Supplementary Submission No 24a

INQUIRY INTO EMISSIONS FROM THE FOSSIL FUEL SECTOR

Organisation: NSW Minerals Council

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Inquiry into Emissions from the Fossil Fuel Sector

NSW Minerals Council Supplementary Submission – February 2026

This supplementary submission addresses several matters raised in evidence provided at the hearings for the Inquiry into Emissions from the Fossil Fuel Sector on 12 December 2025.

This submission also responds to the Joint Standing Committee on Net Zero Future's supplementary questions sent to the NSW Minerals Council (NSWMC) by the Committee's secretariat on 23 December 2025.

As a general comment, NSWMC is concerned that the Committee's Terms of Reference cover a range of highly technical issues and that there are multiple examples of evidence provided to the Committee that is factually incorrect and could lead to misinformed findings and recommendations.

This supplementary submission addresses some of the issues in the evidence provided to the Committee, however we have not had the time to address all the inaccuracies.

NSW Minerals Council

Clarification of evidence at hearings on 12 December 2025

Evidence regarding costs per tonne of abatement

Excerpt from uncorrected transcript (p9):

> ***The Hon. JACQUI MUNRO: Finally, the Superpower Institute submission estimated that the industry could pay, or the sector could pay, $2.70 to $4.10 per tonne for abatement costs. There was a suggestion that these abatement mechanisms should be implemented with that cost. Is that a cost that you are familiar with in terms of your calculations? Or how do you calculate abatement cost?***
>
> ***DAVID FRITH: I'm not familiar with those particular figures. The abatement costs and the impact of the Safeguard Mechanism is going to vary quite substantially between different mines. I've seen figures a lot higher than that for the underground gassy mines. It really will depend on the site-specific circumstances of the mining*** **[sic]** ***question and the abatement measure that you're talking about. I can't really provide a generic answer about what it would cost.***
>
> ***The Hon. JACQUI MUNRO: Do you have an upper limit? You just mentioned that you've heard costs that would be much higher than that. Do you have a sense of what that would be?***
>
> ***DAVID FRITH: Wood Mackenzie, I think, has released some analysis around safeguard cost costing up to about $8 a tonne for underground mines in 2030, upwards of there, so that would be one figure.***

Having now reviewed the Superpower Institute submission, the abatement costs referenced in their submission are sourced from a separate report prepared by Common Capital.

The Common Capital report estimated net cost per tonne of carbon abated. The estimated costs quoted appear to estimate abatement costs associated with a mix of proposed policy measures rather than individual abatement measures and are based on highly optimistic assumptions regarding the viability and costs of VAM abatement. Furthermore, the costs are presented as a net cost, not a gross marginal cost of abatement so are not reflective of the actual costs incurred by companies.

To clarify, the Wood Mackenzie costs referred to by Mr Frith relate to Safeguard Mechanism compliance costs per tonne of coal produced.

There is no 'upper limit' to the cost per tonne of carbon abated for direct abatement measures. For example, VAM abatement or other measures could cost up to hundreds or thousands of dollars per tonne of carbon abated depending on their suitability for the mine in question.

Safeguard Mechanism compliance costs do have an effective upper limit, since there is a cost containment measure under the Safeguard Mechanism that puts a ceiling on the ACCU price of $75/tonne in 2023-24, rising by 2% per annum.

Evidence regarding costs and viability of VAM abatement

Several witnesses provided evidence regarding the abatement opportunities and the costs of abatement at NSW coal mines, with a large focus on VAM abatement.

As a general comment, much of the commentary by NGOs, consultancies and thinktanks on VAM abatement is not grounded in a solid technical understanding of VAM abatement technology, underground coal mining, mine ventilation engineering or the specific context of NSW underground coal mine operating conditions and regulatory environment.

There is now a plethora of reports purporting to inform policy makers on VAM abatement opportunities in NSW and Australia more broadly, prepared by groups including Ember, Rystad, Common Capital, IEEFA, Deloitte and the EDO. Each report draws on assumptions and findings from previous reports, in some cases perpetuating incorrect assumptions and findings.

NSWMC has concerns that some of these reports are attempting to portray VAM abatement as easy, low cost and viable across a wide range of NSW underground coal mines, and that VAM can be broadly deployed in the near-term simply by strengthening regulatory requirements or providing additional financial incentives.

This is an inaccurate portrayal of the real-world situation. If this were the case, then mine operators would already be implementing VAM abatement, given the incentives provided by the Safeguard Mechanism.

Abatement opportunities and costs are highly site specific. This is acknowledged in a report by Rystad[1], which states:

> *"MACC* [marginal abatement cost curve] *assessment based on high level analysis of different abatement opportunities. Project costs and technical viability of abatement technology deployment vary heavily site-to-site…"*

While making this acknowledgement, the Rystad report does not consider some of the basic technical limitations of RTOs and the implications for the application of RTOs in Australian mining conditions. The report appears to assume that the entire volume of Australian VAM emissions can be addressed with existing RTO technology. This is factually incorrect and the conclusions of the report are therefore also incorrect. An IEEFA report[2], which draws on the Rystad report, similarly makes the misleading statement that *"Low cost technologies could almost eradicate methane from underground coal mines."*

In another example, Common Capital assumed that 9 NSW coal mines *"have the requisite conditions for cost effective deployment of RTO systems"*[3]. Most of the mines identified by Common Capital have closed or are likely to close in the relatively near future, making VAM abatement unlikely to be viable on financial grounds alone. It is worth noting that Common Capital sourced RTO costs from studies including CSIRO[4], which assumes a project lifetime of 15 years, and Rystad, which assumes a project lifetime of 10 years. Both timeframes are well beyond the expected life of most mines identified in the Common Capital report. Furthermore, RTO systems are not technically viable at several of the coal mines identified by Common Capital due to their low VAM concentrations (<0.2%) and lack of supplementary fuel supplies.

As a result, the findings of these reports cannot be relied upon to improve the understanding of VAM abatement opportunities across the NSW mining sector.

It is worth noting that there are thousands of underground coal mines globally, but we estimate there are fewer than 10 commercial-scale applications of VAM abatement technologies currently operating at coal mines. As the industry continues to highlight, these existing global applications occur under very different operating, financial and regulatory conditions to NSW and Australia more broadly.

