



EPA Climate Change Documents

NSW Minerals Council Summary – November 2025

The NSW Minerals Council (NSWMC) has reviewed the three climate change documents released for public consultation by the NSW EPA, including:

- Proposed Climate Change Licensee Requirements
- Climate Change Mitigation and Adaptation Plans: Proposed Mitigation Requirements
- Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines

Across the three documents, there are sweeping changes proposed to the regulation of greenhouse gas emissions for the NSW mining industry covering emissions measurement, emissions reporting, emissions forecasting, emissions goals and limits, mandated mitigation requirements with an exemption framework, and a range of associated eligibility criteria covering highly technical issues. The proposals are significant and have the potential to impose billions of dollars in additional compliance costs.

In the case of the coal mining industry, this huge volume of proposals is directed at emissions and issues that are already comprehensively regulated by the Commonwealth Government.

The EPA's proposals contradict the commitment made by the EPA in its Climate Change Action Plan to ***“ensure our climate change approaches complement (and do not conflict with or duplicate) actions already taking place under the NSW Net Zero Plan, and any actions being taken by the Commonwealth Government, especially the Safeguard Mechanism.”***

Rather than complementing the Safeguard Mechanism, **the proposals would create an entirely separate layer of greenhouse gas related requirements at the NSW level that are inconsistent with a licence holder's Safeguard obligations.** This includes:

- Applying different emission reduction trajectories
- Requiring absolute net emission reduction goals, in contrast to the Safeguard Mechanism emissions intensity approach
- Focusing on individual facility outcomes, rather than the Safeguard's approach of delivering outcomes efficiently across the industrial sector
- Applying a prescriptive approach to mitigation requirements, rather than the outcomes based, technology-neutral approach under the Safeguard Mechanism
- Applying restrictions on the use and location of offsets
- Proposing NSW-specific emissions estimation requirements that are inconsistent with national standards
- Requiring Scope 2 emission reduction goals.

The EPA's statutory duty does not require such a duplicative, complex and onerous approach.

The proposals are based on the false premise that the Commonwealth's Safeguard Mechanism does not deliver emissions reductions aligned to NSW targets and is not driving the adoption of feasible onsite abatement opportunities. The documents also misrepresent or oversimplify a wide range of technical aspects associated with greenhouse gas emissions estimations, monitoring and mitigation in the coal mining industry.

In the case of the coal mining sector, **NSW Government modelling shows the industry is already on track to reduce emissions in line with the State's legislated target of a 50% net reduction in emissions by 2030.** In light of this, the justification for such significant additional intervention is weak.

The mining industry is already delivering significant volumes of direct abatement. The industry directly abated 4 million tonnes CO₂-e of fugitive methane emissions from underground mines in 2023-24 through gas drainage and flaring or utilisation. The coal mining industry has taken a range of other steps to minimise methane leaks from historical workings, improve gas drainage efficiency, install additional flaring infrastructure, improve the efficiency of diesel equipment, trial low carbon fuels, progress the demonstration of technology to mitigate ventilation air methane and investigate the potential to pre-drain methane from open cut mining operations. **These measures have contributed to the industry's 28% reduction in emissions since 2005 – faster than the State average of 25%.**

The mining industry is a hard-to-abate sector and the industry continues to research and develop technology to broaden the range of available abatement opportunities on the pathway to net zero by 2050. Mitigation opportunities will vary across the sector depending on a range of geological, technological, commercial and operational factors, and will evolve over time as mining conditions change, technology develops and carbon prices increase. As the [Climate Change Authority](#) notes, Australian Carbon Credit Units (ACCUs) “smooth the transition for industrial emitters that need to make major capital investments” and help “equalise the marginal cost of abatement across sectors, which is the condition for cost-efficient emissions reductions.”

NSWMC has two overarching recommendations on the EPA's three documents:

1. **Deliver on the EPA's commitment to avoid conflict or duplication with the Safeguard Mechanism**

Given the coal mining industry is on track to reduce emissions in line with the NSW legislated targets, and is already pursuing feasible direct abatement opportunities, there should only be rare circumstances in which any additional NSW requirements are applied. For Safeguard-covered facilities, requirements should mirror a facility's Safeguard requirements. The circumstances in which further requirements are applied at the NSW level should be targeted and clearly justified to provide greater certainty regarding the EPA's expectations and to demonstrate the EPA is delivering on its commitment to avoid conflict or duplication with the Safeguard Mechanism.

2. **Develop a fit-for-purpose approach for the identification and implementation of feasible site-specific mitigation measures**

The proposal to mandate standard mitigation requirements at coal mines is based on the false premise that the Safeguard Mechanism is not driving feasible onsite abatement. The mitigation requirements proposed in the Coal Mine Mitigation Guide are either already being implemented where they are feasible, do not yet exist, are unproven, have technical limitations or are uneconomic. As a result, the proposed framework will not change outcomes but will consume significant resources. A better approach would be for licence holders to justify their site-specific mitigation approach in the proposed CCMAPs. The EPA has a wide range of existing regulatory tools available to initiate further, targeted intervention if required.

NSW Minerals Council

- Attachment 1 - NSWMC Submission: Proposed Climate Change Licensee Requirements
- Attachment 2 – NSWMC Submission: Climate Change Mitigation and Adaptation Plans
- Attachment 3 – NSWMC Submission: Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines



Proposed Climate Change Licensee Requirements

NSW Minerals Council Submission – November 2025

The *Proposed Climate Change Licensee Requirements* (CCLR) contain several proposals that will complicate the regulatory framework for mining operations and create duplication and inconsistency with existing Commonwealth Government requirements.

The NSW Minerals Council (NSWMC) does not believe the proposed framework aligns with the EPA's stated principles underpinning the approach and commitments made by the EPA to ***"ensure our climate change approaches complement (and do not conflict with or duplicate) actions already taking place under the NSW Net Zero Plan, and any actions being taken by the Commonwealth Government, especially the Safeguard Mechanism."***

In relation to the coal mining sector – the primary industry targeted for regulation in the first tranche – the justification provided in the CCLR for regulation in addition to the Safeguard Mechanism is weak.

95% of the NSW coal mining industry's emissions are covered by the Safeguard Mechanism and NSW Government modelling indicates this will align the coal mining industry with NSW's stronger emission reduction targets. There is clear evidence of the industry already implementing direct abatement and progressing a wide range of measures to further mitigate emissions.

The Commonwealth Government will be reviewing the Safeguard Mechanism next year and will consider a range of potential reforms to the scheme, including its role in meeting the Commonwealth Government's recently announced 2035 target range of 62-70%. This review will occur soon after the EPA finalises its requirements. Each time Commonwealth requirements are reformed, NSW requirements will need to be reviewed to ensure they ***"do not conflict with or duplicate"*** any reforms. An approach where NSW requirements are more closely tied to Safeguard Mechanism requirements would allow reforms to flow through to the NSW framework more seamlessly.

The CCLR contains misleading commentary regarding emission estimation techniques that gives the impression that emerging, experimental techniques are more accurate than the existing, scientifically robust estimation methods applied by NSW mining operations.

The CCLR contains several initiatives that have the potential to establish duplicative or inconsistent approaches to emissions estimation with approved national methods under the National Greenhouse and Energy Reporting Scheme (NGERs). NGERs methods are frequently updated and there are specific expert review processes underway at the Commonwealth level assessing potential improvements to coal mine emissions estimation methods. The EPA's proposals to ***"progressively require facility-level greenhouse gas monitoring for certain groups of licensees"*** and to prohibit periodic monitoring under Method 4 indicate that the EPA is proposing to establish a separate emissions estimation framework for NSW that may not align with national inventory methods and will potentially complicate compliance for NSW coal mines.

The attached table contains NSWMC's detailed comments on the proposed CCLR requirements.

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Table 1 Comments on EPA Proposed Climate Change Licensee Requirements

Section	Summary	NSWMC Comments
Purpose (p5)	<i>"The principles underpinning our approach are:</i> <i>Evidence-based: requirements on licence holders should be evidence-based</i> <i>Enforceable: the requirements are clear to comply with and to enforce</i> <i>Staged implementation based on risk: the implementation of these requirements will be phased in. The timing of the stages will be based on the size and impact of the premise's emissions and will ensure that licensees are making a meaningful contribution to NSW's greenhouse gas emission reduction targets. Staged implementation will support compliance by gradually building licensee capability</i> <i>Avoiding duplication: licensees will be supported to repurpose existing reporting material."</i>	The EPA's framework does not align with these stated principles. It is: Not evidence-based: In the context of the coal mine mitigation guide, the EPA has not provided technical and financial evidence to support its proposed mitigation measures and claims about their feasibility. The proposed measures are either already being done, are not yet proven, have technical limitations, do not yet exist or are uneconomical. Enforceability is unclear: The enforceability of the EPA documents is unclear due to their status as policy documents and uncertainty in how the requirements will be enforced especially in the short-term prior to EPLs being varied in the future. For example, the CCLR Policy states that licensees will need to benchmark the mitigation actions in their CCMAP against GHG mitigation guides as they are developed. However, over time some of the actions in the guides will be put into regulation or as conditions on a licence. This provides no certainty to licence holders as to the enforceability of the EPA Documents and the implications (if any) of not meeting the 'benchmarks' in the guidance prior to certain elements being regulated. In contrast to the predictable, outcomes based regulation of the Safeguard Mechanism, the requirements are subjective, uncertain and complicated, making them unclear to comply with. Implementation is not based on risk: The Coal Mine Mitigation Guide states that GHG emissions from coal mines made up just 12% of NSW total emissions in 2021-22, and 28% of methane emissions. 95% of the industry's emissions are already subject to regulated requirements to reach net zero by 2050 and the industry is on track to

		reduce net emissions in line with the NSW legislated targets. There are other bigger and unregulated sources of emissions that pose greater risks to NSW targets. Furthermore, the inclusion of non-Safeguard coal mines in the first phase of implementation is not risk-based. • Does not avoid duplication: Given the extensive regulatory framework that is already in place, particularly for Safeguard facilities, the entire framework being proposed by the EPA is duplicative.
NSW not on track to meet 2030 and 2035 targets pp6-7	<i>“The latest projections from the NSW Department of Climate Change, Energy, the Environment and Water show a significant risk that NSW is not on track to meet its 2030 and 2035 targets without further action by the Government and the private sector.”</i>	The CCLR should acknowledge that the coal mining industry is on track to reduce emissions in line with NSW legislated targets. The NSW Greenhouse Gas Projections Methods Paper 2024 contains analysis (Figure 24) that indicates the coal mining sector - covering both Safeguard and non-Safeguard facilities - is on track to reduce net emissions by more than 50% between 2005 and 2030, in line with NSW’s net emission reduction target. This is important to recognise in the CCLR policy given that the coal mining industry is the initial primary regulatory target under these EPA guidelines. Furthermore, the model has overestimated the coal mining industry’s emissions by 3 million tonnes in 2023-24 and it is likely that future projections have also been overestimated. We acknowledge the efforts made by the Net Zero Emissions Modelling Team in seeking feedback from coal mining companies to allow ongoing improvement of the estimates in future updates.
Why state-based climate-related requirements are needed for facilities regulated by the Australian Government pp7-8	<i>“The Safeguard Mechanism only applies to facilities that have very large emissions. It does not require facilities to outline their plans to reduce emissions in the future or to adapt to climate change. The scheme also does not require onsite emissions reductions, as it does not limit the number of offsets and Safeguard Mechanism Credits that can be used to meet a baseline. The Safeguard</i>	The CCLR’s description of the Safeguard Mechanism has the potential to mislead the public and should be updated to more accurately reflect the Scheme’s design features and implications for NSW industrial emitters. Each of the EPA’s statements are addressed below. <i>The Safeguard Mechanism only applies to facilities that have very large emissions</i> - For the coal mining sector, 95% of the industry’s emissions are captured by the Safeguard Mechanism. Creating a new

Mechanism does not require facilities or operators to publish or report their emission reduction plans.

The Safeguard Mechanism alone will not be enough to help NSW meet its emission reduction targets. Our approach supports the NSW Government's legislated targets for emissions reductions, which are more ambitious than the Australian Government's targets and build upon the work required under Safeguard."

regulatory framework to apply to the entire sector because 5% of emissions are unregulated is a significant overreach.

The scheme also does not require onsite emissions reductions, as it does not limit the number of offsets and Safeguard Mechanism Credits that can be used to meet a baseline - the Safeguard Mechanism has been carefully designed by the Commonwealth Government to recognise the difficulties of mitigating hard-to-abate emission sources and ensuring facilities can meet emission reduction obligations efficiently, rather than directing sites to implement high cost mitigation measures and reduce the competitiveness of Australian businesses. As the [Commonwealth Treasury](#) explains:

"The Safeguard Mechanism incentivises low-cost decarbonisation for covered industrial emitters. The Safeguard Mechanism delivers abatement by incentivising investments in technology and carbon credit trading to efficiently sequence abatement between sectors and across time. Flexibility to use land-based abatement allows facilities to meet emissions reductions on a net basis."

In any case, there is clear evidence that the NSW mining industry is implementing technically and financially feasible emissions reduction measures. There was more than 4 million tonnes CO₂-e of fugitive emissions abatement alone in 2023-24, and many other abatement projects are being planned, driven by the financial signals under the Safeguard Mechanism.

Furthermore, the [review of the Safeguard Mechanism in 2026-27](#) will specifically consider the extent to which on-site abatement is being driven under the Scheme and whether any additional incentives are required. NSWMC anticipates this will be an evidence-based process and is the appropriate process through which to gauge the impact of the Safeguard Mechanism reforms and for the Commonwealth Government to consider the need for potential changes.

