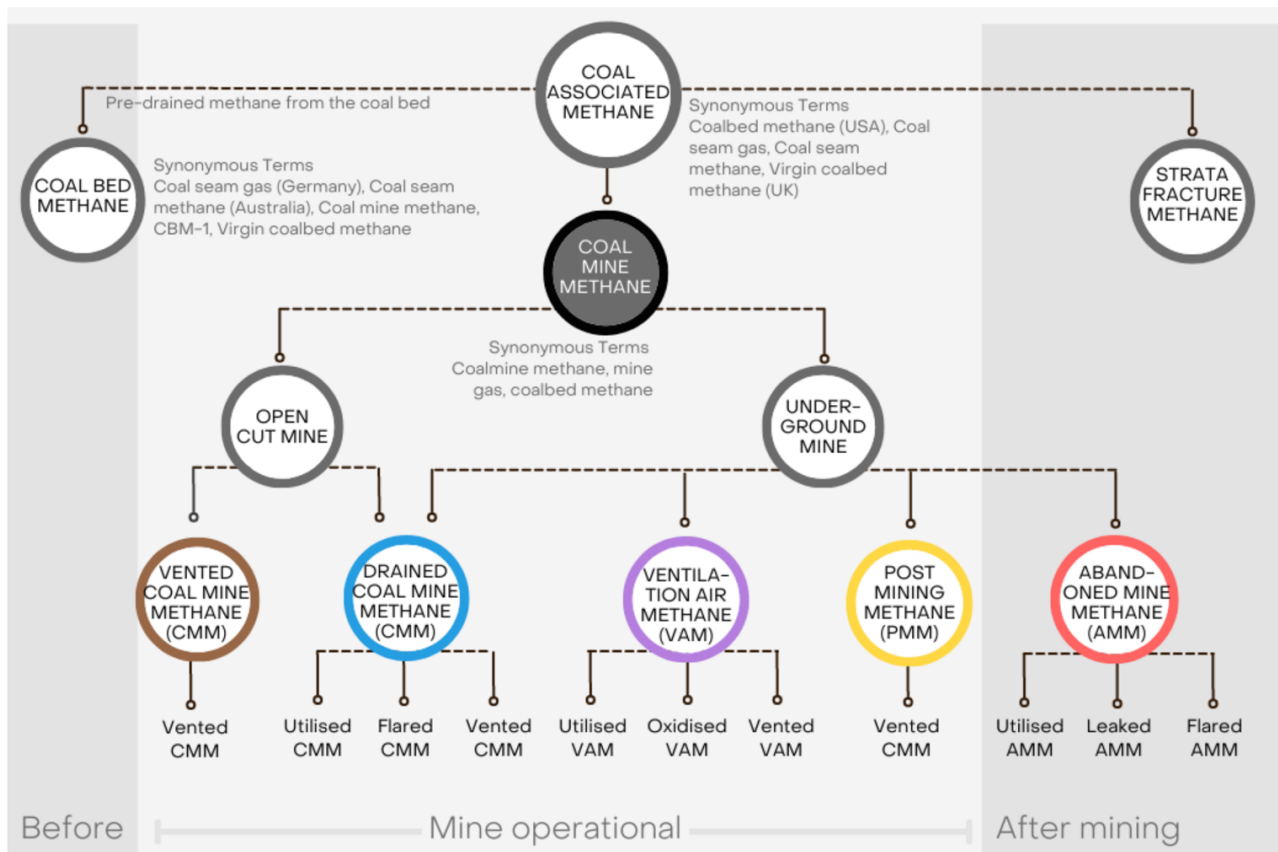
¹⁰ Ember, [Tackling Australia’s Coal Mine Methane Problem](#), 7 June 2022

of coal mine emissions whereas the best performing coal only emits 4%. To realise the most impactful emission reductions, efforts should first be concentrated on the gassiest coal mines.”

As Ember notes, the oil and gas industry together with the International Methane Emissions Observatory (IMEO) has over the last decade developed a consistent methodology for measuring methane leaks, with the latest version being the Oil and Gas Methane Partnership (OGMP) 2.0 Framework.¹¹ Scoping for a parallel partnership to include metallurgical coal producers is already underway. Given that the locations of coal mine methane (CMM) sources are better known, this strategy would be even easier to implement for the coal mining industry.