The Commonwealth Government's Resources Sector Plan concludes that Australia needs to first demonstrate coal VAM abatement technology at Australian mines over the period to 2030 and then scale-up coal VAM abatement technology at Australian mines to 2035 for subsequent wider application. It states that:[5]

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[1] Rystad Energy, *Methane Tracking Technologies Study*
[2] IEEFA, *Prioritising methane abatement makes economic sense*
[3] Common Capital, *Unlocking cost-effective methane abatement in the NSW and QLD coal industry*
[4] CSIRO, *A techno-economic analysis of coal-mine fugitive-emission reduction strategies in Australia*
[5] Australian Government, *Resources Sector Plan, September 2025, pp 21-22.*

Fugitive emissions remain one of the most complex and critical challenges in the resources sector's pathway to net zero. …

Abating coal mine methane is a major opportunity to reduce fugitive emissions in the coal sub-sector, with underground mines responsible for the majority of production-related methane. Most of these emissions come from ventilation air methane (VAM), which is currently difficult to mitigate due to low and variable methane concentrations and complexity in meeting safety requirements.

Coal Innovation NSW and Low Emission Technology Australia are supporting demonstrations of RTO abatement technologies – one in NSW and one in Queensland. The federal government is also supporting a VAM abatement project in Queensland under the Powering the Regions Fund. All three projects are yet to commence. These projects aim to demonstrate that the safe abatement of VAM emissions at underground gassy mines is possible, providing a replicable pathway for other underground gassy mines to materially reduce their emissions.

A realistic assessment of the potential for VAM abatement technology at NSW mines is summarised below:

- The industry is optimistic that current VAM abatement technology could be applied in some NSW mining operations. However, staged trials are needed to demonstrate the safe and effective operation of RTOs in modern Australian mining conditions before embarking on large scale projects. Existing examples of VAM abatement overseas, and the previous installation at West Cliff Colliery, are very different both technically and commercially.
- The claims that there can and should be large scale deployment of VAM abatement at NSW underground coal mines before 2030 are unrealistic and unfounded. The Commonwealth Government's assumed timeframes are more realistic, which involve trialling the technology up to 2030 and broader roll out post 2030.
- There are many mines in NSW where current VAM abatement technology is not technically viable due to low VAM concentrations (<0.2%). Other mines do not have sufficient mine life to support the lead times and payback for complex and capital-intensive VAM abatement projects.
- The costs of VAM abatement are highly dependent on site-specific circumstances. In some cases, the marginal abatement costs ($/tonne CO2-e) of VAM abatement could be below the costs of ACCUs or SMCs under the Safeguard Mechanism, particularly as ACCU prices are forecast to rise, making VAM abatement cost effective in some circumstances. Site-specific studies are required to assess the technical and financial feasibility of VAM abatement.
- However, the capital costs of VAM abatement are likely to be significant, extending into the hundreds of millions of dollars for full scale abatement at a single ventilation shaft. Financial support, such as through the NSW Government's High Emitting Industries Fund, is likely to be needed to support the deployment of large-scale projects.

Appin RTO trial

Excerpts from uncorrected transcript (pp35-36):

"… a large-scale RTO pilot for VAM abatement is urgently needed in New South Wales. The Appin Mine's RTO is not a sufficient pilot to demonstrate safety and effectiveness."

"One of the most cost-effective technologies for abating ventilation air methane [VAM], is regenerative thermal oxidisers. They are the only proven and commercially used technology for large-scale abatement. EDF is concerned there is an assumption that the recently commissioned Appin Mine RTO will be a sufficient demonstration project for RTOs more broadly, when in fact a large-scale RTO is still needed in New South

Wales, and soon, if we are to meet the target set by the EPA of having a safety review in 2028.

The Appin RTO, in our understanding, was originally proposed as integrating an innovative technology from CSIRO, but now it proposes to use what we understand is a traditional regenerative thermal oxidiser design similar to the units that were used in both 2001 at Appin and 2007 at West Cliff. This is at a cost of $15 million in public funding to abate a very small fraction of the mine's emissions. The Appin RTO does not appear to have a direct connection to the mine ventilation system, which is a similar approach to the first Australian VAM project in 2001 and many other projects between 2001 and 2010. This is a crucial design difference to a large-scale RTO which experienced technology providers are ready to deploy at New South Wales mines to demonstrate safety and effective abatement."

These comments indicate a lack of technical understanding these issues, the specific context of NSW operating conditions, the details of the individual projects discussed, and the risks associated with RTOs.

As a starting point, the inference that Appin should rush past implementing a trial of RTO technology to meet an arbitrary deadline set for a 'safety review' is counterintuitive. If current trials will not be at a stage required for a safety review in 2028, then the EPA's timeline should be reconsidered. We note that the Commonwealth Government has indicated a different timeline for implementation of VAM abatement that should be considered.

Previous trials of RTO at Appin (including West Cliff, which is part of the Appin complex) ran at significantly higher methane concentrations than current ventilation air. The reduction in ventilation air methane content is in part due to significant efforts to minimise methane entering the ventilation air through gas drainage and gas capture techniques.

While previous trials typically ran at methane concentrations above 0.8%, current mine ventilation exhaust air runs at methane concentrations between 0.2% and 0.5% (generally between 0.2% and 0.4%). Previous trials running above 0.8% demonstrated the application of this technology to an Australian mine at methane concentrations similar to overseas installations. Current NSW coal mines exhaust methane at concentrations significantly lower than documented experience. Running RTOs consistently at these lower methane concentrations, and across the range of likely methane concentrations, has not been demonstrated in Australia or overseas.

The trial at Appin intends to test operation across these methane concentrations and share learnings with the industry. It is relevant that the most recent experience testing an RTO in NSW resulted in the unit catching fire due to fluctuations in methane concentration within the range being tested at Appin. Any statement indicating the technology is commercially proven and safe ignores the methane concentrations of ventilation air in NSW, which are significantly lower than overseas installations.

The Appin trial at this stage will not be directly coupled to the mine shaft. It is recognised that eventually direct coupling will be required if a mine is to abate all its ventilation air methane. However, the Appin project can deal with part of the mine ventilation air and meet both Commonwealth Safeguard Mechanism targets and NSW's targets without direct coupling during early stages of implementation. This will allow for an adaptive approach to managing the safety aspects of VAM, such that Appin can learn from uncoupled trials before direct coupling.

The issues associated with direct coupling of the VAM unit to a mine ventilation shaft are essentially issues associated with the installation of fans in series. Such issues are well known already in the industry, with any mine that runs underground booster fans effectively already managing these issues. Appin is one such mine. While known and accounted for in current management practices, the introduction of fans in series significantly increases the number of failure modes that may occur with relation to the ventilation system. This in turn effectively increases the risk of losing underground mine ventilation, particularly when one of the series installations is in trial phase and its unique failure

modes are not fully understood. As a result, it would unnecessarily heighten risk to prematurely move to direct coupling of the VAM unit to a mine ventilation shaft.