It does not require facilities to outline their plans to reduce emissions in the future or to adapt to climate change ... The Safeguard Mechanism does not require facilities or operators to publish or report their emission reduction plans - there is already a

wide range of publicly available information regarding the mitigation measures being implemented and investigated by mining operations, partly highlighted by the EPA's review of existing reporting frameworks in the CCMAP guide. In terms of future plans, the EPA has unrealistic expectations regarding the ability of companies to confidently identify and commit to abatement measures over the next 10 years, given the uncertainties surrounding the availability and feasibility of such abatement measures.

The Safeguard Mechanism alone will not be enough to help NSW meet its emission reduction targets - NSWMC agrees that the Safeguard Mechanism alone is not sufficient to address emissions across the entire economy given that the Safeguard Mechanism only covers the industrial sector, which is approximately a third of Australia's total emissions.

However, the NSW Government's modelling indicates that the Safeguard Mechanism is sufficient to reduce the coal mining industry's emissions in line with the NSW 2030 target, even though the NSW target is more ambitious than the Commonwealth's 2030 target. This evidence demonstrates that for Safeguard-covered facilities, the Safeguard Mechanism alone is enough to help meet NSW emission reduction targets and that regulatory effort should be directed to other sources of emissions.

1. Annual Climate Change Emissions Report

"The intention is for the EPA to receive the same data that is provided to the Clean Energy Regulator in order to limit regulatory burden."

In addition, "The licensee must annually provide to the EPA commentary on the reasons for significant emissions, energy and emissions intensity changes from the most recently concluded financial year." (p22)

The requirement to duplicate and add to existing NGERs reporting should be removed.

The EPA stated in the Climate Change Action Plan that *"Licensees will not be required to report the same information twice."* This proposal requires the same information to be reported twice.

This data is publicly available for Safeguard facilities 6 weeks after the EPA's proposed reporting date. If the EPA is unable to reach data-sharing arrangements with the Commonwealth to obtain this data, then it should be prepared to wait 6 weeks to avoid imposing unnecessary reporting obligations on licence holders.

Data would be provided by 28 February each year for the previous financial year.

For non-Safeguard NGERs reporters this data can also be obtained from the Commonwealth and reported in aggregate.

For Safeguard facilities and coal mines >25,000 tonnes Scope 1 and 2 - 28 February 2026.

Remaining facilities >25,000 tonnes Scope 1 and 2 - 28 February 2027.

2. Climate Change Mitigation and Adaptation Plans

Creates the requirement to prepare a CCMAP.

See NSWMC's separate submission on the proposed CCMAP guidelines.

Safeguard facilities and coal mines >25,000 tonnes Scope 1 and 2 – made publicly available by 31 October 2026

Remaining facilities >25,000 tonnes Scope 1 and 2 – made publicly available by 31 October 2027

Updated every 3 years.

3. Specific mitigation actions

"The EPA will develop targeted mitigation requirements for industry sectors to implement specific technologies, processes or emission actions by specific dates. These measures will be tailored to each sector or licensee where necessary, acknowledging the unique challenges and opportunities that they each face."

See NSWMC's separate submission on the proposed GHG Mitigation Guide for NSW Coal Mines.

The concept of applying generic mitigation requirements by arbitrary dates across a diverse, hard to abate industry is flawed.

The EPA is proposing to require measures that are already standard industry practice, or alternatively are unproven in Australian mining

“We recognise the importance of signalling these requirements in advance of their implementation date. Once a licensee is required to implement a specific mitigation action, it may remove the ability for that licensee to access NSW and Australian Government grant funds and may restrict a licensee’s ability to earn Australian Carbon Credit Units under Australian Government programs.”

“These requirements will be implemented on an industry-by-industry basis as technology improves. The first of these requirements will focus on the coal mining sector, supported by the coal mining greenhouse gas mitigation guide. This guide includes proposals that could be broadened to apply to the broader mining sector or other industries in future mitigation guides that will be subject to public consultation.”

conditions, do not yet exist or are uneconomic.

4. Emissions measurement

NGERS emission estimation techniques

“The methods used to report emissions to NGERs are based on estimates, and actual emissions can differ from these figures. Improved measurement of fugitive methane emissions will:

- improve the accuracy and reduce uncertainty around estimation methodologies*
- support the EPA’s regulatory actions – the EPA’s ability to take regulatory action or tailor support for sectors is limited when there are high levels of uncertainty*
- support future regulations such as implementing sector budgets and targets and licence limits.”*

The CCLR should be updated with a more accurate description of the state of atmospheric measurement and estimation techniques for emissions inventory development, and NSW-specific information on NGERs estimation techniques.

The EPA appears to have formed the view that experimental atmospheric measurement approaches are more accurate than existing NGERs estimation techniques which are the highest order IPCC methods for estimating emissions from coal mines. This is incorrect and misleading.

The CCLR should make it clear that atmospheric measurement techniques are indirect estimates, are unproven and unregulated, and yet to be developed into scientifically robust methodologies for emissions inventory estimation and have a high degree of uncertainty.

Methane detection is separate and distinct from emissions inventory

estimation. Establishing accurate emissions inventories from detection of atmospheric methane concentrations is difficult. There are potentially significant and compounding uncertainties associated with each of the key steps in the atmospheric measurement emissions estimation approach, including sensor interference, conversion of sensor readings into gas concentrations, accurately defining the emissions plume, and then estimating emissions using gas dispersion models including wind speed and direction, in a topographically complex open cut mine. There is also temporal variability that is not detected if the measurement technique only provides limited readings.

In terms of the limitations of existing NGERs estimation methodologies, the EPA/CSIRO paper states, *“Many of the issues stem from using emission factors that may not be representative at the facility scale, particularly when lower-order methods such as Method 1 are applied.”*

All open cut mines covered by the Safeguard Mechanism in NSW use NGERs Method 2. Method 2 is a scientifically robust methodology that uses proven technologies and has been developed in consultation with Commonwealth Government officials, auditing and laboratory service providers, and the research community, including CSIRO. Method 2 involves direct drilling and sampling across a representative sample of the coal resource to estimate the total volume of in situ gas. Coal and gas samples are laboratory tested, a gas model is developed by a qualified Estimator, and an independent peer review is undertaken of the model. In addition, emissions estimates are subject to the annual audit/assurance requirements of NGERs and are also subject to ongoing independent audits by the Clean Energy Regulator.

Rather than including generic information about emissions estimates, the EPA should include information specific to NSW in the CCLR.

4. Emissions measurement

Future facility-level greenhouse gas monitoring

“Over time, as technology, capabilities and evidence evolve, the EPA will progressively require facility-level greenhouse gas monitoring for certain groups of licensees. This means licensees would measure some of their onsite emissions rather than relying on estimates used for their climate change annual emissions reporting.”

Improvements to the NGERs reporting methods should be led by the Commonwealth. The NSW EPA should not seek to develop separate, inconsistent emissions estimation methodologies and should commit to aligning with the national approach.

The Commonwealth Government has [established an expert panel](#) to provide evidence-based advice to the government on atmospheric

measurement of fugitive methane emissions in Australia, including the current scientific understanding of top-down approaches, the role top-down approaches could play in NGERs (including whether they could enhance NGERs methods), and the improvements in scientific understanding that are needed to enable optimal use of top-down approaches in the future.

The Terms of Reference for the Expert Panel demonstrate the extent to which emerging top-down methods are not currently fit-for-purpose to inform coal mine emissions inventory reporting.

The potential application of atmospheric monitoring approaches, and how they might be able to improve or complement existing estimation methodologies, needs to be assessed through a rigorous, science based process.

It is premature to portray unproven and unregulated atmospheric measurement approaches as being superior or more accurate than the NGER-approved estimation techniques that are being applied at NSW open cut coal mines.

The EPA should align with Commonwealth NGERs reporting frameworks and participate in ongoing Commonwealth reviews rather than aiming to develop NSW-specific requirements in isolation of national inventory methods.

4. Emissions measurement

Continuous methane monitoring at underground coal mines

“The EPA proposes that from 31 October 2026 all underground coal mines that emit more than 25,000 tonnes of CO₂-e per year, including mines in suspended operations (care and maintenance), continuously measure methane concentrations in ventilation air with certified instrumentation, to ensure fugitive methane estimations are as accurate as possible and fugitive methane emissions abatement measures are assessed with a high confidence.

The EPA is considering whether to exempt underground mines from this requirement if they are either:

The NSW EPA should not prohibit Commonwealth-approved emissions estimation techniques.

Rather than imposing blanket requirements with unintended consequences, NSWMC recommends that the EPA engages with companies directly to better understand current approaches to gas monitoring at underground mines and make informed decisions on any potential changes.

Statistically robust gas concentration data at underground coal mines can be delivered with periodic measurement techniques.

The NSW Government should accept Commonwealth NGERs methodologies rather than imposing NSW-specific requirements that could trigger changes to existing monitoring approaches without

- *located in the Western Coalfields – coal seams in the Western Coalfields generally have a lower methane and gas content due to their geology*
- *due to close within 2 years of this requirement coming into place.” (p13)*

“Why is this requirement needed?

Methane concentrations in ventilation air are highly variable. This limits the accuracy of periodic measurement.

Currently, under the NGER Scheme, mines have the option to do periodic or continuous emissions monitoring to estimate their fugitive methane emissions. The number of samples taken for periodic emissions monitoring can vary from site to site, which adds to the uncertainties of the emissions estimated.

Effective management of ventilation air methane requires accurate monitoring because of the very low methane concentrations.

The EPA understands that many mines have already implemented continuous, highly accurate monitoring of methane concentrations in ventilation air for safety reasons.” (p14)

“The licensee must use the information to calculate their methane emissions for their Annual Climate Change Emissions Report.” (p22)

materially improving the accuracy of reporting.

The EPA/CSIRO report demonstrates an incomplete understanding of the application of NGERs Method 4 at NSW underground coal mines, and the practical implementation of Continuous Emissions Monitoring (CEM) and Periodic Emissions Monitoring (PEM) approaches.

The EPA/CSIRO report assumes that *“entities are most likely to use PEM”*, however this is not the case for gas monitoring. The EPA/CSIRO report also states Appin uses a PEM system, however Appin uses periodic ventilation monitoring and continuous gas monitoring.

For mines that have very low methane concentrations, periodic gas chromatography can provide the most accurate emissions estimates. Mandating alternative, continuous instrumentation is likely to reduce the accuracy of methane emissions estimates.

Other issues include:

- There is no justification provided for the 25,000 tonne CO₂-e threshold, which is well below the threshold proposed for VAM abatement.
- There is no justification provided for applying the requirement to mines in care and maintenance. Mines in care and maintenance have no operational changes and are unlikely to have significant variations in methane concentrations that would warrant the switch to continuous methane monitoring if it is not already in place. Furthermore, VAM volumes and concentrations will not be representative of levels during the operational phase of the mine, if it was to return to operations, so would provide limited data to support future VAM abatement.
- There is no recognition that some mines have multiple shafts, some of which have very low airflow and emissions, where the costs of mandating continuous monitoring at these shafts will outweigh the benefits.
- Some shafts may require significant infrastructure upgrades to comply with this proposal, involving substantial capital expenditure that has not been budgeted for. By the time the EPA finalises these requirements there will be less than 12 months to comply.

The exemptions being considered are sensible, however the proposal itself requires further consideration.

4. Emissions measurement

Regional Greenhouse Gas Monitoring Network

“The NSW Government will establish regional greenhouse gas monitoring networks to measure ambient concentrations of greenhouse gases over time. Initially the NSW Government will prioritise establishing the network in the Hunter region, attaching greenhouse gas monitors to existing air quality monitors. The locations for the greenhouse gas monitors will be informed by the knowledge and experience gained during the establishment of the existing air quality networks as well as further targeted consultation with key stakeholders.

Once a greenhouse gas monitoring network has been established, the NSW Government will work with experts to pilot ‘inverse modelling’ techniques to attribute the measured concentrations to greenhouse gas emissions at a particular facility. Inverse modelling combines greenhouse gas measurements with known meteorological and chemical transformation models to estimate the sources and rates of greenhouse gas emissions or uptake.

There is still a significant amount of work required to establish appropriate assumptions for inverse modelling, as these models rely on accurate data inputs regarding atmospheric conditions, ambient concentrations and regional variations. These assumptions are important to ensuring the model outputs are reliable and representative of actual emissions levels, and to improving the overall accuracy of greenhouse gas inventories and emissions reduction

Provide evidence to support the claims about the capabilities of the proposed regional monitoring networks.

The draft document makes a broad range of claims about the capabilities of regional monitoring networks including:

“[results can be] compared with NGERs inventories, and with any facility-reported emissions in planning applications, to help verify greenhouse gas estimates”

“means of tracking regional greenhouse gas reductions”

“assessing the success of any regulatory interventions”

“greater public transparency on NSW greenhouse gas emissions”

“helping the NSW Government track progress towards targets”

“contribute to understanding whether Australia is meeting its obligations under the Paris Agreement and the Global Methane Pledge”

It is unclear and uncertain whether future regional monitoring networks will be able to deliver on these claims.

In particular, NSWMC questions the ability of regional monitoring networks to attribute greenhouse gas emissions to facilities to verify emissions estimates. The EPA/CSIRO report does not state that this is a purpose of the regional monitoring networks and NSWMC questions whether this is possible to a high degree of accuracy with the existing Upper Hunter Air Quality Monitoring Network.

The CCLR Policy states that emissions limit requirements on licences will be informed by the NSW Government’s Regional Greenhouse Gas Monitoring Network. NSWMC considers there is significant legal risk associated with this approach of using regional data to inform specific licence requirements. Any methods used must comply with NGER methods.

strategies. Once the robustness of inverse modelling has been determined, over time the model results could be compared with NGERS inventories, and with any facility-reported emissions in planning applications, to help verify greenhouse gas estimates.