The United Nations Economic Commission for Europe (UNECE)¹² and the Global Methane Initiative recently released a best practice guide for the effective management of coal mine methane, focussing on MRV systems deployed by national governments.¹³ This guidance could provide a valuable framework for the development of an Australia-specific MRV framework.

Chart 1: Sources of Coal Mine Methane



Source: Ember, *Tackling Australia’s Coal Mine Methane Problem*, 7 June 2022

¹¹ UNEP, *Oil & Gas Methane Partnership 2.0*

¹² UNECE, *An Eye on Methane: International Methane Emissions Observatory 2021 Report*, 31 October 2021

¹³ UNECE, *Best Practice Guidance for Effective Management of Coal Mine Methane at National Level: Monitoring, Reporting, Verification and Mitigation*, December 2021

Climate Energy Finance also strongly advocates for improved MRV standards, including the requirement of independent expert reporting and/or independent peer review, rather than relying on self-reporting by the coal mining firms' staff, noting the obvious ongoing conflict of interest inherent in the current methodologies that clearly allow systemic underreporting, as reported by the International Energy Agency.¹⁴

Without accurate estimation of methane emissions, Australia risks failing to meet its legislated 2030 emission reduction target of 43% in substance. We would strongly advocate for aligning with the climate science that dictates urgent action this and next decade, not over the coming century. As such, we also strongly urge DCCEEW to move to a GWP20 basis for all reporting and evaluation of methane.

1.1 Safety benefits of methane emission monitoring

Whilst outside the remit of this NGER consultation, we note the coal mining sector is already well aware of the mine worker safety issues relating to proper monitoring and reporting of methane emissions. The April 2023 reporting by the Resources Regulator of the Department of Regional NSW on the event on 13 March 2023 at the Whitehaven Coal Narrabri coal mine¹⁵ shows both the importance of a comprehensive onsite real time methane monitoring and reporting system for worker safety, and also the availability and current deployment of such MRV systems. This is a prerequisite to mine operation, so we question the logic of why public disclosure real time of MRV systems across the safeguard mechanism are said to be impossible by the facility operators it is designed to monitor, particularly in light of the IEA et al analysis suggesting rampant ongoing underreporting.

¹⁴ IEA Methane Tracker 2023

¹⁵ Resources Regulator of the Department of Regional NSW, [LHD operator exposed to methane and carbon dioxide gas within unventilated section of underground roadway](#), April 2023

Section 2: Short-term warming effect of methane from fossil fuels in Australia

In March 2023 Climate Energy Finance published a report by Professor Ian Lowe AO in conjunction with Lock the Gate, Short-term warming effect of methane from fossil fuels in Australia and implications for the Safeguard Mechanism.¹⁶

In this Section, we recap the key points:

As a signatory of the Global Methane Pledge, Australia has a legal commitment to play our part in reducing global methane emissions by 30% by 2030. The International Energy Agency (IEA) has calculated that achieving net zero emissions by 2050 will require much faster reduction in the release of fossil methane: 75% by 2030.¹⁷

The majority of direct greenhouse emissions from coal mining, and a proportion from oil and gas, are in the form of methane gas rather than carbon dioxide, whilst most other facilities covered by the Federal Government's Safeguard Mechanism release only carbon dioxide.

Methane is a far more powerful greenhouse gas than carbon dioxide in the short-term and has a Global Warming Potential (GWP) 85 times that of carbon dioxide over 20 years; whilst the Global Warming Potential over 100 years is 25 times that of carbon dioxide.

The report provides an analysis of current direct emissions from facilities covered by the Safeguard Mechanism using the more appropriate timeframe of 20 years, to provide a more accurate estimate of the short-term contribution of methane emissions from coal and gas.

Applying the 20-year timeframe, coal mine emissions increase from 23% of total covered emissions to 43% of total covered emissions, and total fossil fuel sector emissions increase from 51% to 69% of all covered emissions. This highlights that coal mining, and the fossil fuel sector, is responsible for the lion's share of short-term emissions from covered facilities, which pose the greatest risk to the climate in the near term.