Trials need to be run with units uncoupled until such time as the failure modes the VAM unit may introduce are fully understood and managed. Given the lack of previous trial work across the range of methane concentrations that need to be abated within NSW it is premature to call for direct coupling of VAM to ventilation shafts.

Calls for Appin to ignore a logical, staged implementation of a technology unproven in Australian mining conditions and jump straight to an end state seem to place an unreasonable expectation on the coal mining industry to take on unacceptable financial, technical and safety risks that are not expected of other sectors.

The evidence notes that the initial trial was proposed to include CSIRO's VAMMIT technology. However, Appin was unable to reach agreement with CSIRO for use of this technology, and so this technology was necessarily removed from the trial. A strategic review of the project identified that alternative suppliers of RTO technology were able to supply similar products with the same or better performance, along with stronger aftermarket support at a more competitive price. As a result, the change in technology will have no detrimental impact on the trial. Such changes have been made in consultation and with the agreement of the NSW Government's Coal Innovation NSW.

Open cut emissions estimations

We note there was a wide range of misinformed commentary relating to open cut emissions estimation techniques in evidence provided throughout the hearings. This section addresses some, but not all, of the issues arising from this evidence.

Scientific validation of open cut emissions estimations methods

> Excerpt from uncorrected transcript (p41):
>
> ***"In terms of open-cut coal production reporting methods under the National Greenhouse and Energy Reporting Scheme, those methods that are available haven't been scientifically validated."***

This statement is incorrect.

The NGERS open cut coal production fugitive methane and carbon dioxide emission reporting methods are based on science. For Method 2 or 3 (an Intergovernmental Panel on Climate Change 'Tier 3' method), which the vast majority of NSW open cut coal mines use, site-specific data and analysis is required, using a scientific method developed by CSIRO which has been available publicly since 2008:

> *Evaluating a tier 3 method for estimating fugitive emissions from open cut coal mining, CSIRO Investigation Report ET/IR 1011, 25 May 2008 by Abouna Saghafi with Doug Roberts, Robyn Fry, Alfredo Quintanar, Stuart Day, Tony Lange, Patrick Hoarau, Cihan Dokumcu and John Carras.*

Papers on the method have appeared in journals and conference proceedings such as: International Journal of Coal Geology, 2012; University of Wollongong Coal Operator's Conference, 2013; Australian Journal of Earth Sciences, 2014; and Australia–China Summit 'Forum on Decarbonising the Energy and Resource Sectors', 2025.

The CSIRO methodology was a world first. For industry to apply it, the NGER Measurement Determination and CER guidelines needed additional technical guidelines. At a cost of approximately $30 million, the black coal industry's research program (ACARP) engaged consultants to develop guidelines to describe the method for meeting the minimum requirements for estimating fugitive emissions from open cut coal mines using Method 2 or 3 as set out in the NGER Measurement Determination.

These ACARP Guidelines are intended to supplement information included in the CER's Technical Guidelines and provide an industry standard that can inform emissions estimation. These ACARP Guidelines should be read in conjunction with the NGER Measurement Determination. The references for the guidelines, which have been available publicly since 2011, are:

> *ACARP, Guidelines for the Implementation of NGER Method 2 or 3 for Open Cut Coal Mine Fugitive GHG Emissions Reporting, ACARP project C20005, December 2011*
>
> *Agi Burra and Joan Esterle, Technical Discussion of the Implementation of NGER Method 2 or 3 for Open Cut Coal Mine Fugitive GHG Emissions Reporting, ACARP project C20005A, December 2011.*

Development of gas assignment model for fugitive emission estimation

> Excerpt from uncorrected transcript (p27):
>
> ***"there's a lot of opportunities for companies to go, "Okay, where is the lowest methane content in our coal seam and the least amount of carbon dioxide emissions? Let's measure that bit, and we'll put that forward as our emissions factor for our mine."***

This statement is incorrect.

Gas assignment models and reports are subject to the independent peer review requirements of the ACARP Guidelines and the audit requirements of the NGER framework. They are required to be consistent with the NGER Measurement Determination's principles of transparency, comparability, accuracy, and completeness. Entities must provide annual statutory reports on their emissions to the CER in accordance with regulated, robust and proven NGER methods. Method 2 (as used in NSW open cut mines) and Method 4 (as used in underground mines) are at the highest IPCC tier globally. These reports must be signed by an executive officer of the reporting organisation or approved delegate. There are significant penalties for submitting an inaccurate, incomplete or late report.

The ACARP Guidelines and technical addendum focus on outcomes, describing a series of minimum technical standards or requirements which, when applied appropriately and expertly, lead to the establishment of a site emissions estimate that is complete, accurate, transparent and comparable and, thus, repeatable.

In this way the ACARP Method 2 Guidelines provide guidance to an appropriately qualified and experienced 'Estimator' in a similar way that the well-established Joint Ore Reserves Committee's The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ('the JORC Code'), guides a 'Competent Person' in the preparation of a report under that framework.[6]

Section 2.1 of the ACARP Guidelines (page 8) require (our emphasis):

> *A minimum of 3 boreholes that capture the full variance of the gas trends with depth must be located within each gas domain (i.e. area of common gas characteristics). The ultimate number of boreholes required at any deposit will be determined by data analysis methods listed in Section 3 of these Guidelines.*

The requirement for at least three 'Type' boreholes per gas domain establishes an appropriate minimum expectation for an appropriate dataset to test for common gas characteristics within a domain, including the depth to gas content relationship required to develop the three-dimensional gas distribution model.

Whether three Type holes will be sufficient for capturing the full variance of gas characteristics within a domain is a different question, however, that goes to the second sentence of the above excerpt from the ACARP Guidelines.