The greenhouse gas monitoring networks and the inverse modelling will provide a means of tracking regional greenhouse gas reductions and assessing the success of any regulatory interventions. It will also provide greater public transparency on NSW greenhouse gas emissions. Greenhouse gas monitoring networks will play an important role in helping the NSW Government track progress towards targets under the Net Zero Act, and will contribute to understanding whether Australia is meeting its obligations under the Paris Agreement and the Global Methane Pledge.”

5. Greenhouse gas emission licence limits

“As outlined in our Climate Change Action Plan, the EPA will progressively place targeted, evidence based limits for greenhouse gas emissions on new and existing Environment Protection Licences for key industry sectors that we regulate (Action 18). This is a long-term action and will not be implemented in the short term.

Emission limit requirements on licences need to be informed by the NSW Government’s Regional Greenhouse Gas Monitoring Network and broader work across government.

Any greenhouse gas emission licence limits should align with Safeguard requirements.

The introduction of emissions limits for non-Safeguard facilities would be a major change and a comprehensive and iterative consultation process will be required.

While the introduction of greenhouse gas emission licence limits is a long-term action, NSWMC has concerns with the EPA establishing greenhouse gas licence limits on Safeguard-covered facilities that are inconsistent with their requirements under the Safeguard Mechanism.

Safeguard-covered facilities have predictable, outcomes-based emissions reduction obligations that are designed to make a proportionate contribution to Australia’s international commitments.

Why is this requirement needed?

Setting individual greenhouse gas emission limits on licence provides an outcomes-focused approach to driving emissions reductions. However, for the EPA to be able to effectively take action for breaches of limits, they need to be supported by accurate measurement of emissions, and determination of meaningful site-level limits.”

The design of the Safeguard Mechanism will be refined over time to ensure it is delivering on its objectives and is contributing to any updated targets, including the Commonwealth’s recently announced 2035 net emissions reduction target range of 62-70%.

There is no need for the NSW EPA to intervene and create complicated and inconsistent emissions reductions limits at the NSW level for Safeguard-covered facilities.

For non-Safeguard facilities, the introduction of emissions limits will be a major change to their existing regulatory requirements. The framework for establishing proposed limits will require an extensive consultation process that delivers equitable requirements across a wide range of NSW licence holders.



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Climate Change, Mitigation and Adaption Plans: Proposed Mitigation Plan Requirements

NSW Minerals Council Submission – November 2025

The NSW Minerals Council (NSWMC) acknowledges the EPA's objective of delivering greater transparency regarding greenhouse gas mitigation strategies through the proposed Climate Change, Mitigation and Adaptation Plans (CCMAPs). However, the proposed framework is unnecessarily onerous and complex and fails to meet the EPA's commitment to avoid conflict or duplication with the Safeguard Mechanism.

Safeguard-covered facilities have predictable, outcomes based emission reduction obligations already in place. For the coal mining sector - the primary sector impacted in the proposed first tranche of implementation - NSW Government modelling indicates the Safeguard Mechanism will deliver emissions reductions across the industry that align with NSW's legislated targets.

Despite this alignment between the coal industry's existing obligations under the Safeguard Mechanism and NSW's emission reduction targets, the proposed CCMAP requirements will create an entirely separate, distinct layer of greenhouse gas related requirements at the NSW level that are inconsistent with a licence holder's Safeguard obligations. This includes:

- Applying different emission reduction trajectories
- Requiring absolute net emission reduction goals, in contrast to the Safeguard Mechanism emissions intensity approach
- Focusing on individual facility outcomes, rather than the Safeguard's approach of delivering outcomes efficiently across the industrial sector
- Applying a prescriptive approach to mitigation requirements, rather than the outcomes based, technology-neutral approach under the Safeguard Mechanism
- Applying restrictions on the use and location of offsets
- Requiring Scope 2 emission reduction goals.

The EPA's proposals contradict the commitment made by the EPA in its Climate Change Action Plan to *"ensure our climate change approaches complement (and do not conflict with or duplicate) actions already taking place under the NSW Net Zero Plan, and any actions being taken by the Commonwealth Government, **especially the Safeguard Mechanism.**"*

The number of requirements and their subjective nature will lead to lengthy, complex and uncertain assessment processes. NSWMC envisages that in most cases, the outcomes will remain largely the same, however they will be reached through a much more complicated, inefficient, uncertain and costly process.

In addition, NSWMC does not support the provision and publication of 10 year emissions forecast data. This information is commercially sensitive and the coal mining industry has an existing process to refine emission forecast assumptions with the Net Zero Modelling Team, which does not need to be

duplicated by the EPA. The proposed CCMAP requirements also contain unrealistic expectations regarding the ability of licence holders to confidently identify and commit to mitigation measures over the next 10 years, when the availability, costs and capability of technologies is uncertain and companies will not risk allegations of greenwashing.

NSWMC recommends that for Safeguard-covered facilities, the CCMAP should mirror the facility's Safeguard requirements. Given the coal mining industry is on track to meet NSW's stronger emission reduction targets due to the impact of the Safeguard Mechanism, there should only be rare circumstances in which any additional NSW requirements are applied, and the circumstances in which this would occur should be specific, targeted and justified to provide greater certainty regarding the EPA's expectations.

For non-Safeguard licence holders, the proposed CCMAP requirements are a major change in the compliance framework and further consultation is required to develop a predictable and equitable framework for applying the CCMAP requirements.

The attached table contains NSWMC's detailed comments on the proposed CCMAP requirements.

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Table 1 **Comments on Proposed Climate Change Mitigation and Adaptation Plans**

Issue	Description	NSWMC Comments
Implementation timeline	<i>The CCMAp is due to be made publicly available by 31 October 2026.</i>	The publication date for CCMAps should be changed to April each year.
Timing of CCMAp publication (p7)	<i>A CCMAp is to be updated every three years, with the first update to be made publicly available by 31 October 2029.</i>	31 October is the same date as the NGERs reporting date. The CCMAp policy stating the dates “<i>have been selected to coordinate with NGERs reporting dates and end of financial year.</i>” The latest financial year NGERs data will not be able to be included in the CCMAp if it is required to be published on 31 October (see comments on Section 3.1 below). Furthermore, requiring CCMAps to be prepared and published on the same date as NGERs reporting is due will stretch company resources. Safeguard data is published in April following the CER’s data verification process. Aligning the CCMAp publication date with the Safeguard data publication date will ensure the latest NGERs data can be incorporated into the CCMAp and spread out the additional reporting burden on licence holders.
Implementation timeline	<i>Tranche 1</i>	Justify the inclusion of non-Safeguard coal mines in the first tranche of implementation.
Proposed tranches (p7)	<i>Safeguard Mechanism facilities</i> <i>Coal mines that emit more than 25,000 tonnes of CO₂-e (scope 1 and 2) per annum</i>	It is unclear why non-Safeguard coal mines are included in the first tranche of licensees required to prepare CCMAps. This approach is not risk-based.

2.2.1 A single CCMAP may be prepared for multiple licensed premises within NSW (p8)

“A licensed facility may be part of a corporation that has multiple licences or large complex sites in NSW. To provide greater flexibility, a single CCMAP document may be prepared for multiple licensed premises within NSW.

...

This approach supports emissions reductions across NSW by enabling companies to focus resources where they can achieve a higher level of emissions reduction.”

Align other aspects of the EPA’s framework with this flexible approach.

The ability for licensees to prepare a single CCMAP for multiple licensed premises provides greater flexibility for licence holders and recognises that abatement opportunities vary between sites.

This is a similar concept to the Safeguard Mechanism, albeit on a much smaller scale and less efficiently. However:

- The EPA’s approach disadvantages companies who do not have the benefit of having multiple sites. They must therefore comply with any EPA requirements at individual facilities where there may be limited efficient abatement opportunities.
- The Coal Mine Mitigation Guide includes specific mitigation requirements for individual mines. It is unclear as to how a CCMAP that applies to multiple premises will assist.

The Safeguard Mechanism is designed to sequence emissions reductions efficiently across the entire industrial sector. It is an existing framework that the EPA should, as a first step, work to better understand the implications for the NSW industrial sector before imposing additional regulation.

Transition from development consents to EPLs (p28)

If, as part of the planning process, a licensee has prepared a greenhouse-gas assessment or an air quality and greenhouse-gas management plan (AQGHGMP) for their entire facility in accordance with the EPA’s NSW Guide for Large Emitters, then the EPA will recognise this document as a Climate Change Mitigation and Adaptation Plan for three years. It will need to be replaced with a Climate Change Mitigation and Adaptation Plan (or other type of plan which meets these requirements) after that time.

Provide details on how the intended transition from development consent conditions to EPLs will be handled in practice.

It is unclear from the CCMAP Policy as to how the transition for existing development consents regulating GHG emissions to the EPL regulating emissions will legally occur. While EPLs can be unilaterally varied by the EPA (provided they give notice to the licence holder), development consents cannot. Therefore, any transition would need to be drafted into development consent conditions so it is clear how the transition will occur to avoid duplication and regulatory overlap between the DPHI and the EPA.

Careful consideration will need to be given to the imposition of

	<i>As we implement the Climate Change Mitigation and Adaptation Plan requirements, the environment protection licence will become the primary tool for the regulation of greenhouse gas emissions. The EPA and Department of Planning, Housing and Infrastructure will work together with the aim of reducing regulatory burden on the licence holders and avoiding duplication.</i>	conditions in the planning approval and those in the EPL, noting the legislative requirement in sections 4.42(1)(e) (as it applies to SSD) and 5.42(1)(e) (as it applies to SSI) of the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act). Those sections state that an EPL must not be refused and must be consistent with any planning approval granted.
3.1 Current sources/quantities of GHG emissions (p29)	<i>The CCMAP should describe the scope 1 and 2 emission sources for the most recently concluded financial year for the premises, and quantify those emissions, with reference to the latest available emissions data reported to the Clean Energy Regulator under the NGER scheme.</i>	Licence holders will not be able to provide the latest financial year NGERs data if the CCMAP reporting date is 31 October. The EPA is requesting licences holders to include emission sources for “the most recently concluded financial year for the premises, and quantify those emissions, with reference to the latest available emissions data reported to the Clean Energy Regulator under the NGER scheme.” The NGERs reporting deadline for the most recently concluded financial year is the same date as the EPA’s proposed date for the publication of CCMAPs (31 October). After it is submitted, NGERs data is reviewed by the Clean Energy Regulator and there may be changes to the data before Safeguard facilities’ data is published the following April. It is unlikely that companies will sign off on the publication of NGERs data before it is submitted, verified and published by the Clean Energy Regulator. As a result, if the CCMAP publication date remains 31 October, CCAMPs are likely to include NGERs data for the financial year ended 15 months prior.
3.1.2 Current scope 3 emissions (p12)	<i>A CCMAP may include a description of the current scope 3 greenhouse-gas emissions sources, and quantify those emissions, for the most recently concluded financial year.</i>	Remove the requirement to provide details of Scope 3 emissions outside of NSW. While this requirement is ‘voluntary’ the policy states that ‘without data

Scope 3 emissions are all other indirect emissions that occur due to project activities from sources not owned or controlled by the licensee (see Glossary for more information). The Greenhouse Gas Protocol's Technical Guidance for Calculating Scope 3 Emissions and the National Greenhouse Accounts Factors are examples of approaches to estimate scope 3 emissions.

Reporting scope 3 emissions will encourage both upstream and downstream partners to reduce their emissions. Collecting this data will also enable the NSW Government to enhance the quality of emissions data over time. Without data on scope 3 emissions, government policies and programs may end up targeting the wrong sectors or overlooking critical leverage points.

on scope 3 emissions, government policies and programs may end up targeting the wrong sectors or overlooking critical leverage points'.

For many mining projects, the majority of scope 3 emissions will occur in other countries (being the end users of the minerals). This section of the Policy should be updated to exclude the need for specific details of scope 3 emissions to be provided where the emissions are to occur outside of NSW.

3.1.3 Emissions estimates for next 10 years (p13)

Licensees must estimate future scope 1 and 2 emissions for the licensed premises for each year for the next ten financial years in the CCMAF. This estimate must also be submitted directly to the EPA. The estimate must account for any emissions avoidance and mitigation measures already implemented, and measures that the licensee is committed to implementing. Future emissions must be estimated using NGERS methods, as applicable.

If a licensee plans to surrender their licence or close their premises, they must also include their estimates of the greenhouse gas emissions relating to end-of-life activities.

Remove the requirement to provide and publish emissions estimates for the next 10 years.

The EPA has not provided the rationale for the inclusion of this requirement. The EPA's own analysis of other climate related disclosures indicates that no other report requires forward-looking information of this nature.

Public disclosure of this information has the potential to reveal commercially sensitive data including estimated production data, consumables use data, and ACCU demand.

There is a risk that even if the data is not made publicly available that it could be obtained by members of the public pursuant to request under the *Government Information (Public Access) Act 2009* (NSW) (GIPA Act).

These end-of-life activities include decommissioning, closure, and post-closure activities such as remediation and rehabilitation (where relevant).

The estimates may include future scope 3 emissions, but this is not a mandatory requirement. Some businesses are actively working to reduce their supply-chain emissions and may wish to have that work recognised.

Consultation question: The EPA has heard from some licence holders that publishing 10-year emission estimates may reveal commercially sensitive information. Do you have any suggestions for how to meet the intent of this requirement without publishing commercially sensitive information?