However, the threat posed by methane emissions from the fossil fuel sector, in practice, is likely to be even greater than this. The IEA's Methane Tracker concluded that methane released from energy production in Australia last year was 63% more than had been estimated by the Federal Government. If this is accurate and if those estimates are applied to Safeguard Mechanism facilities, coal mine emissions increase to 50% share of total covered emissions and the fossil fuel sector share increases to 77%.

Methane emitters under the Safeguard Mechanism reforms are eligible for unfettered purchase of Australian Carbon Credit Units to comply with their declining baselines. However, offsets under the ACCU scheme will almost exclusively be issued for projects that sequester or avoid the release of carbon dioxide, not methane, because there is still no technically feasible method to drawdown methane from the atmosphere, so there are in fact no credible like-for-like offsets for methane gas.

¹⁶ Climate Energy Finance, Lock the Gate: [Short-term warming effect of methane from fossil fuels and implications for the Safeguard Mechanism by Prof Ian Lowe, 24 March 2023](#)

¹⁷ IEA, [Net Zero by 2050: A Roadmap for the Global Energy Sector](#), May 2021

Allowing carbon dioxide drawdown measures, such as land-based sequestration, to offset methane is therefore flawed (even assuming the highest quality and integrity of ACCUs), given the disparity in short-term warming profiles. Even allowing for non-‘like-for-like’ offsetting of methane with carbon dioxide, the reliance on a 100-year timeframe for calculating emissions means that the actual sequestration achieved on a per tonne basis will be less than 30% of the quantum of carbon dioxide equivalent offsets that would be warranted in the near term to address methane emissions.

Three recent reports have highlighted that likely new fossil fuel entrants to the Safeguard Mechanism scheme will jeopardise the carbon budget proposed. Given the absence of constraints on new fossil fuel entrants and other design weaknesses of the proposed Safeguard Mechanism reforms outlined above, there is a genuine risk of it having no discernible impact on methane emissions.

Therefore, requiring fossil fuel facilities to mandatorily avoid methane emissions and restricting new fossil fuel entrants is the only credible path that will actually lead to genuine emissions reductions under the Safeguard Mechanism and ensure that we meet our international obligations and do our fair share as part of the global effort to avoid dangerous climate change.

2.1 Restating Safeguard Mechanism Emissions

The IEA identified that there needs to be a 75% reduction in fossil methane by 2030 to achieve net zero by 2050. The Global Methane Pledge, to which Australia is a signatory, commits to cut global methane emissions by 30% by 2030.

According to the Clean Energy Regulator, direct (Scope 1) emissions from Safeguard Mechanism covered facilities in 2020/2021 were as follows:

Table 1: Emissions from Safeguard Mechanism Facilities, 100yr Global Warming Potential

Facilities	Scope 1 Greenhouse gas emissions Mt CO₂-e	% Share
Coal mines	31.95	23.3%
Oil & Gas	37.95	27.7%
All other facilities	67	49%
Total all facilities	136.9	

Greenhouse gas emissions from coal, oil and gas facilities include carbon dioxide and methane emissions. Reporting by the Clean Energy Regulator above converts these figures into carbon dioxide equivalent using the standard IPCC conversion for the GWP of methane, but inappropriately used the 100-year timeframe which utilises a GWP of 25.

Methane has far greater heat-trapping potential than carbon dioxide in the short-term, and using a 100-year timeframe obscures the immediate out-sized global warming impact that will result from facilities that predominantly emit methane compared to those that emit carbon dioxide.

As the Paris agreement is based on 2030 emissions, Shindell et al¹⁸ argue that it is more appropriate to use a 20-year time frame to assess greenhouse gas impacts. Shindell uses a figure of 105 for the GWP of methane on a 20-year time scale, while the IPCC uses the range 84-87. For this study, the impact of methane has been calculated on a 20-year time frame with a conservative value of 85.