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[6] For information about the Competent Person under the JORC Code see: https://www.jorc.org/competent/

Section 2.1 of the Guidelines (page 8) also says:

> *Assessment of the requirement for any additional boreholes should be carried out via an iterative process of data review during the gas exploration process to ensure that a sufficient number of unbiased samples have been collected.*

This feedback loop between the drilling program/data acquisition and gas content testing/data adequacy review is shown in Figure 2 from the ACARP Guidelines:

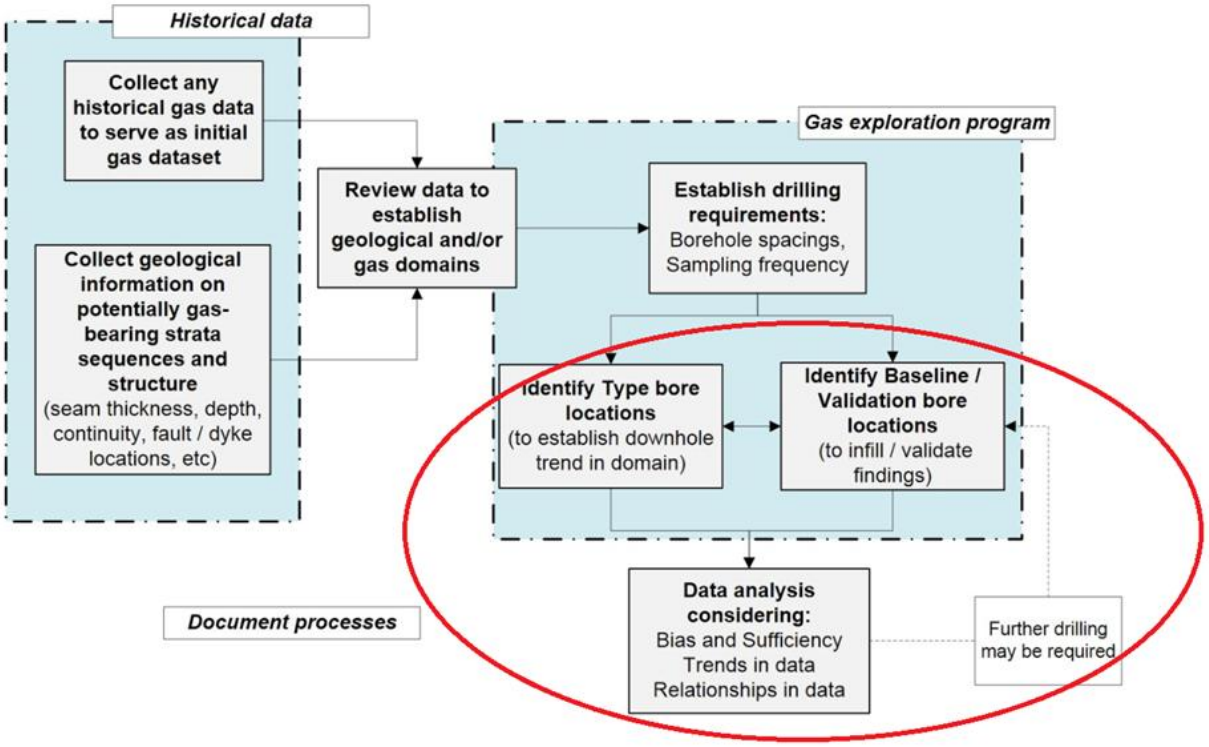

Figure 2. Flow chart of exploration drilling process to collect gas data

The process described in Figure 2 provides guidance for the Estimator to extend sampling, based on the data available and the complexity of the deposit, beyond the minimum three 'Type' borehole requirement. The guidance provides the necessary flexibility for the consideration of varied deposits through an iterative approach in which it is confirmed, as drilling progresses and results received, whether more boreholes and samples are necessary to fulfill the requirements laid out in Section 3 for data sufficiency.

It should be emphasised that mines typically undertake additional validation borehole drilling, and this data may be used to augment the minimum of three Type boreholes per gas domain. In addition, the Estimator has access to information from the geological model, and exploration and other boreholes previously drilled on the mining lease, which may also be utilised in the modelling task.

Further information is provided in the MCA's submission to the NGER scheme 2025 Public Consultation being conducted by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

The CER considers that the Method 2 guidelines:[7]

> *'provide clear requirements and guidance for:*
>
> - *the overall modelling approach, including requirements of the 'Estimator', the professional that should lead the modelling*
> - *requirements for in-situ gas sampling and testing, including minimum requirements for sampling and how to document sufficient and unbiased gas samples to enable modelling*
> - *requirements for analysis and modelling of in-situ gas in gas bearing strata based on the available and obtained gas samples.'*

External verification of gas assignment models

> Excerpt from uncorrected transcript (p20):
>
> ***"... there's no external verification at the moment. That can be addressed by some auditing of the method and how it's applied as well as verification from third-party measurements."***

This statement is incorrect. We note that:

- There are comprehensive audit and independent technical peer review requirements in place under NGERS. Transparency around the application of method 2, 3 & 4 is provided to parties that review, audit and regulate emissions.
- Method 2 gas assignment models are developed and independently peer reviewed in accordance with the ACARP Guideline. This review examines the technical aspects of sampling data, gas models, justification for sampling etc.
- Method 2, 3 & 4 reports are independently audited in accordance with NGER requirements.

The CER can also conduct its own audits in addition to the above requirements.

Safeguard Mechanism design and implications for NSW coal mines

A range of evidence presented at the hearings related to the effectiveness of the Safeguard Mechanisms Reforms that commenced in FY23/24.

The Commonwealth Government developed the reforms after extensive rounds of consultation with stakeholders over multiple years. The consultation outcomes and statements of reasons that accompany the reforms explain the range of design options that were considered and why the legislated design was chosen by the Commonwealth Government to provide Australia with an efficient scheme for emissions reduction that would contribute towards its Nationally Determined Contributions.

The scheme is designed to reduce emissions to net zero in a predictable and staged approach over the next 25 years. It is premature to judge the effectiveness of the reforms when they have only been in place for two years and only one year of data has been published since the reforms commenced. A formal review of the scheme is scheduled to commence later this year.

Recognition of interstate offsets retired by NSW facilities

> Excerpt from uncorrected transcript (p 37)
>
> ***"We look at the Safeguard Mechanism as a great opportunity to incentivise emissions reductions. But, obviously, so far a lot of those emissions reductions are coming in the form of offsets, which New South Wales may not have ability to control if those offsets***

[7] Clean Energy Regulator, *Estimating emissions and energy from coal mining guideline*, August 2025, p 51.

are contained within New South Wales or not. Effectively, we might be counting the emissions but not getting the reward of that mitigation."

Excerpt from uncorrected transcript (p 58)

"There are currently no restrictions on the use of carbon credits, so those are either Australian carbon credit units or Safeguard Mechanism credits for a facility to meet its baseline. While ACCUs and SMCs can support carbon storage and actions to reduce or avoid emissions, the source of the credit may not be in New South Wales and, in those cases, would not count towards New South Wales emissions reduction targets."

These statements highlight the problem created by State-based emission reduction targets that have effectively fragmented the efficient operation of the national carbon market.

A NSW facility can reduce its net emissions in line with its Commonwealth regulatory requirements and be fully recognised as contributing to Australia's Nationally Determined Contributions, but if any offsets used to meet its Commonwealth obligations are not located in NSW, then due to national accounting rules, these offsets do not technically count towards NSW targets.