The NSW Government's Net Zero Modelling team already undertakes forward projections of mining emissions using a range of public and confidential data sources. The Net Zero Modelling team has engaged constructively with the industry to refine the assumptions underpinning the emissions forecasts for the coal mining industry.

Rather than creating a new process that will duplicate this existing process, the EPA should engage with the NSW Net Zero Modelling team to obtain the information that is needed, while ensuring that confidentiality is maintained. This would be consistent with the EPA's commitment to "work closely with our NSW and Commonwealth Government colleagues to ensure our climate change approaches complement..." and that "Licensees will not be required to report the same information twice."

3.2 Mitigation measures

Licensees must identify and commit to mitigation measures within their CCMAP and specify a specific time frame for implementation. Licensees can also reference existing mitigation measures that have been implemented.

The plan should include measures over the next ten years and be designed to avoid and mitigate scope 1 and 2 emissions through current and planned operational approaches. Licensees may also consider mitigation measures for scope 3 emissions.

As mentioned in section 3.1, the EPA recognises that greenhouse gas emissions

Adopt more realistic expectations regarding how far ahead licence holders can commit to mitigation measures.

The EPA proposes to require licence holders to "identify and commit to mitigation measures" and the "plan should include mitigation measures over the next ten years."

Many technologies required to decarbonise mining operations are not yet available and the timing, costs and capabilities of various technologies are uncertain. Mines risk allegations of greenwashing by making commitments to implement measures with such a high degree of uncertainty.

Commitments will only be made where there have been decisions to implement a mitigation measure.

Where decisions have not yet been made to implement a measure, but they are under consideration, this information could be provided, but is

	<i>from some activities or industries are more difficult to abate than others. In other instances, significant investment may be required at some premises in order to support innovative and transformative projects or technologies that will support future emissions reductions and a low-carbon future.</i>	likely to be qualitative and subject to uncertainty.
3.2.1 Using Offsets (p17) Preference for NSW-based offsets	<i>“the preference is for licenses to prioritise carbon offsets from NSW-based offset projects because these offsets count towards NSW emissions inventory.”</i>	The Guideline should be updated to make it clear that the use of interstate offsets will be fully recognised in a licence holder’s net emissions position. The NSW Government should focus on resolving national carbon accounting rules rather than interfering in the national carbon market. NSWMC has previously raised concerns about the EPA’s interference in the national ACCU market and the potential this has to distort the market, impact liquidity and restrict access to ACCUs. NSWMC recommends that this requirement in both the Large Emitters Guide and the EPA Documents be removed, and the NSW Government shifts its focus to addressing limitations in the national carbon accounting framework. In any case, the CCMAP policy should be updated to make it clear that where offsets from interstate are used, the NSW Government will fully recognise the offsets in the site’s net emissions position. It is completely unreasonable for a licence holder to comply with Commonwealth emissions reduction obligations, and for this compliance requirement to be partially or wholly ignored at the NSW level.
3.2.1 Using Offsets (p17) Safeguard Mechanism Credits	<i>“Safeguard Mechanism Credits (SMCs) are not carbon offsets. The EPA recognises that licensees subject to the Safeguard Mechanism are entitled to use SMCs to satisfy their Safeguard Mechanism emission reduction obligations. Therefore, the purchase and</i>	Clarify the wording regarding the use of Safeguard Mechanism Credits for Safeguard compliance purposes. The Statement that “any use of SMCs should be short-term arrangements only, leading to more substantial abatement” is unclear.

surrender of SMCs can

be used as part of a licensee's CCMAP for this purpose. Any use of SMCs as part of a licensee's CCMAP should be short-term arrangements leading to more substantial abatement, and should not be used beyond what is required to meet an organisation's Safeguard obligation."

NSWMC assumes that the EPA intends to restrict the use of SMCs in relation to any potential requirements over and above the Safeguard Mechanism, rather than attempting to limit a licence holder's ability to use SMCs to comply with their Safeguard Mechanism requirements. Such a position would undermine the Safeguard Mechanism and the wording of the guideline should be clarified.

3.3 Emissions goals (p18)

"The CCMAP must include a description of long-term (to 2050) and interim (years where there is a legislated NSW emission-reduction target e.g. 2030 and 2035) scope 1 and 2 greenhouse gas emissions goals for the premises and how those goals will be achieved

"Emissions reduction goals should be in terms of absolute net emissions and include material efforts to reduce on-site emissions, leading towards net zero by 2050. Licensees may include emissions intensity reduction goals, if they wish. When developing goals, the proponent must consider NSW legislated interim emission reduction targets.

We expect emissions reduction trajectories to be broadly consistent with the NSW or government developed industry specific emissions reduction trajectories. If the projected emissions trajectory does not align with the overall NSW net-zero emissions trajectory, the licensee must explain why the emission reduction trajectory still represents a meaningful contribution to NSW's emission reduction targets and/or supports NSW to decarbonise. We recognise that emissions

The EPA should align Scope 1 emissions reduction goals with existing Safeguard requirements.

The EPA's proposed approach to emission reduction goals is fundamentally inconsistent from the Safeguard Mechanism in two ways:

- Safeguard facilities will have a range of emission reduction trajectories depending on their site-specific emissions intensity. This is a deliberate design feature of the scheme to provide an incentive for production to occur where it is least emissions-intensive. The EPA's intention for all sites to have similar trajectories is fundamentally at odds with the Safeguard Mechanism incentives and will undermine the design of the Scheme.
- The proposal for goals to be "*in terms of absolute net emissions*" is inconsistent with the Safeguard mechanism, which is based on emissions intensity. Again, this is a deliberate design feature of the Safeguard Mechanism to allow baselines to increase or decrease along with production. In the mining sector, production levels can fluctuate substantially for a range of market, geological, mine planning, weather or strategic reasons, making absolute targets less appropriate or meaningful.

There is a clear misalignment between the EPA proposals and the Safeguard Mechanism design that will add additional complexity to the compliance framework and undermine the intent of the Safeguard Mechanism.

For Safeguard facilities, the guide should state that the emission

reduction trajectories may be ‘lumpy’ and may depend on the implementation of different technologies or processes at different stages of a project.”

reduction goal can align with Safeguard obligations. This is the approach taken by the Queensland Government in the [Greenhouse Gas Emissions Guideline](#), which states:

“For projects captured by the Commonwealth Safeguard Mechanism, the emission reduction targets may be determined by the Safeguard Mechanism.”

The Queensland Government’s approach is sensible and clear.

3.3 Emissions goals (p18)

*Scope 2 goals should take into account:
the expected decarbonisation of the NSW grid over time, as well as actions ahead of this
any other regulatory obligations
any current or planned mitigation measures.*

The requirement for Scope 2 emission reduction goals should be optional.

Given the rapid decarbonisation of the electricity grid, NSWMC questions what value this aspect of CCMAPs will provide.

Electricity users are funding the decarbonisation of the grid through electricity bills, and most mines are required to surrender LGCs in compliance with the Renewable Energy Target.

The setting of emission reduction goals for Scope 2 emissions should be optional, or should simply adopt the forecast grid decarbonisation trajectory.

**PROPOSED
GREENHOUSE GAS
MITIGATION GUIDE FOR
NSW COAL MINES
NSW EPA**

4 November 2025

NSW MINERALS COUNCIL



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Executive Summary

The proposal to mandate mitigation measures at coal mines is based on the false premise that the Commonwealth's Safeguard Mechanism does not deliver emissions reductions aligned to NSW targets and is not driving the adoption of feasible onsite abatement measures.

The NSW coal mining industry directly abated 4 million tonnes CO₂-e of fugitive methane emissions from underground mines in 2023-24 through gas drainage and flaring or utilisation. The coal mining industry has taken a range of other steps to minimise methane leaks from historical workings, improve gas drainage efficiency, install additional methane flaring infrastructure, improve the efficiency of diesel equipment, trial low carbon fuels, progress the demonstration of technology to mitigate ventilation air methane and investigate the potential to pre-drain methane from open cut mining operations.

These efforts have contributed to coal mining emissions falling by 28% between 2005 and 2023, faster than the State average of 25%. Coal mining now comprises 13% of NSW's greenhouse gas emissions and the NSW Government forecasts that the industry is one of the few sectors on track to deliver net emissions reductions in line with the NSW legislated net emission reduction target of 50% by 2030, due to the impact of the Commonwealth's Safeguard Mechanism.

Future mitigation opportunities will vary across the sector depending on a range of geological, technological, commercial and operational factors, and will evolve over time as mining conditions change, technology develops and carbon prices increase. The concept of applying generic mitigation requirements by arbitrary dates across the sector is inconsistent with this reality.

The mitigation requirements in *the Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines* (Coal Mine Mitigation Guide) are either already being implemented where they are feasible, do not yet exist, are unproven, have technical limitations or are uneconomic.

As a result, unless the EPA intends to impose technically and financially unfeasible requirements on the industry, the proposed framework of mandated requirements with an unclear exemption process will not change outcomes but will consume significant resources and create significant uncertainty.

A better approach would be for licence holders to justify their site-specific mitigation approach in the proposed Climate Change Mitigation and Adaptation Plans (CCMAPs), including consideration of the measures outlined in the Coal Mine Mitigation Guide and any other measures that sites identify, informed by a level of studies appropriate to the site-specific context.

CCMAPs can be updated over time in response to changing conditions, rather than speculating about specific measures and timeframes that will apply across a diverse and evolving industry over the next 25 years.

This approach would provide the EPA with assurance regarding the mitigation measures being adopted across the coal mining industry and would provide a much better evidence base from which the EPA could determine whether additional, targeted regulatory intervention is required using the wide range of existing tools the EPA has at its disposal.

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1 NSW coal mining greenhouse gas emissions

The NSW coal mining industry is directly abating greenhouse gas emissions

The NSW coal sector is already implementing measures to deliver extensive abatement of greenhouse gas emissions.

Underground coal mines in NSW directly abated more than 4 million tonnes CO₂-e of methane emissions in 2023-24. This abatement was achieved by draining methane from coal seams prior to mining and from goaf areas after mining, and combusting the methane in flares or gas fired power generators. This direct abatement equates to more than a 20% reduction in the coal sector's Scope 1 emissions during 2023-24.

Table 1 Estimated NSW coal mining methane abatement 2023-24 (CO₂-e)¹

Methane flaring	470,216
Methane exported for power generation	4,093,876
Total methane abatement	4,564,092

Underground coal mines are taking ongoing steps to reduce fugitive emissions. Several mines are in the process of installing new flaring infrastructure and implementing ongoing improvements to the efficiency of mine gas drainage systems to increase the volumes of methane captured and abated. These efficiency improvements can be delivered through measures such as sealing goafs to capture greater volumes of methane, thereby reducing the volume of air entering mine ventilation air, or increasing the intensity of pre-drainage drilling.

For example, Appin Mine has delivered ongoing improvements to its gas management systems to increase capture efficiency from 51.4% in 2014-15 to 67% in 2023-24, delivering significant increases in the volume of methane captured and abated through the mine's gas management infrastructure.

At open cut mines the industry is implementing measures to improve the efficiency of diesel equipment, investigate the potential use of alternative fuels and engage with original equipment manufacturers (OEMs) to understand the development of hybrid and low emission mining equipment and the range of issues associated with incorporating these technologies on mine sites. Where gas reservoir properties are potentially suitable, open cut mines are investigating opportunities to abate fugitive emissions.

The case studies below demonstrate a selection of existing and planned initiatives across the NSW coal mining sector to directly reduce greenhouse gas emissions.

Examples of direct emission abatement measures in the NSW coal sector

- **Appin Mine flares and gas fired power generation²** - Appin has extensive gas drainage infrastructure that supplies gas to an 85.5 MW gas fired power station operated by EDL, along with flares that operate when gas cannot be supplied to the power station. Extensive efforts have been made to improve gas drainage efficiency through additional in-seam drilling and sealing of goaf areas, leading to an increase in drainage efficiency from 51.4% in 2014-15 to 67% in 2023-24.

¹ NSW Minerals Council analysis

² [Appin Annual Review FY24](#)

- **Tahmoor Mine flares and gas fired power generation** - Tahmoor supplies methane from pre- and post-gas drainage to a 7.3 MW power station operated by EDL, with flares used to abate gas that cannot be taken by the power station.
- **Integra Mine flares and gas fired power generation** - Integra supplied drained mine gas to the 12.7 MW Glennies Creek power station, operated by EDL. Integra ceased production in June 2024 and the mine and power station are being decommissioned.
- **Bulga Underground decommissioned mine goaf drainage system** - Bulga Underground is a decommissioned coal mine. Bulga continues to extract methane from the decommissioned workings, which is sent to the post-drainage flaring facility for combustion.
- **Mandalong Mine flares and gas fired power generation** - Mandalong Mine abates methane through a combination of flares and the supply of gas to an 8MW power station that was commissioned in 2023 and is operated by EDL.
- **Mandalong Mine gas capture improvements**³ - Mandalong is investigating options to improve methane gas capture rates that would increase the volume of abatement through its flaring or power generation infrastructure. If the projects are viable, they are expected to commence in 2025 or 2026.
- **Ashton Mine flares** - Gas volumes and composition limit the opportunity for power generation at Ashton Mine. However, Ashton operates flares that are used to abate drained methane when the volumes and concentrations are suitable for flaring.
- **Ashton goaf sealing**⁴ - Ashton aims to achieve effective pressure balancing across three active coal seams that will reduce VAM emissions by reducing the volume of emissions from sealed areas that can enter mining areas and the mine ventilation system. The project enables methane collection in specific underground locations, improving gas purity for capture and flaring.
- **Metropolitan Colliery flare investigations**⁵ - Gas composition at Metropolitan Colliery limits current abatement opportunities. However, higher methane levels are expected as the mine progresses westward. Metropolitan Colliery is in the planning phase of installing a flare unit to be constructed in 2026, which will burn methane from the gas drainage plant once the methane percentage is suitable.
- **Narrabri enclosed flare**⁶ - Narrabri mine is procuring an enclosed flare system aimed at efficiently burning methane contained in pre-drainage gas that is above the 30% concentration required for flaring. Methane concentrations at Narrabri have historically been below this level, with in-situ gas predominantly carbon dioxide. However, the longwall series at the southern end of the mine has a slightly higher methane composition and is forecast to be greater than 30% in some areas. This is expected to allow flaring to be implemented for pre-drainage gas at times when the concentration exceeds 30%.
- **Narrabri Mine sealing of the northern area** - Narrabri Mine proposes to seal the northern area to reduce fugitive emissions escaping from the goafs. This will minimise fugitive emissions entering VAM from the northern area. Narrabri has sealed LW107 to evaluate the effectiveness of this approach and is monitoring the data to inform next steps.