According to Australian Greenhouse Gas Emissions Information System (AGEIS) emissions data, the volume of methane emissions in Australia in 2020 from the coal, oil and gas sectors were:

Table 2: Reported direct methane emissions from fossil fuel facilities in Australia

	Methane (tonnes)
Coal mines	1,007,000t
Oil and Natural Gas	284,000t
Total	1,291,000t

If the quantity of methane from coal, oil and gas in 2020 was 1.291 Mt, this would equate to 32.28 Mt of CO₂-e using a GWP of 25, but a much larger total of 109.7 Mt using the more appropriate 20-year time scale. This brings the total emissions from coal, oil and gas to 147.32Mt and the total emissions from facilities covered by the Safeguard Mechanism to 214.5 Mt. This means the share of facility emissions from coal, oil and gas rises from 51% over the 100 year period to 69% over the 20-year period.

Coal was responsible for 1.007 Mt of methane, which would have been calculated as 25.2 Mt of CO₂-e. Using the more appropriate GWP of 85, the methane emissions from coal equate to 85.6 Mt. Adding this to the direct emissions of CO₂ from coal mining [31.95 – 25.18 = 6.77] gives a total contribution from coal of 85.6 + 6.8 = 92.4 Mt. This is a significant re-calculation because the use of a 100-year time scale gives emissions from coal as 31.95, or 31.95/136.9 = 23.3%. The more appropriate calculation gives 92.4/214.5 = 43% of all emissions covered by the Safeguard Mechanism.

Table 3: Scope 1 Emissions from Safeguard Mechanism Facilities, 20yr Global Warming Potential

	Greenhouse Gas emissions (Mt CO₂e)	Percentage share
Coal mines	92.4	43%
Oil and gas	54.9	26%
Other facilities	67	31%
Total all facilities	214.5	

Overall, coal mine emissions increase from 23% of covered emissions to 43% of covered emissions, and total fossil fuel emissions increase from 51% to 69% of covered emissions, when applying the 20-year global warming potential of methane to properly quantify short-term impact.

¹⁸ D.T. Shindell, G. Faluvegi, D.M. Koch, G.A. Schmidt, N. Unger and S.E. Bauer (2009), Improved attribution of climate forcing to emissions, Science 326, 716-718

However, the threat posed by methane emissions from the fossil fuel sector, in practice, is likely to be even greater than this. The IEA’s Methane Tracker concluded that methane released from energy production in Australia last year was 63% more than had been estimated by the Federal Government – at 2.23 million tonnes (Mt) of methane.

Assuming this is accurate, the fossil fuel sector’s share of emissions from covered facilities will be even greater than the 69% estimated above. On the basis of this IEA figure, the methane emissions from the fossil fuel sector would be equivalent to $2.23 \times 85 = 190\text{Mt}$ of carbon dioxide equivalent rather than the 109.7Mt calculated earlier. Adding the carbon dioxide released in fossil fuel production would bring the total emissions from that sector to 227.6Mt rather than the figure of 147.3 Mt in Table 3, and the grand total of emissions from all facilities covered by the Safeguard Mechanism to 294.6Mt. So if the IEA figure is accurate, the fossil fuel sector is responsible for $227.6/294.6 = 77\%$ of all emissions.

The IEA data attributes 1.67Mt of the methane emissions, about 75% of that from the energy sector, to coal. This is equivalent to 141.5Mtpa of carbon dioxide equivalent, giving a figure for the annual total emissions from coal of 148.5Mt CO₂-e. T

his calculation strengthens the argument that fossil fuel production must be curbed rapidly to achieve our greenhouse gas reduction target.

Table 4: Emissions from Safeguard Mechanism Facilities, 20yr Global Warming Potential and using IEA Estimates of Australian Energy Methane Emissions