This is obviously a completely unreasonable and inefficient situation for NSW industrial emitters to find themselves in. The NSW EPA has recognised this and stated that:

> *"The NSW EPA will continue to work with other NSW agencies and other jurisdictions (including the Australian Government) to seek to address this carbon-accounting issue."*[8]

However, rather than acknowledging that the carbon accounting issue needs to be resolved, in line with the NSW EPA's position, some groups appear to believe it is acceptable for businesses to be subject to duplicative and inconsistent requirements for the same emissions at the State and Commonwealth levels and instead propose further measures to complicate the regulatory framework.

The focus should be on resolving the accounting issues that are the cause of these problems with the objective of better integrating State and Commonwealth regulatory frameworks.

Alignment of Safeguard Mechanism with NSW emission reduction targets

Excerpt from uncorrected transcript (p58)

"Current policy settings under the Safeguard are unlikely to deliver strong enough signals to progress onsite abatement with the urgency required to achieve the legislated targets within the climate change Act. This is because Safeguard baselines are set on the basis of emissions intensities, which is the amount of emissions produced per unit of production rather than total emissions. This means if mines increase production, total emissions can increase as long as emissions per unit of production decline. New South Wales targets require absolute reductions in total net annual emissions."

The NSW Net Zero Modelling team analysis of the Safeguard Mechanism obligations for NSW coal mines in Figure 24 of the NSW Greenhouse Gas Emissions Projects 2024 Methods Paper[9] was included in NSWMC's submission to the inquiry.

This analysis indicates that the Safeguard Mechanism will deliver 'absolute reductions in total net annual emissions' across the NSW coal mining sector in line with the NSW emission reduction targets. Provided the offset accounting issues are resolved, as the NSW EPA has indicated it is doing, the Net Zero Modelling Team's analysis indicates the Safeguard Mechanism is sufficient to align net emissions from NSW coal mines with the NSW targets.

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[8] NSW EPA, Guide for Large Emitters
[9] NSW DCCEEW, NSW greenhouse gas emissions projections 2024 – Methods paper

Direct abatement vs offsets

> Excerpt from uncorrected transcript (p 30)
>
> ***"In relation to the Safeguard Mechanism, I think one of the key issues that we would see is that there's no actual requirement for onsite emission reductions by virtue of the ability of companies to purchase credits—so, Safeguard Mechanism credits or ACCUs as well. That ability to offset rather than directly reduce emissions is concerning."***
>
> Excerpt from uncorrected transcript (p 58)
>
> ***"The Safeguard Mechanism incentivises, but it does not require onsite abatement at covered facilities. Additional regulatory measures will be required to achieve measurable onsite abatement."***
>
> Excerpt from uncorrected transcript (p55)
>
> ***"… the commission considers that an outcomes-based approach to regulating emissions from coalmines will help increase the certainty of achieving emissions reduction outcomes. The outcomes-based approach should prioritise highest emitting mines first, have clear time frames for abatement requirements and strongly limit the use of exemptions or offsets."***

These statements indicate a lack of awareness regarding the technical and financial barriers to the uptake of abatement measures at NSW coal mines and appear to be based on the simplistic notion that the only thing needed to drive more direct abatement is more regulation.

As highlighted in NSWMC's submission to the inquiry and this supplementary submission, the ability of individual mines to directly abate emissions is highly dependent on site-specific circumstances. Some mines may have substantial opportunities, while others may have very limited opportunities. Strongly limiting the use of exemptions or offsets will set up those with limited opportunities to fail.

While direct abatement is preferable, offsets are a legitimate and credible option to reduce net emissions when direct abatement is not immediately feasible. As recently reiterated by the Australian Government in their 2026 ACCU Scheme Review public consultation Issues Paper:[10]

> *"Under the Safeguard Mechanism, ACCUs are used to offset emissions and smooth the transition for industrial emitters that need to make major capital investments. The link between these schemes also provides a flow of finance from industrial emitters to landholders, businesses, and communities that undertake ACCU Scheme projects, in line with the 'polluter pays' principle. It helps equalise the marginal cost of abatement across sectors, which is the condition for cost-efficient emissions reductions."*

Multiple reviews have confirmed the legitimacy of the ACCU Scheme, and we note that the NSW Government also recognises the importance of offsets, such as through the proposals to generate ACCUS from the proposed Great Koala National Park[11].

Threshold for emissions

> Excerpt from uncorrected transcript (p39):
>
> ***In terms of the scope as well, it doesn't extend to facilities emitting between 25,000 and 100,000 tonnes; it only kicks in at that larger 100,000-tonne CO2 equivalent.***

The Safeguard Mechanism covers virtually the entire NSW coal sector. NSWMC estimates that it covers approximately 95% of emissions from the sector.

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[10] CCA, Issues Paper: Enhancing the ACCU Scheme to support Australia's 2035 emissions reduction target
[11] NSW Government, Great Koala National Park

Hybrid emissions baselines

Excerpt from uncorrected transcript (p39):

> ***"I think the broader concern is that those baselines or caps or limits have been set based on business as usual for those facilities, so, essentially, they've been set too high, meaning that those companies can be rewarded with credits without taking the action to reduce emissions."***

Safeguard Mechanism baselines are established using a combination (hybrid) of site-specific and industry average emission intensities, which are subject to the cumulative decline rates within the scheme, ensuring that baselines decline over time.

By using a hybrid, declining baselines approach, the Scheme incentivises low emission intensity production. This is a deliberate design choice by the Commonwealth Government. Further, the ability to be issued Safeguard Mechanism Credits (SMCs) is a key element of the reforms, as this aspect incentivises emissions reduction beyond (lower than) a facility's baseline and incentivises early movers, ensuring all facilities have financial incentives to reduce emissions.

While lower emissions intensity mines have shallower emissions trajectories under the Scheme, this is balanced by the steep emissions reduction trajectories of mines with higher emissions intensities, which can have effective Safeguard Mechanism annual baseline decline rates in the order of 10%.

Hunter Valley Operations and Maules Creek emissions projections

Excerpt from uncorrected transcript (p31):

> ***"… The blue columns on the chart represent current annual emissions, scope 1 emissions, from that mine. The orange columns represent what Hunter Valley Operations say will be emitted if the Government approves their massive expansion. So you can see that the trajectory—this represents a very, very significant increase in emissions for the next, what, 16 years. There is no decrease compared to current emissions. Quite the reverse. In fact, it would represent roughly a 90 per cent increase in emissions from the current average.***
>
> ***… I've got another chart here from the Maules Creek coal project, the second largest coalmine expansion and extension proposed in New South Wales at the moment. You can see there from the red bars that it's the same story. There is no decrease. It's not on a trajectory that's aligned with the New South Wales emissions reduction trajectory at all. It's actually the opposite. It's an increase in emissions for a very prolonged period …"***

Both projects referred to are covered by the Commonwealth Government's Safeguard Mechanism and are therefore subject to regulated requirements to reduce emissions on a trajectory towards net zero by 2050.