³ [Mandalong Annual Review 2024](#)

⁴ [Yancoal Sustainability Report 2024](#)

⁵ [Metropolitan Annual Review 2023](#)

⁶ [Whitehaven Sustainability Report 2024](#)

- **Bengalla open-cut pre-drainage studies⁷** - Bengalla has completed a conceptual study on the various directional drilling methods to enable fugitive gas extraction. Bengalla is undertaking pre-feasibility assessments and seeking approval for the various drilling methods to determine the feasibility of open cut pre-drainage.
- **Mount Thorley Warkworth - diesel efficiency improvements through repowering excavators** - As part of efforts to improve fuel efficiency and reduce diesel-related emissions, Yancoal partnered with Liebherr-Australia to complete the world's first repower of two R 9800 excavators. The repower involved replacing the existing engines with Liebherr's advanced D9812 12-cylinder engines, delivering improved fuel efficiency, enhanced productivity, and reduced maintenance and operational costs. The repowered excavators achieved a 4% fuel burn reduction within the first three months of operation. A sense of the scale and complexity of this initiative can be seen in this [video](#).
- **Moolarben diesel efficiency improvements⁸** - At Moolarben Mine, trucks have been repowered from Cummins to Penske, which has delivered an average of 19% fuel burn saving. Moolarben also installed a Liebherr Power Efficiency (LPE) engine and hydraulic management system in select excavators which has delivered up to 12% in fuel savings.
- **Maules Creek renewable diesel trial⁹** - Whitehaven has recently engaged in the development of a trial of 100% renewable diesel at the Maules Creek Coal Mine using ancillary/support fleet. This trial will gather fuel usage data before, during and after the trial period to evaluate the real-world performance of renewable diesel in the Maules Creek Coal Mine context.
- **Industry collaboration on low-emission mining equipment** – NSW coal mines are participating in broader industry collaborative initiatives to progress efforts towards lower emission mining equipment. One such example is Caterpillar's Pathways to Sustainability initiative¹⁰, a global, four-year collaborative program to support customers through the energy transition.
- **Appin VAM abatement project** – Appin Mine is planning the installation of a Regenerative Thermal Oxidation (RTO) unit to demonstrate the commercial scale application of this technology in a contemporary NSW mining environment and under modern safety management requirements. The successful demonstration of this technology will provide important information on operational parameters and safety systems that will inform broader consideration of this technology.
- **Tahmoor VAM abatement investigations¹¹** – Tahmoor Mine is investigating the potential to apply VAM abatement, with an intent to progress to pre-feasibility studies with a potential view to rolling out the technology later this decade depending on whether the process is technically and commercially viable.
- **Industry project to commercialise catalytic VAM abatement** – Through Low Emissions Technology Australia (LETA), the industry is funding a project to commercialise catalytic VAM abatement. Catalytic technologies have the potential to operate at lower methane concentrations and lower temperatures, as well as reduce the size of infrastructure required, which could broaden the number of mines where VAM abatement could be adopted.

⁷ [New Hope Sustainability Report 2024](#)

⁸ [Moolarben Annual Review 2024](#)

⁹ [Maules Creek Continuation Project Greenhouse Gas Assessment](#)

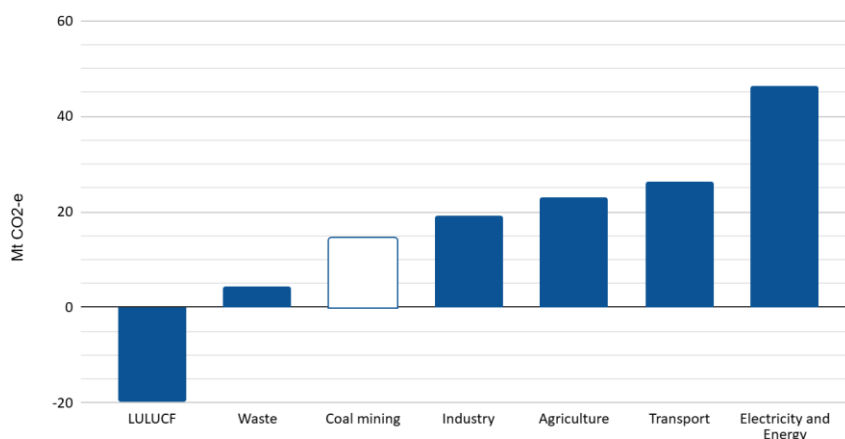
¹⁰ [Caterpillar Pathways to Sustainability Program](#)

¹¹ [Tahmoor Mod 3 Response to EPA Submission](#), 19 December 2024

Coal mining emissions have fallen at a faster rate than the NSW average

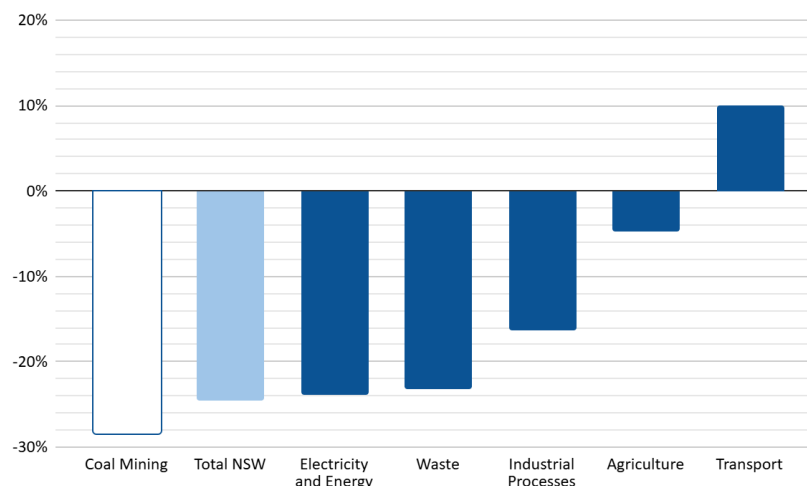
In 2023, the coal mining sector contributed approximately 12.8% of the state's total net emissions. Approximately 75% of the industry's emissions were fugitive emissions and 25% were from diesel use in mining equipment. Other sectors including electricity, transport, industry and agriculture were all greater contributors to the state's greenhouse gas emissions.

Figure 1 2023 NSW Greenhouse Gas Emissions by Sector¹²



The coal mining industry's emissions fell by 28% between 2005 and 2023. As shown in Figure 2, the fall in emissions from the coal mining sector since 2005 is the largest fall in emissions of any industry (aside from the LULUCF sector). The 28% fall in emissions from coal mining exceeds the overall state reduction in emissions since 2005 of 25%.

Figure 2 Relative change in emissions by sector, 2005-2023¹³



The fall in emissions has been driven by a reduction in fugitive emissions across the sector. As noted in the Commonwealth Government's 2023 National Inventory Report, the reduction has been driven by "an increasing trend in production in surface mines since 1997–98, which emit less gas than underground mines due to their shallower depth" and that "the flaring of pre-drainage gas and

¹² Australian National Greenhouse Accounts

¹³ Australian National Greenhouse Accounts, excludes LULUCF

technologies to recover and utilise coal mine waste gas for electricity generation have been increasingly adopted in underground mining, particularly since 2009.”¹⁴

The coal mining sector is on track to reduce emissions in line with NSW legislated targets

Looking ahead, approximately 95% of NSW coal mining emissions are covered by the Commonwealth Safeguard Mechanism. This means that coal mining is one of the few sectors in NSW where almost the entire sector’s emissions are subject to regulated requirements to reduce emissions to net zero by 2050, and to make a proportionate contribution to the Commonwealth Government’s interim emission reduction targets.

The coal sector’s Scope 1 emissions in 2005 were 20.4 million tonnes¹⁵. Analysis contained within the NSW Government’s Greenhouse Gas Emissions 2024 Methods Paper indicates that the Safeguard Mechanism will reduce the industry’s net emissions below 10 million tonnes CO₂-e in 2030 (Figure 3). This represents a 50% reduction in net emissions against the industry’s 2005 emissions, which aligns with the NSW Government’s net emissions reduction target of 50% by 2030.

Figure 3 NSW DCCEEW analysis of the impact of the Safeguard Mechanism on net emissions in NSW coal mining sector¹⁶

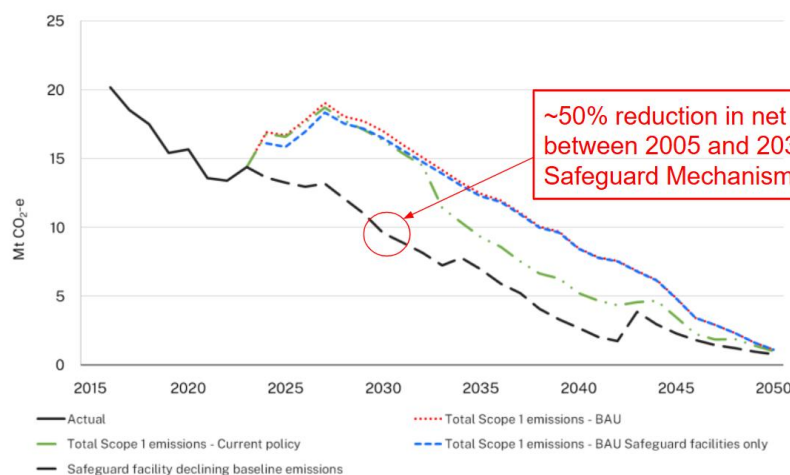


Figure 24 Scope 1 emissions for coal mining showing inventory estimates (1990 to 2022), scope 1 BAU and current policy emissions projections, scope 1 emissions for Safeguard coal mines only, and the Safeguard declining baseline for the coal mining sector (2023 to 2050)

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.”

The NSW Government’s emissions forecasts are overestimating coal mining emissions

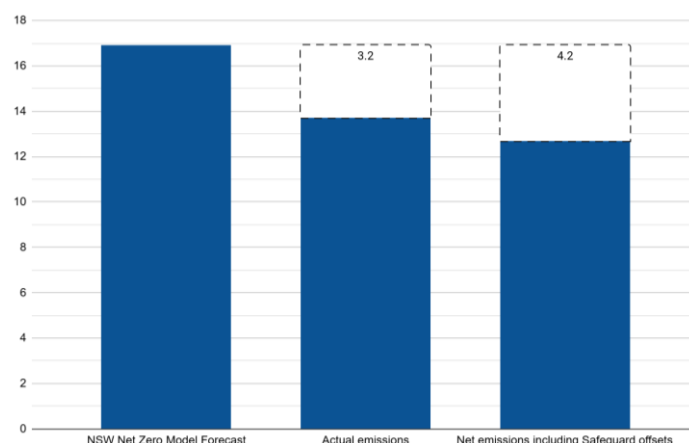
The NSW Government’s Net Zero model appears to have significantly overestimated emissions from coal mining in 2023-24.

¹⁴ <https://www.dcceew.gov.au/sites/default/files/documents/national-inventory-report-2023-volume-1.pdf>

¹⁵ Australian National Greenhouse Accounts

¹⁶ NSW Greenhouse Gas Emissions Projections 2024 Methods Paper

Figure 4 NSW Net Zero Model 2023-24 coal mining Scope 1 emissions forecasts compared to actual emissions (Mt CO₂-e)¹⁷



The NSW Net Zero Model includes historical data up to 2022-23 and forecasts emissions from 2023-24 onwards. However, the Commonwealth Government has already released *actual* emissions data for 2023-24, allowing a comparison between the NSW Net Zero Model's forecast emissions, and actual emissions.

The Commonwealth's Safeguard Mechanism data, together with estimated emissions for coal mines not covered by the Safeguard Mechanism, indicates total NSW coal mining gross Scope 1 emissions were approximately 13.7 million tonnes in 2023-24. In contrast, the NSW Net Zero Model forecast for NSW coal mining gross Scope 1 emissions was approximately 16.9 million tonnes over the same period – i.e. 3.2 million tonnes, or 23%, higher.

This appears to be a material overestimate of the coal mining industry's gross emissions.

The difference would increase to more than 4 million tonnes if the additional net emissions reductions delivered by NSW coal mines under the Safeguard Mechanism were properly recognised in the model.

This overestimate raises questions as to whether EPA policy is being guided by inflated emissions forecasts for the coal sector.

Any requirements over and above the Safeguard need to be targeted and justified

There is clear evidence to demonstrate that the Safeguard Mechanism is driving the investigation of feasible direct abatement opportunities at coal mines and that the industry is on track to reduce emissions in line with the NSW legislated targets.

In this context, there is no clear gap in the regulatory framework for mitigating greenhouse gas emissions from NSW coal mines that needs to be addressed.

Any additional regulation of the coal mining sector by the NSW Government should be clearly justified and appropriately targeted to address genuine gaps in the existing regulatory framework.