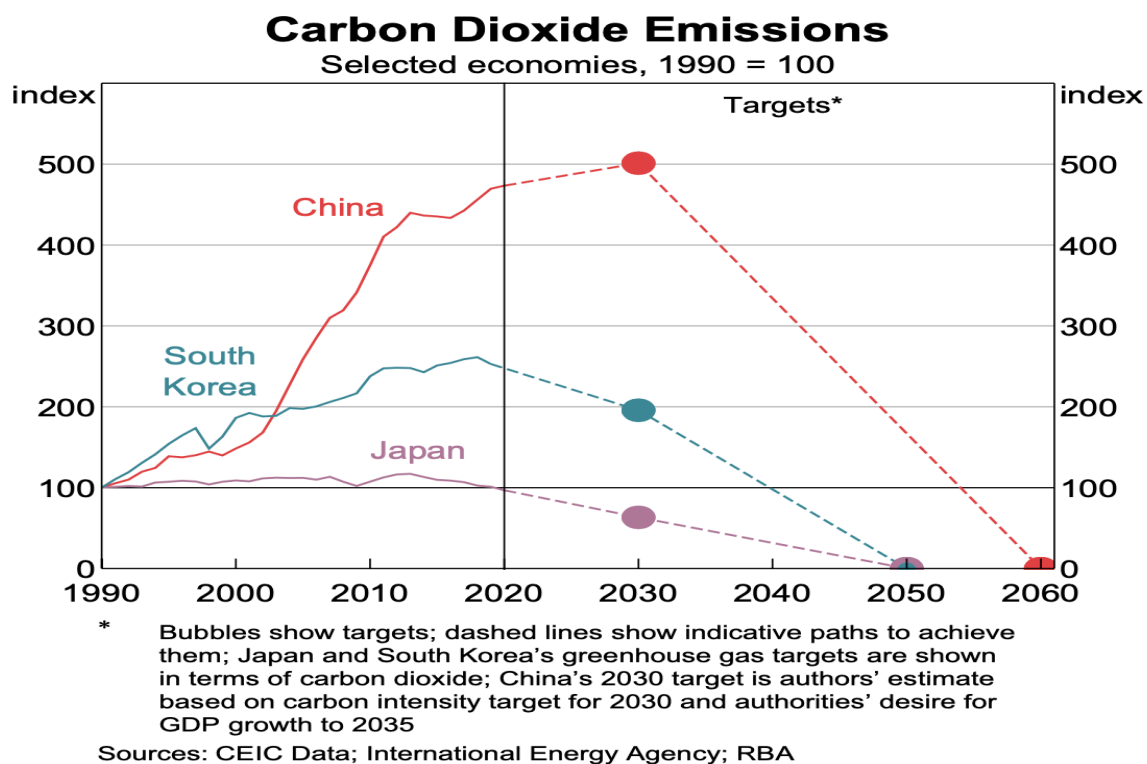
	Greenhouse Gas emissions (Mt CO₂e)	Percentage share
Coal mines	148.5	50%
Oil and gas	79.1	27%
Other facilities	67	23%
Total all facilities	294.6	

Section 3: Global Policy Developments

Extensive progress has been made in global policy developments relating to energy and CO₂ emissions over the last three years, starting with China pledging peak emissions before 2030 and Net Zero Emissions (NZE) by 2060, quickly followed by Japan and Korea committing to net zero by 2050. These moves are aligned with the Paris Agreement acknowledgement that developed countries have a greater responsibility and capacity to act (Chart 2).

When President Biden was elected at the start of 2021, he committed to a 50-52% emissions reduction by 2030, transforming the global dialogue from vague pledges to do something in three decades time to immediate action this decade. Japan and South Korea again followed with strong pledges of a 46% and 40% emissions reduction this decade.

Chart 2: Carbon Dioxide Emissions Pledges by China, South Korea and Japan



Source: Reserve Bank of Australia October 2021

October 2021 saw South Korea build on its April 2021 pledge to cut national CO₂ emissions by 40% by 2030 with the presidential committee on carbon neutrality announcing an additional pledge to phase out thermal coal use in power generation entirely by 2050, using the country's existing national emissions trading scheme (ETS) as the mechanism to drive this.¹⁹ South Korea is Australia's second largest coal export destination.