The chart below[12] shows the declining net emissions from the Hunter Valley Operations (HVO) project over its life, in response to the Safeguard Mechanism and the additional voluntary contribution that HVO has proposed to reflect its consideration of the NSW emissions reduction targets. There is a clear trajectory of declining net emissions over the project life.

[12] Figure 3.14 Excerpt from the GHG Assessment of the Amended HVO Continuation Project, available at: https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-11826681%2120250807T013253.725%20GMT

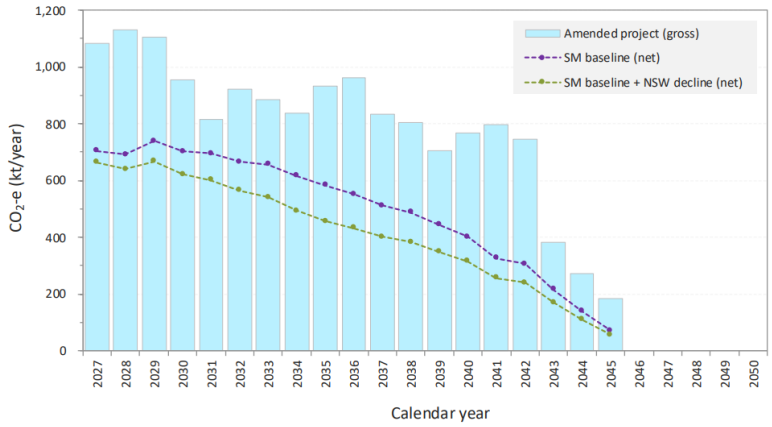
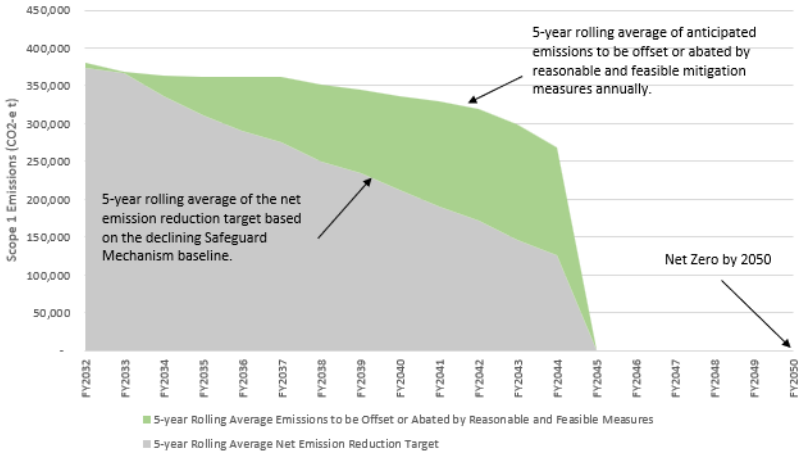


Figure 3.14 Scope 1 emissions for the Amended Project and baseline profiles

In the EPA's advice on the Amended Project (dated 23 December 2025)[13], the EPA states that, *"the amended project's net emissions follow a downward trajectory that is consistent with the NSW emissions reduction trajectory"*, and *"The EPA considers that the greenhouse gas (GHG) assessment is prepared consistent with the EPA's Guide for Large Emitters and that the proposed GHG mitigation measures meet the principles of the Guide."*

The Maules Creek Project's Scope 1 and Scope 2 emissions are relatively small, representing approximately 0.31% of NSW's 2022 emissions and 0.08% of Australia's 2023 emissions. Over the Project's life, net emissions are expected to decline, as shown in the chart below[14], reflecting both the Commonwealth Safeguard Mechanism and the project's voluntary contribution to support NSW's emissions reduction targets. To manage potential fluctuations in annual production, Whitehaven uses a 5-year rolling average to calculate Safeguard Mechanism net emissions.

Figure 14: ROM Coal Production – Continuation Project 5-Year Rolling Average Net Emission Targets



The net emissions reductions obligations and commitments of companies will be met through a combination of direct emissions reductions, Australian Carbon Credit Units (ACCUs) and Safeguard

[13] NSW EPA, Advice on Additional Information to Amendment Report – HVO North and HVO South Continuation Projects – SSD 11826681 & SSD 11826621

[14] Figure 14, Maules Creek Continuation Project Submissions Report

Mechanism Credits (SMCs). The proportion that will be met through each of these three options is difficult to forecast in the projects' environmental impact statements given the uncertainties around technological development and carbon markets throughout the projects' lives.

As a result of these uncertainties, proponents will typically present their gross, unabated emissions projections in environmental impact statements to provide transparency on both gross and net emissions, and to avoid potential greenwashing criticism. As such, gross emissions are a conservative projection since mines are obligated to achieve their net emissions requirement under Safeguard and will therefore implement either offsetting or feasible abatement measures as they become available throughout the project lifetime.

Reporting of emissions at Ulan Coal Mine

> Excerpt from uncorrected transcript (p28):
>
> ***"Because they* [Ulan Coal Complex] *magically dropped their baseline emissions in 2014, they're not required to report to the* [sic]*. They don't report anything in their annual reports. There's no reporting of their methane emissions anywhere."***

Under the NGER Act, constitutional corporations in Australia which exceed thresholds for GHG emissions, energy production or energy consumption are required to measure and report data to the Clean Energy Regulator (CER) on an annual basis. The Ulan Coal Complex (UCC) reports GHG emissions (including methane) and energy production and consumption data to the CER in accordance with NGER Act requirements.

Similarly, any baseline determinations are also subject to NGER Act requirements, including its audit requirements.

Note that Ulan publishes its Scope 1 and Scope 2 emissions in its Annual Review, the most recent of which is publicly available at this link:

https://www.glencore.com.au/.rest/api/v1/documents/a5953ef315ba3d08004c8ecf7a6ff760/2024+Annual+Review_UCMPL_Final.pdf

Responses to Supplementary Questions

(1) Can you clarify for the Committee how many coal mines in NSW - regulated under the Safeguard Mechanism - reported lower Scope 1 "covered emissions" in FY24 than they did in FY17 when the Safeguard Mechanism scheme began?