¹⁷ NSWMC analysis based on NSW Net Zero Dashboard and Methods Paper, Clean Energy Regulator

2 Proposed mitigation measures

The proposed mitigation requirements misrepresent abatement opportunities in the NSW coal mining sector

The Coal Mine Mitigation Guide is proposing to require the implementation of mitigation measures that:

- **Are already being implemented where feasible** - gas drainage with flaring or utilisation, and sealing of historical workings, are already being implemented by the industry where they are feasible. Portraying these measures as being new opportunities misrepresents existing industry efforts in these areas and the extent of available opportunities.
- **Do not exist** - zero emission alternatives for the vast majority of diesel equipment used in coal mining do not exist and there is a high degree of uncertainty regarding their availability, capabilities and costs. Specifying timeframes and percentages of fleet that NSW coal mines are required to adopt does not accurately reflect this uncertainty.
- **Are unproven** - VAM abatement in contemporary Australian mining conditions is yet to be proven, with Australian mines having distinct technical and safety characteristics that differentiate them from overseas projects. Furthermore, many mines operate outside the technical limitations of currently available technology. Including VAM abatement as a required measure inaccurately portrays this technology as being readily available with broad viability across the NSW underground coal industry.
- **Are uneconomic** - low carbon fuels currently have a high marginal cost of abatement and that is between 700%-1600% higher than current ACCU prices. Including low carbon fuels as a mandated requirement misrepresents these fuels as being cost effective.

Establishing requirements for these mitigation measures to be broadly implemented across the sector creates the false impression of the technically and financially feasible abatement opportunities for the sector.

Mitigation opportunities will vary across the sector depending on a range of geological, technological, commercial and operational factors, and will evolve over time as mining conditions change, technology develops and carbon prices increase. The concept of applying generic mitigation requirements by arbitrary dates across the sector is inconsistent with this reality.

In practice, the industry has already delivered substantial volumes of direct abatement and is continuing to investigate further opportunities. In the short-medium term, many of these new opportunities will be site-specific, incremental emissions reductions measures tailored to the specific circumstances of an individual mine.

VAM abatement has significant potential but current technology has limitations

The EPA is proposing a blanket requirement for VAM abatement at 'all mine shafts' by July 2030 for any mines that will be operational past July 2032 and emit >100,000 tonnes CO₂-e Scope 1 per annum.

This proposal glosses over the uncertainties, complexities and technical limitations of currently available VAM abatement technology, which limits its potential application in the NSW mining industry.

The EPA's proposal, together with its claim that "*VAM abatement is financially viable for many mines that meet the criteria*", creates the false impression that existing VAM abatement technology is proven in NSW mining conditions and has broad applicability across NSW underground coal mines.

The EPA's proposed requirements are not fit for purpose. The Safeguard Mechanism is already incentivising mines to investigate VAM abatement and the EPA's proposals will not change the

technical and financial realities of VAM abatement opportunities but will create unrealistic expectations and drive significant, unnecessary workload.

The coal mining industry is committed to the successful demonstration of VAM abatement

The Australian coal mining industry has dedicated tens of millions of dollars to research and development aimed at safe and effective abatement of VAM in Australian mining conditions including safety management systems that meet the stringent requirements of contemporary Australian mine safety standards.

VAM is a significant source of greenhouse gas emissions in the Australian coal mining industry and drives a high proportion of the industry's overall liabilities under the Safeguard Mechanism. The industry is committed to progressing the safe and successful deployment of VAM abatement technology and the earlier the industry can achieve this, the greater the financial benefits given the incentives under the Safeguard Mechanism.

However, regenerative thermal oxidisers (RTOs) are the only available technology and remain unproven in contemporary Australian mining conditions. It is premature to make claims about how broadly it can be applied before key technical and safety issues are investigated further and demonstrated in practice.

The industry has a pathway to demonstrate the safe connection RTOs to active mining operations. While the industry is confident that the technology can be successfully deployed under certain conditions, this still needs to be proven at scale and over an extended period of time to provide evidence on aspects such as sustainable lower operating thresholds in active NSW mining conditions, together with regulator endorsement and demonstration of safety management systems.

VAM abatement is not yet proven in contemporary Australian coal mining conditions

There remains a significant degree of technical uncertainty associated with full scale VAM abatement in NSW, including:

- The ability of RTOs to self-sustain operation in the 0.2-0.4% VAM concentration range - virtually all NSW underground mines operate within or below this range and no VAM abatement RTOs are operating within this range globally. CSIRO states that *"further large-scale, longitudinal work is needed to demonstrate RTO applied to that range."* It is worth noting that the only previous commercial VAM project in Australia, WestVAMP, operated at methane concentrations >1%. Evolving safety requirements have driven VAM concentrations much lower in NSW underground mines today.
- Processing the entire airflow from a ventilation shaft, with all existing installations only processing a fraction. CSIRO notes that *"all RTO installations [globally] to date have been connected to only a fraction of the ventilation stream"*, rather than capturing and processing the entire ventilation stream.
- Compliance with contemporary NSW safety requirements - while commentary on VAM abatement often point to projects in China and the US, these projects operate in very different mining and safety environments to NSW and are not directly transferrable to NSW.

The EPA has not provided evidence to support its claims that "VAM abatement is financially viable for many mines that meet the criteria"

The NSW underground coal mining industry has a lot to gain from the successful deployment of VAM abatement technology. However the industry cannot make broad and unsubstantiated claims about the potential for VAM abatement and it is surprising that EPA has been able to reach the conclusion that *"VAM abatement is financially viable for many mines that meet the criteria."*

The evidence that the EPA has referred to includes:

- [CSIRO's analysis of VAM abatement](#) - CSIRO is up-front about the limitations of its analysis, noting the study is *"an economic analysis, not a finance model that would include, for example, companies' capacity to borrow funds for abatement projects"* and that the study is *"based on publicly available data ... This means the cost estimates and abatement potential are broadly representative of the Australian coal mining sector as a whole, but the analysis does not capture the same level of detail as studies drawing on confidential data for individual mines."*
- The Literature Review and Industry Scan report states *"RTO. One interviewee had previously implemented RTO, but had ceased the operation of it. Other interviewees were either still considering implementation, or considered it to be unfeasible, mainly due to low methane concentrations in ventilation air, safety concerns and a short remaining life of mine."*
- The Independent Expert Panel report states *"The reported VAM concentrations are very low. If accurate, this would impact on the feasibility of RTO"*
- [UNECE Best Practice VAM Guide](#) - this guide contains some indicative CAPEX, OPEX and abatement costs for VAM abatement based on information provided by VAM suppliers and project developers. It does not contain any analysis of the NSW underground coal mining sector and the technical and financial feasibility of VAM abatement at mines that meet the EPA's criteria. However, in the discussion on costs, the report notes that the *"primary focus should be given to mitigating emissions of at least 0.4% methane concentrations."* It is rare for NSW underground mines to exceed 0.4% VAM concentrations.

It is unclear what evidence the EPA has based its conclusions on.

Most mines that meet the EPA's VAM criteria will be unable to comply with the proposed requirements

The technical and financial viability of RTOs at NSW mining operations will vary widely. Factors including the number of shafts, VAM concentrations, ventilation air volumes, short and long term variation, surface constraints, supporting infrastructure requirements, additional grid electricity consumption requirements, regulatory approval requirements, capital costs, access to capital, marginal abatement costs, mine life, payback periods and site-specific safety management systems will all influence viability.

NSWMC has surveyed NSW underground coal mines to obtain data on the implications of the EPA's proposals across the industry.

There are 8 NSW underground coal mines that are currently approved to operate past July 2032 and exceed 100,000 tonnes CO₂-e Scope 1 per annum. Six of these 8 mines are likely to apply for exemptions from the requirements due to a combination of low VAM concentrations (below even the most optimistic sustainable lower operating threshold of RTOs), limited mine life, or because they are yet to be developed and the feasibility of VAM cannot yet be determined.

The remaining two mines are already progressing studies into VAM abatement. Even for these two mines, scaling up to full scale VAM abatement by July 2030 at a single shaft will be extremely challenging. Extending the requirement to have VAM abatement installed 'at all mine shafts' by July 2030 is unrealistic.

While additional underground mines may obtain approvals to operate past July 2032, they will face similar constraints to RTO deployment given the typically low VAM concentrations in NSW underground mines and the technical limitations of RTO technology.

The industry is investing in new technology to broaden VAM abatement potential

The industry's research into VAM abatement technologies has recognised the limitations of RTOs and the need for alternative technologies to broaden the industry's opportunities for VAM abatement over the medium to long term.

Catalytic oxidation technologies have the potential to operate at lower VAM concentrations and lower temperatures. The successful development of catalytic VAM abatement would broaden the number of mines at which VAM abatement could be technically viable, and the lower operating temperatures could help mitigate safety risks.

The industry is investing significantly in the development of catalytic oxidation technologies, with likely deployment in the 2030s if research milestones are met.

The Commonwealth assumes much more realistic timeframes for VAM abatement deployment

The Commonwealth's [Resources Sector Plan](#), released in September, contains the Commonwealth Government's assumptions regarding the deployment of VAM abatement in Australian mines. A summary is copied below.

To 2030	• Reduced routine venting and flaring from oil and gas facilities • New resources facilities designed for electric power, and improved energy efficiency where technically and commercially feasible • Demonstration and commercialisation of electrified haulage and equipment • Demonstration of coal VAM abatement technology in Australian mines • Expansion of Carbon Capture Storage (CCS)
To 2035	• Increased electrification and energy performance across the sector • Deployment of heavy electric vehicles and equipment, with greater penetration of low-carbon liquid fuels and renewable energy in remote regions • Scale-up of coal VAM abatement technology in Australian mines • Greater use of methane pre-drainage in coal mines • Adoption of low-carbon fuels (liquid and gaseous) where electrification is not feasible • Use of CCS continues to grow
To 2050	• Widespread use of VAM abatement and pre-drainage technologies for coal mines • Continued use of low-carbon fuels • Continued use of CCS

Figure 1 – Resources Sector Plan at a glance

The Commonwealth's timeframes are much more realistic and more accurately reflect the likely development pathway for VAM abatement in NSW.

The proposed VAM abatement requirements and exemption framework adds unnecessary complexity and inefficiency to the regulatory framework

The proposed requirements and exemption framework for VAM abatement in the Coal Mine Mitigation Guide is not fit for purpose. The framework will not add any value over the existing incentives under the Safeguard Mechanism, which are already driving investigations into VAM abatement where it has the potential to be technically and financially feasible.

Attempting to tweak the proposed timeframes will not improve the proposals. A more efficient approach would be for each mine to consider the potential for VAM abatement in their site-specific CCMAPs, which would be updated every 3 years and could consider any changes in mining conditions and technology.

Low carbon fuels are currently uneconomic

The EPA is proposing low carbon fuel mandates for the NSW coal mining industry, starting with 5% in July 2030, 10% in July 2035 and 25% in July 2040. The draft guide states that the requirement applies "if the mine emits more than 25,000 t CO₂-e/year (scope 1) and has large mining machinery and vehicles with >560 kilowatt (kW) capacity".

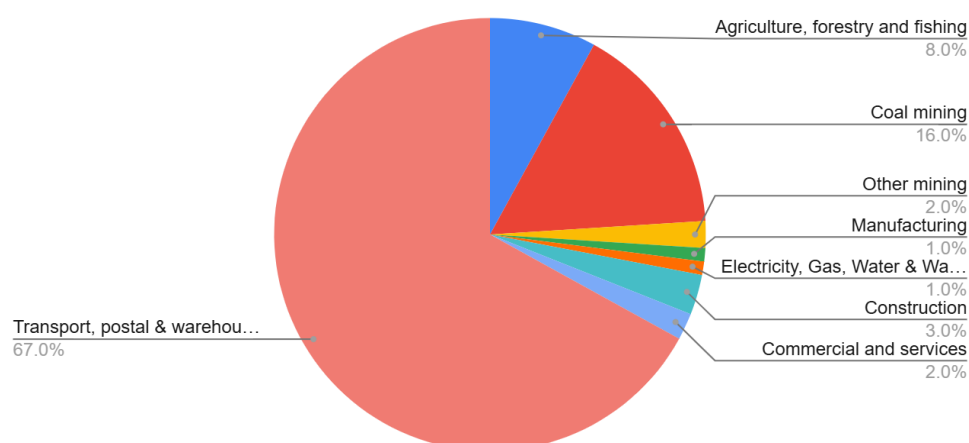
The EPA is also seeking "views on whether the EPA should progress a requirement for 2.5% of fuel used at NSW coal mines to be a low carbon alternative to fossil diesel by 2027."

The singling out of the coal mining industry for a low carbon fuel mandate is opportunistic and inequitable

Singling out the coal sector for a low carbon fuel mandate is an opportunistic, inequitable proposal that will impose significant costs on NSW coal mines and is isolated from broader Commonwealth and NSW Government low carbon fuel strategies.

NSW coal mines consumed approximately 16% of the total diesel consumed in NSW in 2022-23. Transport, postal and warehousing consumed more than four times as much diesel fuel (67%). The coal mining sector is one of the few fuel users with an existing carbon price applied to fuel use under the Safeguard Mechanism. The coal mining sector should not be a target for additional industry-specific regulation, particularly while other fuel users' emissions are unregulated.

Figure 5 NSW Diesel Fuel Use 2022-23¹⁸



The proposed mandate will increase carbon costs by between 700%-1600%

The only realistic option to meet the proposed 2030 (or earlier 2027) mandate is traditional biodiesel given the limited supply, high costs and/or technical modifications associated with the alternatives the EPA has highlighted including renewable diesel, methanol or hydrogen. Biodiesel may be sourced from local or imported sources pending supply and cost-competitiveness.