¹⁹ Argus Media, Seoul plans to phase out coal by 2050, 18 October 2021

In November 2021, Germany accelerated its already world-leading commitment to decarbonisation of its energy system. The government announced renewables would be 80% of its electricity mix by 2030 (up from the current law (EEG 2021) mandating 65% renewables by 2030), driven by 130 GW of onshore wind and 30 GW of offshore wind (until 2021 Germany led the world in offshore wind, and this target has just been doubled), and a near quadrupling of solar installations to 200 GW by 2030.²⁰

On 30 December 2021 China's State-owned Assets Supervision and Administration Commission (SASAC) announced more details of the country's decarbonisation strategy.²¹ This document instructs the top five power utilities in China that they are required to have at least 50% renewable energy capacity by 2025. The SASAC policy means renewable energy investment will have to accelerate further in China, already the world's renewable energy superpower.

January 2022 saw President Xi Jinping²² provide additional insights on the profound measures being undertaken by China as it "striv[es] to achieve the goal of carbon peaking and carbon neutrality". Amongst the six priority areas of focus on accelerating the energy system transition, the fourth is:

"Speed up the green and low-carbon technological revolution. It is necessary to pay close attention to tackling key green and low-carbon technologies, and accelerate the research and development, promotion and application of advanced and applicable technologies."

2022 saw the world increasingly targeting accelerated climate action and energy security.

This included the US Inflation Reduction Act (IRA);²³ the European Union (EU)'s REPowerEU²⁴ the carbon border adjustment mechanism (CBAM) and the most recent Net-Zero Industry Act;²⁵ China's 14th Five Year Plan;²⁶ India's 450GW by 2030 renewables plan and the associated Production-Linked Incentives (PLI) scheme;²⁷ and the Japanese GX Roadmap with its Yen20 trillion investment stimulus to green energy and proposed phase-in of a national emissions trading scheme starting 2026.²⁸

The massive investment opportunities for Australia in embracing an accelerated decarbonisation strategy are huge, but so too are the threats to our leading global trade position should we not embrace decarbonisation. The rise of CBAMs and carbon ETs across Europe, China and now Japan, as well as the price on carbon emissions established in the US IRA, show clearly that global momentum is building rapidly. April 2023 saw gas giant Woodside face increasing shareholder pressure to commit to a credible scope 1-3 net zero emissions pledge, and associated roadmap, a call which was prominent from the floor of the company's 28 April AGM, as investors the world over seek increased decarbonisation momentum.^{29 30}

²⁰ S&P Global Platts, German coalition plans for 480-540 TWh renewables by 2030 to exit coal, 25 November 2021

²¹ State-owned Assets Supervision and Administration Commission (SASAC), "Guiding Opinions on Promoting the High-quality Development of Central Enterprises and Doing a Good Job in Carbon Neutralization", 30 December 2021

²² Xinhua News Agency, Xi Jinping presided over the 36 collective study of the Political Bureau of the CPC, 25 January 2022

²³ The White House press release, [Biden-Harris Administration Releases Inflation Reduction Act Guidebook for Clean Energy and Climate Programs](#), 15 December 2022

²⁴ IEA, [Is the European Union on track to meet its REPowerEU goals?](#), December 2022

²⁵ The New York Times, [Talk of green trade war overshadows Davos optimism](#), 22 January 2023

²⁶ IEA, [An energy sector roadmap to carbon neutrality in China](#), September 2021

²⁷ The New Indian, [Role of PLI scheme in India's quest for clean & affordable energy](#), 20 January 2023

²⁸ Japan2Earth, GX: Nuclear Power To Play a Key Role in New Green Transformation Roadmap, 10 January 2023

²⁹ AFR, [Why investors want more control over companies' climate plans](#), 27 April 2023

³⁰ Financial Times, [Investors defy Goldman, Wells Fargo and BofA in vote for climate plans](#), 27 April 2023

The race is on. Australia needs to acknowledge and embrace this global trend, decouple its economy from its historic dependence on fossil fuels, and play to its competitive advantages in critical minerals and metals, energy transition materials and firmed renewables to position itself as an energy transition superpower in the new world economy, as Climate Energy Finance detailed in its recent report, *A Critical Minerals Value-adding Superpower*.³¹

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³¹ Climate Energy Finance, [A Critical Minerals Value-adding Superpower: Mapping Australia's 'once in a century' opportunity to lead the world in new economy minerals mining and renewables-powered onshore refining and manufacturing pre-export](#), March 2023