(2) The Committee heard evidence that two thirds (or 14) of the 21 high-emitting mines in NSW that have reported Scope 1 emissions annually in excess of 100,000 t CO2-e to the Clean Energy Regulator since FY17, reported higher emissions in FY24 than when the Safeguard Mechanism scheme began in FY17, is your evidence that this is correct?

(3) Of the 10 highest-emitting coal mines in NSW (Scope 1), how many reported higher "covered emissions" (before ACCU or SMC surrender) in FY24 than when the Safeguard Mechanism scheme began in FY17?

Supplementary questions 1-3 relate to the changes in covered emissions for Safeguard facilities since the Safeguard Mechanism was introduced in 2016-17. NSWMC assumes that these questions are intended to help inform the Committee's understanding of the effectiveness of the Safeguard Mechanism in reducing emissions in the NSW coal mining sector.

NSWMC makes the following observations in relation to this issue:

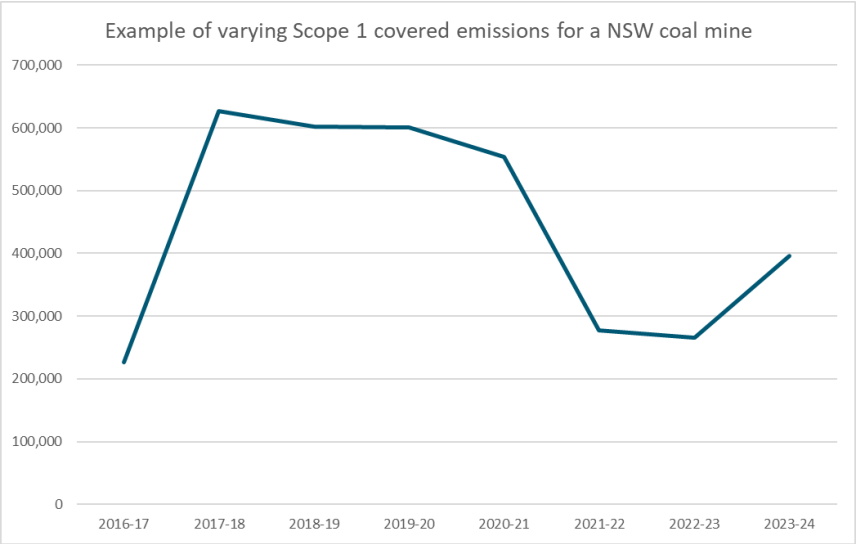
- There were major reforms to the Safeguard Mechanism that commenced in 2023-24, which are designed to drive emissions reductions across Safeguard facilities to contribute to Australia's Nationally Determined Contributions. The key reform that began in 2023-24 was the introduction of annual regulated reductions in baseline emissions for covered facilities towards net zero by 2050.
- In the first year of the reformed Safeguard Mechanism (FY2023-24), NSW coal mines have reduced their net emissions by approximately 2 million tonnes CO2-e, in comparison to their gross emissions (Net emissions 10.9MtCO2e, covered/gross emissions 12.9 MtCO2e)[15]
- Prior to the Safeguard Mechanism reforms that commenced in 2023-24, there were no annual reductions in baseline emissions for Safeguard-covered facilities. Emissions from 2016-17 to 2022-23 are therefore not relevant to gauging the effectiveness of the reformed Safeguard Mechanism in reducing emissions across the sector.
- Furthermore, Global Warming Potentials (GWPs) change over time in response to updates in the IPCC Assessment Reports, as explained by the Clean Energy Regulator (CER)[16]. The GWP value of methane, for example, has changed between the FY17 and FY24 periods, having increased by 12%. However, as stated by the CER:

  "Data reported under NGER will not be adjusted to account for changes in GWP values because they reflect the requirements of the NGER legislation in force at the time."

- Therefore, any direct comparison in NGER data between FY17 and FY24 needs to take changes in GWPs into account. Across all NSW Safeguard covered coal mines in 2023-24, reported methane emissions are approximately 1 million tonnes CO2-e higher than they would have been using the GWP that was applied in FY17, purely because of the increase in the GWP value of methane applied to emissions, rather than changes in actual emissions.
- Coal mining is a very different type of industry to other industries such as manufacturing. An individual coal mine can be subject to high degrees of variability in geology, gas reservoir properties, mine planning (e.g. longwall changeouts) and production volumes that will influence reported emissions from year to year. Covered emissions from an individual mine can vary

[15] CER, 2023-24 baselines and emissions data
[16] CER, Global warming potential

significantly from year to year based on these variables, highlighted in the example below. Emissions trajectories will not be linear.



- Abatement opportunities will vary significantly between operations. A potential scenario is that some mines will have opportunities to deliver steep reductions in direct emissions, while others will have limited opportunities. The Safeguard Mechanism is designed to deliver emissions reductions where they are feasible and most cost effective, rather than requiring all facilities to reduce direct emissions equally.

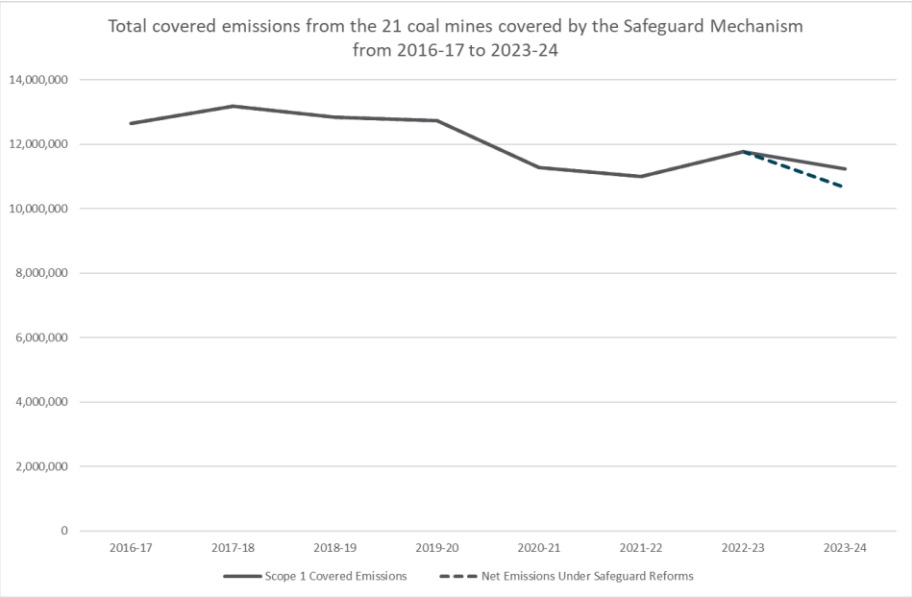
The factors outlined above highlight why a comparison of individual facility data between 2016-17 and 2023-24 does not provide an informed insight as to the effectiveness of the reformed Safeguard Mechanism in reducing emissions across the coal mining sector. Additional years' data, as well as a recognition of the net emissions reduction requirements, is needed to fully assess the impact of the reformed scheme.