[VIVA](#), [Caltex](#) and [United](#) publish terminal gate prices (TGP) for B5 at their Brisbane terminals. The TGP includes excise, GST and wholesaler margins¹⁹. Off road users can claim the full diesel fuel tax credit on both regular diesel and B5, as well as GST. Deducting GST and fuel tax credits from TGPs provides indicative prices for wholesale customers such as mines. These publicly available prices indicate a price premium for B5 of between 3.6-8.1 cents per litre compared to regular diesel²⁰. This range aligns with feedback provided directly to NSWMC by industry.

These price premiums drive a marginal abatement cost of between \$266 and \$598/tonne CO₂-e. This abatement cost is 700% - 1600% higher than the ACCU spot price of \$37.80²¹. Imposing this mandate would increase the Safeguard Mechanism compliance costs for this component of emissions by an order of magnitude and undermine the Scheme's objective of delivering net emissions through the most efficient means.

By any rational financial measure, low carbon fuels do not represent 'cost effective' abatement.

¹⁸ Australian Energy Statistics 2024, Table F

¹⁹ [Australian Institute of Petroleum](#)

²⁰ Prices on 21 August 2025

²¹ ACCU spot price at 21 September 2025

Additional mandated domestic demand is unlikely to reduce the costs of biodiesel

The economics of traditional biodiesel are unlikely to shift materially between now and 2030. While the utilisation of spare domestic biodiesel production capacity may put downward pressure on prices, there will be upward pressure on prices arising from:

- Increasing competition for limited feedstock, including increasing demand from subsidised overseas biofuel production facilities and the domestic production of renewable diesel or SAF incentivised by Commonwealth initiatives
- Decreasing fuel excise tax benefits from biodiesel use in the lead up to 2030
- The impact on market dynamics of forcing an additional ~65 million litres per annum of demand into a concentrated east coast biodiesel market.
- If regulatory approvals are required to generate feedstock for local production, uncertainty exists due to the timing and approvability of such proposals e.g. Redbank Power Station bioenergy project IPC refusal due to upstream flora/fauna impacts of the feedstock it proposed to purchase from suppliers.

Even in the highly unlikely scenario that the marginal abatement costs of biodiesel halved and the ACCU price doubled by 2030, biodiesel would still have a marginal abatement cost upwards of 200% of the ACCU price.

Biodiesel has lower energy density, additional maintenance costs and blending limitations

The above costs do not account for other costs associated with biodiesel use. In particular, biodiesel has a lower energy density than regular diesel, with around 93% of the energy density of regular diesel²². As a result, fuel use will increase, further increasing costs and reducing emissions benefits.

There are other costs associated with increased maintenance and fuel blending infrastructure if onsite blending is required, but these are relatively insignificant compared to overall fuel costs.

Furthermore, engine manufacturers place limits on the use of biodiesel. These limits vary across OEMs and across engine types, but typically range from B7 to B20. While this may not impact lower blending ratios, higher mandates could lead to situations where sites need to have multiple fuel blends to cater for different types of equipment, which creates significant complexity and cost.

The EPA's proposals to require Tier 4 engines will have an impact on maximum biodiesel blending ratios given many common Tier 4 versions of mining equipment engines have lower blending ratios than their non-Tier 4 versions.

The EPA proposal is inconsistent with the Commonwealth's low carbon liquid fuel initiatives

Low carbon fuel strategies should comprise a suite of evidenced based, integrated policy measures with clear strategic objectives and which do not unfairly target a single sector with the burden of regulation.

The EPA's proposal appears to be an ad-hoc measure that has been solely justified on the basis there is sufficient spare domestic production capacity of traditional biodiesel on the east coast of Australia to meet the proposed mandate, without considering broader aspects of feasibility, the provenance issues of biofuels (domestic or imported), and broader strategic direction of low carbon fuel strategy in Australia.

While the EPA has alluded to the upcoming NSW Government Renewable Fuel Strategy, there is no transparency regarding what this strategy will include, making it difficult to assess how the EPA

²² US Department of Energy [Alternative Fuels Data Center](#)

proposal integrates with broader NSW Government strategy or more broadly with the Commonwealth's proposed Low Carbon Liquid Fuels Strategy.

It is clear that advanced biofuels such as renewable diesel and Sustainable Aviation Fuel are the preferred longer term abatement priority for liquid fuels. This is evidenced by the Commonwealth's Low Carbon Liquid Fuels initiatives, which focus on these fuels, rather than the EPA's focus on traditional biodiesel.

The Commonwealth is providing significant production incentives for the production of low carbon liquid fuels, with [\\$1.1 billion in production incentives planned](#).

A report for the Clean Energy Finance Corporation (CEFC) and the Australian Renewable Energy Agency (ARENA) identified potential issues supporting conventional biofuels production given the longer term priority of developing advanced biofuels. This includes the potential for plants to become redundant, the need to prove life cycle emissions, and the potential to hinder the development of the broader biofuel industry²³.

The coal mining industry is pursuing greenhouse gas emissions reductions from diesel equipment

Diesel fuel is a significant cost for NSW coal mining operations and fuel efficiency is a major focus for the sector. The Safeguard Mechanism imposes additional financial incentives to reduce diesel fuel use since it prices the greenhouse gas emissions associated with diesel fuel use. As a result, there are strong existing incentives for coal mines to reduce diesel fuel use and emissions.

NSW coal mines have demonstrated they will adopt low carbon fuels where they are technically and financially viable. The industry has previously used biodiesel blends of up to B20 at times when biodiesel was cost competitive with regular diesel.

The industry continues to investigate and trial alternative fuels, including renewable diesel - the preferred longer-term replacement for regular diesel.

The industry is also taking steps to improve the efficiency of the existing diesel fleet, through engine replacement, repowering and recalibrations to drive reductions in fuel use and emissions.

²³ CEFC and ARENA, [Biofuels and Transport: An Australian Opportunity](#), November 2019

3 Proposed policy framework and exemption process

The proposed policy framework is not fit-for-purpose

Like several other sectors, coal mining is a hard-to-abate sector and further technological developments are required to broaden the range of abatement opportunities. The ability of NSW coal mines to directly reduce Scope 1 emissions will vary depending on a range of geological, technological, commercial and operational factors, and will evolve over time as mining conditions change, technology develops and carbon prices increase.

These factors have been acknowledged by the EPA. The Coal Mine Mitigation Guide states (p38) that the coal industry is “*complex, with a range of mine types, geological characteristics, mine configurations, mining techniques and regulatory requirements*”. The *Proposed Climate Change Licensee Requirements* (p7) notes that “*the decarbonisation journey will be complex and varied for different industries and businesses.*”

The concept of applying generic mitigation requirements by arbitrary dates across the coal mining sector is inconsistent with the diverse nature of industry and the varying abatement opportunities across the sector and over time.

The proposed exemption framework will drive significant additional workload without changing outcomes

The exemption process will be costly, time consuming, and will not drive different outcomes to what is already being incentivised under the Safeguard Mechanism. The practical outcomes of the EPA's proposals are summarised below:

- Gas drainage and flaring – There are two operational mines that meet the EPA's criteria and do not have gas drainage infrastructure due to geological, gas reservoir and environmental constraints. These two mines are likely to seek exemptions from the requirements and the proposals will therefore deliver no overall change to industry practices. Several other mines in development have plans to flare when viable, but would need to apply for time extensions.
- Sealing of historical workings – This is a relatively low cost abatement measure that mines are already implementing and will continue to implement over the course of a mine's life. There will be no overall change to industry practices given this measure is already driven by safety obligations and incentivised under the Safeguard Mechanism. There are some mines where additional sealing is not viable due to a factors such as highly interconnected workings. These mines are likely to seek exemptions from the requirements.
- VAM abatement – Six of the 8 mines that meet the EPA's criteria are likely to seek exemptions due to a range of technical and mine life considerations, with the remaining two already progressing investigations into VAM abatement. There will be no overall change to industry practices.
- Low carbon fuels – Given the high marginal abatement costs associated with low carbon fuel options, virtually all mines are likely to apply for exemptions unless the EPA is intending to develop a new measure of financial viability against which exemptions are assessed that is completely disconnected from rational commercial decision making.
- Zero emission mining equipment – Given the equipment needed to meet the EPA's requirements does not exist it is difficult to predict how many mines would apply for exemptions in 2040 and 2050. Even if this equipment could be deployed within the mandated timeframes, it is unclear how the potential additional electricity consumption from fleet electrification is considered in the state's electricity demand-supply forecasts.

The time and resources that will go into attempting to develop the exemption process, and for licence holders to undertake the required studies to seek exemptions from requirements that are not suited to their operations, will not deliver any value and will only serve to impose unnecessary costs on the industry.

Companies will be forced to divert limited resources to undertake detailed studies of measures selected by the EPA that are unfeasible and wait to see what the outcomes are of any exemption applications.

The EPA has not provided proposed exemption criteria and appears to be considering measures of financial viability that are disconnected from rational financial decision making

NSWMC is highly concerned that the EPA appears to be considering developing its own measure of financial viability that is completely disconnected from rational financial decision making so that it can force the coal mining industry to adopt uneconomic abatement measures.

This proposal for a new measure of financial viability appears to be driven by the EPA's misplaced perception that the Safeguard Mechanism does not provide sufficient financial incentives to drive feasible onsite abatement in the NSW coal mining sector.

It also appears to be driven by the NSW Government's stated inability to recognise ACCUs sourced from outside of NSW in NSW's emissions inventory. However, this is not an emissions reduction issue, it is a carbon accounting issue. The industry will reduce its net emissions in accordance with its Safeguard obligations, and the industry cannot be held responsible for an externality such as the NSW State's carbon accounting constraints.

NSWMC disagrees with the perception of insufficient financial incentives under Safeguard and it is in direct contrast to the tangible examples of direct abatement initiatives already being delivered by the industry and the significant efforts being made by the industry to identify additional abatement measures, highlighted in Section 1 of this submission. The EPA appears to have unrealistic expectations or a poor understanding of the abatement measures that can be readily adopted across the NSW coal mining industry.

NSWMC notes that the Safeguard Mechanism will be reviewed next year, with [the explanatory statement to the 2023 NGERs rule amendment](#) outlining the scope of the review, which includes:

As part of the 2026-27 review, the Climate Change Authority will advise the Government on the extent to which on-site abatement is being driven by the reforms, and whether any additional incentives are required (such as a discount on ACCUs when used for more than a certain percentage of a baseline or any circumstances where limits on the use of ACCUs may be appropriate).

NSWMC anticipates this will be an evidence-based process and is the appropriate process through which to gauge the impact of the Safeguard Mechanism reforms and for the Commonwealth Government to consider the need for potential changes.

There is no evidence that the EPA has provided to demonstrate that the Safeguard Mechanism provides insufficient incentives and to justify pre-empting the review of the scheme next year.

The policy approach will undermine the design of the Safeguard Mechanism

As the [Commonwealth Treasury](#) explains:

"The Safeguard Mechanism incentivises low-cost decarbonisation for covered industrial emitters. The Safeguard Mechanism delivers abatement by incentivising investments in technology and carbon credit trading to efficiently sequence abatement between sectors and

across time. Flexibility to use land-based abatement allows facilities to meet emissions reductions on a net basis.”

In contrast to the intentional design of the Safeguard Mechanism, the Coal Mine Mitigation Guide focuses solely on the coal mining sector and proposes to mandate the adoption of inefficient abatement measures.

In contrast to the EPA, the Commonwealth Government does not expect that every industry or every facility will have efficient direct abatement opportunities, and recognises that the opportunities will evolve over time as technology develops, baselines decline, ACCU demand increases and the economics of abatement opportunities change. The design of the Safeguard Mechanism allows abatement to be sequenced efficiently over time across the entire industrial sector, with predictable, incremental and outcomes based signals.

The Safeguard Mechanism is specifically designed to encourage production where it is least emissions intensive. This means that baseline trajectories vary between coal mines depending on their site-specific emissions intensity, with some having shallower trajectories and some having much steeper trajectories, but with the overall outcome delivering the required emissions reductions. In contrast, the EPA is proposing to create incentives that conflict with the Safeguard Mechanism design by setting expectations that all facilities align with the same NSW trajectory.

The proposed approach is inconsistent with the EPA Climate Change Action Plan

The requirements in the Coal Mine Mitigation Guide go well beyond the intention of the EPA's existing Climate Change Policy, Action Plan, and the Large Emitters Guide.

The Large Emitters Guide states:

The next highest priority is to reduce them (see Figure 1). Over time the EPA will publish best-practice emissions reductions guidelines for specific sectors that can be used to inform this step.

Section 4.2 of the Large Emitters Guide provides for the assessment of feasibility and effectiveness of mitigation measures by project proponents, and flexibility in the mitigation measures ultimately selected by proponents after applying the guide. This is inconsistent with the highly prescriptive nature of what is proposed in the Coal Mine Mitigation Guide.

The EPA's Climate Change Action Plan states (p39):

Requirements will be reasonable and feasible for licensees to implement, evidence-based, and developed in consultation with industry. We will consider the social, economic and environmental costs and benefits of the proposed requirements, such as the:

- *availability of relevant technologies and techniques*
- *alignment with existing requirements at the state and national levels (avoiding any conflicts with or duplication of NSW or Commonwealth requirements)*
- *additional cost to licensees to comply with the requirements*
- *broader costs and benefits to industry*
- *social and environmental costs and benefits of the proposed requirements, including potential impacts on the cost of living.*

The Coal Mine Mitigation Guide is inconsistent with the commitments in the Action Plan, particularly given the feedback provided to the EPA by industry as to the availability and feasibility of relevant technologies and techniques, the costs of compliance for industry and potential conflicts with and/or duplication of Commonwealth requirements.