While acknowledging the factors outlined above, the chart below shows the total covered emissions reported by the 21 coal mines that have been covered by the Safeguard Mechanism for the entire period between 2016-17 and 2023-24.

The chart shows that total covered emissions from this subset of Safeguard-covered coal mines have fallen by ~2 million tonnes over the period, despite the Safeguard Mechanism reforms only applying to the last year of this 7-year period, and a 12% increase in the GWP value applied to methane.

The chart also shows the initial impact arising from the first year of the Safeguard Mechanism reforms that commenced in 2023-24, which reduced net emissions from these 21 coal mines by an additional 575,000 tonnes CO2-e.

Future years will see an ongoing decline in net emissions across the industry that will be met through a combination of direct emissions reductions measures, Australian Carbon Credit Units (ACCUs) and Safeguard Mechanism Credits (SMCs).



(4) The International Energy Agency (Global Methane Tracker 2024) advises that a "75% cut in methane from fossil fuel operations by 2030 is needed to limit global warming to 1.5 °C., does the NSW Minerals Council share the IEA's view that a 75% cut is needed this decade?

The IEA Net Zero Emissions scenario provides one of many possible pathways for the global energy sector to limit the average global surface temperature rise to 1.5 °C with no or low overshoot by 2100. The IEA makes clear that:

> *"There are many possible paths to achieve net-zero CO_2 emissions globally by 2050 and many uncertainties that could affect any of them; the NZE is therefore **a** path, not **the** path to net zero emissions. Much depends, for example, on the pace of innovation in new and emerging technologies, the extent to which citizens are able or willing to change behaviour, the availability of sustainable bioenergy and the extent and effectiveness of international collaboration."* [*Net Zero by 2050 A Roadmap for the Global Energy Sector*, October 2021 (4th revision), pp 49-50, emphasis in original]

The IEA also makes it clear that the pathway:

> *"is global in scope, but each country will need to design its own strategy, taking into account its specific circumstances. There is no one-size-fits-all approach to clean energy transitions."* [*Net Zero by 2050 A Roadmap for the Global Energy Sector*, p 4].

Therefore, the IEA's statement on methane is one element of a possible pathway towards 1.5°C, but not the only possible pathway, and approaches will vary across different countries.

The Commonwealth Government has established emissions reduction strategies for Australia. The Commonwealth Government has made Nationally Determined Contributions to reduce emissions across all greenhouse gases by 43% by 2030, 65-70% by 2035 and net zero by 2050. The Commonwealth Government has established the Safeguard Mechanism as a key tool to drive emissions reductions across the Australian industrial sector in line with these commitments. The Safeguard Mechanism has been informed by multi-year extensive consultation across stakeholders and is designed specifically to address the circumstances of the Australian industrial sector.

Methane emissions are covered under the Safeguard Mechanism and will continue to be a focus for coal mines when considering potential abatement opportunities. Where feasible abatement

opportunities are not available to meet net emission reduction obligations, ACCUs or SMCs, will be retired.

(5) Do you agree with NSW DCCEEW's analysis that fugitive emissions from fossil fuels in NSW "are projected to increase by 2030 due to increased mining activity" (2024 Methods Paper, NSW DCCEEW, June 2025)?

NSWMC does not collate and update production and emissions forecasts for the NSW coal sector.

However, NSWMC has highlighted our concerns with the overestimation of emissions under the NSW Government's Net Zero Model in our original submission to the Inquiry.

Individual companies have also identified significant discrepancies between their internal projections of emissions and the emissions forecasts that have been incorporated into the Net Zero Model. This is highlighted in the submission by Centennial to the inquiry, which identified that the Net Zero Model had overestimated its actual emissions by almost 1 million tonnes in 2023-24.

Given these discrepancies, the industry does not have a high level of confidence in the current emissions forecasts for the coal mining sector prepared by the NSW Government and is working with the NSW Net Zero Modelling team to improve future forecasts.

We would also again bring the Committee's attention that even with the likely overestimates of gross Scope 1 emissions in the Net Zero Model forecasts, the 2024 Methods Paper includes analysis that indicates that net emissions across the sector are likely to fall in line with the NSW emission reduction targets as a result of the industry's obligations under the Commonwealth Safeguard Mechanism.

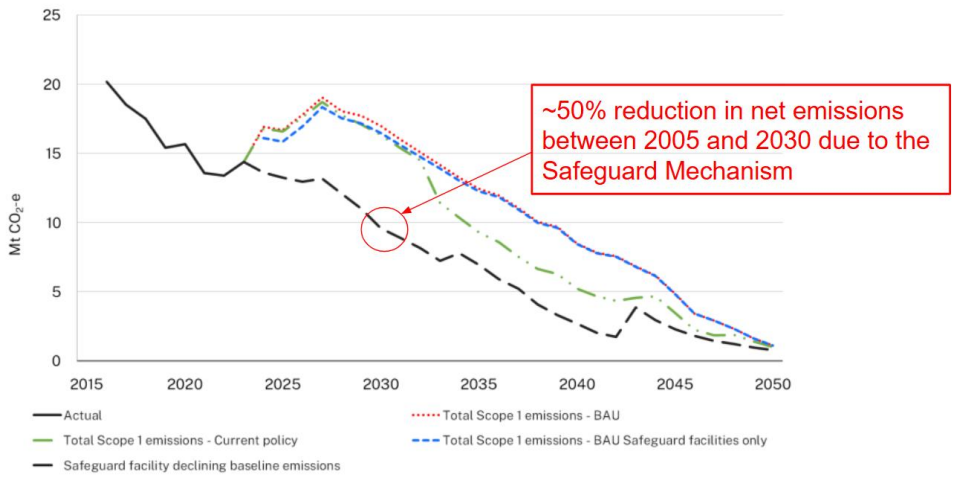


Figure 24 **Scope 1 emissions for coal mining showing inventory estimates (1990 to 2022), scope 1 BAU and current policy emissions projections, scope 1 emissions for Safeguard coal mines only, and the Safeguard declining baseline for the coal mining sector (2023 to 2050)**

The NSW Government's Greenhouse Gas Emissions Projections 2024 Methods Paper states:

> *"Should the coal sector meet its obligations under the Safeguard Mechanism in all future years going forward, the sector's emissions reduction trend will generally be consistent with its historical declining trend."*

NSW Minerals Council