CCMAPs are the best process through which to assess potential mitigation strategy

Virtually all coal mining operations will be required to prepare CCMAPs. The preparation of CCMAPs will provide the EPA with a thorough understanding of the mitigation approaches being taken by each licence holder and will reflect the site-specific circumstances of each operation.

CCMAPs will provide the EPA with much more granular insights into mitigation approaches across the industry than what it currently has. This will provide a much stronger evidence base from which to gauge whether there is a need for any additional action by the EPA, which could be more targeted and nuanced than the approach currently proposed in the Coal Mine Mitigation Guide.

NSW Minerals Council

4 Table of responses to issues raised in the Coal Mine Mitigation Guide

Requirement	Criteria	NSWMC Comments
Destroy methane in drainage gas at underground mines	By July 2027: gas drainage with flaring or utilisation is in place. Criteria: Active (operational) underground mines that: - are located outside of the Western coalfields, and - emit (or are likely to emit) >25,000 t CO₂-e/year (scope 1).	The consideration of opportunities to drain and flare/utilise methane should be incorporated into CCMAPs. Gas drainage and flaring or utilisation is already being undertaken at NSW underground coal mines where it is technically and financially feasible. NSW underground coal mines delivered 4 million tonnes CO₂-e of abatement applying this measure in 2023-24. There are 12 mines that meet the EPA's criteria. Of these: 5 mines already have utilisation or flaring in place 2 mines are in the process of procuring flares 3 mines are still being developed but have plans to flare gas when gas concentrations are suitable, however may not meet the 2027 timeframe due to development timeframes and variations in gas reservoir properties 2 do not have gas drainage infrastructure and it is not technically or financially feasible to drain and flare methane. These mines would be likely to seek exemptions. It should be noted that the ability to flare drained gas will vary depending on the gas reservoir properties of the area being drained/mined. This will vary over the life of the mine and there may be periods when gas concentrations are not viable for flaring.
Minimise methane entering ventilation air by addressing methane leaks from old mine workings at underground mines	By July 2027: methane leaks have been detected and managed. Criteria: Active (operational) underground mines that:	The consideration of opportunities to seal historical workings should be incorporated into CCMAPs. Sealing leaks from previously mined areas is already being undertaken at NSW underground coal mines, driven by safety obligations and financial incentives under the Safeguard Mechanism. This measure is typically one of the lowest cost abatement opportunities. Examples include: Narrabri Mine sealing of the northern area Ashton goaf sealing project

	emit (or are likely to emit) >100,000 t CO₂-e/year (scope 1).	Mandalong gas capture improvements There are 12 mines that meet the EPA's criteria. Every mine has sealed, or has plans in place to progressively seal, historical workings, where this is technically feasible. There are some circumstances where sealing of historical workings is not feasible - e.g. where historical workings are highly interconnected. Sealing of previously mined areas is an ongoing process throughout the life of a mine and will continue beyond 2027. Large scale sealing projects can take several years to plan, finance and execute. Having a single implementation date, and particularly one so short-term, does not reflect how these projects are undertaken in practice.
Destroy ventilation air methane (VAM) at underground mines	By July 2030: VAM abatement is installed on all mine shafts. Criteria: Underground mines that: - will be in an active (operational) mining phase beyond July 2032, and - emit (or are likely to emit) >100,000 t CO₂-e/year (scope 1). In 2028, the EPA will review whether the safety issues for VAM RTO have been resolved before implementing mandatory requirements.	The consideration of opportunities for VAM abatement should be incorporated into CCMAPs. Appin mine is in the process of developing an RTO demonstration at its Vent Shaft 6 that will provide real-world information regarding the capabilities and safety performance of Regenerative Thermal Oxidisers (RTOs) in the Australian mining environment. The outcomes of the RTO demonstration will inform potential larger scale deployment. At best, results from the Appin project will be available in 2027-28. If successful, the planning and execution of full scale VAM abatement at Vent Shaft 6 alone is likely to extend past 2030. These timeframes align with the Commonwealth Government's timeframes for the demonstration and broader deployment of VAM abatement in the Australian underground coal mining industry. In any case, the proposed requirements in the Coal Mine Mitigation Guide are building unrealistic expectations regarding the suitability of RTOs in NSW underground coal mines. There are 8 mines that meet the EPA's criteria under existing approvals. Of the 8 mines: 2 mines are still in development and the feasibility of VAM is unknown 2 mines have VAM concentrations <0.2%, below the most optimistic lower operating threshold of RTOs 2 mines have mine life constraints that will not support the significant capital expenditure associated with large scale VAM projects 2 mines are already investigating VAM.

Both the proposed timeframes and the proposal for VAM abatement to be applied at all shafts at all mines that meet the criteria are clearly unrealistic, demonstrating that the policy approach in the Coal Mine Mitigation Guide is not fit-for-purpose.

Open cut pre-drainage	Q2.1 If surface mines were required to pre-drain gassy seams and destroy methane before mining commences, what factors would impact feasibility?	Open-cut pre drainage is unsuited to generic, industry-wide requirements and should not be a required mitigation measure. The Coal Mine Mitigation Guide highlights the range of complexities associated with the drainage of methane from open cut mining operations. There will be some circumstances where pre-drainage of open cut mines has some potential, however, its application is likely to be limited due to a range of geological, gas reservoir, and mine planning constraints under existing technology. There are several pre-drainage projects being planned or investigated at NSW open cut coal mines, which have been incentivised by the Safeguard Mechanism. This demonstrates that the Safeguard Mechanism is driving the assessment of onsite abatement initiatives and further intervention by the EPA is unnecessary. It is unclear how the EPA would define criteria for ‘gassy seams’ given the wide range of gas reservoir properties that influence the potential for mitigation.
Open cut - disturbance of seams with 'higher' methane gas contents should be avoided if gas drainage not feasible	<i>"Some NSW surface mines are also considering modifications to mine deeper coal seams, which can contain higher methane gas contents. Gas drainage in these circumstances should be prioritised, and if this is not feasible, then the disturbance of the seam should be avoided."</i>	The statement regarding avoiding disturbance of seams with higher gas contents is vague, circumvents appropriate cost benefit analysis, and is inconsistent with the guiding principles of the <i>Climate Change (Net Zero Future) Act 2023</i>. The statement should be removed from the Coal Mine Mitigation Guide. Any decisions that involve the sterilisation of the state's mineral resources should be informed by a comprehensive understanding of the overall costs and benefits of the decision. Greenhouse gas emissions are only one factor in this decision making process, which could also have major ramifications for local employment, economic activity, and State government royalties. The assessment of these issues is best considered through the planning approval process rather than circumventing this process and predetermining outcomes based on a single, poorly defined concept, and ruling out the potential role of offsets. The guiding principles of the <i>Climate Change (Net Zero Future) Act 2023</i> require action on climate change to be fiscally responsible, consider the principles of ecologically sustainable development and consider the impact on local employment

and industries. The position outlined in the Coal Mine Mitigation Guide contains no consideration of these issues, nor is it able to.

The EPA's Climate Change Action Plan also states that *"We will consider the social, economic and environmental costs and benefits of the proposed requirements"*, however the proposal contains no consideration of social and economic costs.

The concept of 'higher methane gas contents' is vague. For example it is unclear what gas content is considered high and what consideration would be given to the significance of areas with 'higher methane gas contents' relative to the overall project.

Low carbon fuel

Fuel used at the mine site is a low carbon alternative to fossil diesel.

By July 2030: 5%
By July 2035: 10%
By July 2040: 25%

All mines that

- emit (or are likely to emit) >25,000 t CO₂-e/year (scope 1), and
- have equipment >560kW

The consideration of opportunities for low carbon fuel use should be incorporated into CCMAPs.

NSW coal mines are undertaking trials of alternative fuels to understand their performance and prepare for potential adoption as supply chains develop and the economics improve. Mines are also implementing measures to improve the efficiency of diesel powered mining equipment, including repowering diesel equipment to deliver significant improvements in fuel efficiency.

The proposal to mandate the use of low carbon fuels at NSW coal mines is concerning in several ways. The proposals are:

- Inequitable - NSW coal mining is a relatively minor consumer of liquid fuels in NSW and has an existing demand side carbon signal through the Safeguard Mechanism. Singling out the industry for a low carbon fuel mandate is opportunistic and inequitable.
- High cost - Traditional biodiesel is the only fuel able to meet the proposed 2030 low carbon fuel mandate. NSWMC estimates the marginal abatement cost of biodiesel to be between \$266 and \$598/tonne CO₂-e, which is 700%-1600% above current ACCU spot prices. This is not 'cost effective' abatement and the economics are unlikely to change materially in the lead up to 2030 unless there are policies to bridge the green premium. Furthermore, the energy density of biodiesel is lower, requiring higher volumes of fuel to be burnt and longer cycle times, further increasing costs and negating potential benefits.
- Inconsistent with broader renewable fuel strategies - forcing resources towards the development of traditional biodiesel supply chains is inconsistent with broader low carbon fuel strategies that are focusing on developing domestic supply chains for renewable diesel and Sustainable Aviation Fuel, which have much greater potential in longer term decarbonisation pathways.

		Offset by the EPA's proposed Tier 4 mandate - the EPA's proposals to mandate the adoption of Tier 4 aftertreatment will reduce fuel efficiency of engines and offset the gains the industry is making through fuel efficiency improvements or the potential uptake of low carbon fuels.
Low carbon fuel	Q3.1 Should the EPA progress a regulatory requirement for 2.5% of fuel used at NSW coal mines to be a low carbon alternative to fossil diesel by 2027? (p26)	The same issues outlined above would still apply if the implementation date was 2027.
Zero emission mining equipment	By July 2040: 75% of large mining machinery and vehicles are zero emissions By July 2050: 100% of large mining machinery and vehicles are zero emissions. All mines that emit (or are likely to emit) >25,000 t CO₂-e/year (scope 1).	The consideration of opportunities for lower emission mining equipment should be incorporated into CCMAPs. It is difficult to comment on this proposal given the equipment to meet this requirement does not exist. NSWMC does not believe it is constructive to speculate about specific timeframes and percentages of 'zero emissions' equipment to apply across the sector in 15-25 years' time, when equipment availability, costs and capabilities are unknown. The development of low and zero emissions mining equipment is an issue being addressed by the global mining industry in partnership with OEMs, and is outside the control of the NSW coal mining operations. NSW regulatory proposals will have no impact on pulling forward the global delivery of this technology. Once available, in addition to costs, adoption will depend on site-specific factors such as mine life, equipment replacement cycles, additional onsite infrastructure requirements and whether the capabilities of equipment are suited to the individual mine environment. Mining companies are highly engaged with OEMs and participate in OEM decarbonisation strategic planning. Mines will continually review opportunities for lower emission equipment during procurement, without any need for EPA intervention. Furthermore, the prescriptive approach proposed by the EPA fails to consider other technologies such as hybrid diesel electric technologies that could provide a bridge between diesel equipment and fully electrified mining operations.

Zero emission mining equipment	Q3.2 Can coal mines transition to low or zero emissions large mining machinery and low carbon alternatives to fossil diesel sooner?	NSWMC does not believe it is a valuable exercise to speculate on specific timeframes and percentages for the deployment of technology that does not yet exist and for which there is a high degree of uncertainty regarding the availability, costs and capabilities.
Zero emission mining equipment	Q3.3 What are the barriers and opportunities? (p26)	This is addressed in the two responses above.
Tier 4 mining equipment	In 2025, the EPA intends to introduce licence conditions that require coal mines to transition to non-road diesel equipment that meets US EPA Tier 4 final emissions standards as a minimum Equipment >560 kW If Tier 4 not available, best available technology	The EPA should reconsider proposals regarding Tier 4 aftertreatment. As NSWMC has highlighted previously, the inclusion of proposals to require the implementation of Tier 4 mining equipment in the EPA's Climate Change Action Plan was confusing given that Tier 4 emissions standards relate to pollutants such as particulate matter, NOx and SOx, rather than greenhouse gas emissions. The addition of Tier 4 aftertreatment to diesel engines impacts on fuel efficiency and has the potential to offset the emissions reductions resulting from the industry's efforts to improve the fuel efficiency of diesel equipment and any potential adoption of low carbon fuels. Furthermore, the health benefits of adopting Tier 4 aftertreatment at coal mines, which are located away from major population centres, is uncertain. The Upper Hunter Air Particle Model, prepared for the EPA, estimated that PM_{2.5} contributions from non-road diesel equipment were 4.2% in Singleton and 5.4% in Muswellbrook. In contrast, the estimated contribution of wood heaters was 14% and 17%. The Cost Benefit Analysis prepared by the EPA to justify the Tier 4 proposals in 2016 contained optimistic financial benefits for mining companies and overestimated the health benefits of the proposals. This was highlighted in an independent review of the CBA undertaken by Deloitte.
Scope 1 minor sources - 'encourages' mines to continue implementing standard measures	Q4.1 Should the EPA have any requirements/expectations for coal mining companies about reducing minor sources of scope 1 emissions? (p28)	No. The EPA's Expert Panel noted the insignificance of these sources.

Scope 2 emissions - 'strongly encouraged' to implement energy efficiency measures and reduce emissions intensity of grid electricity consumption	Q5.1 Do you have any suggestions about scope 2 requirements for EPA licensees to help inform our future work on scope 2 emissions?	Figure 1 (p31) of the Coal Mine Mitigation Guide highlights the forecast rapid decarbonisation of the grid. Scope 2 emissions will reduce in line with decarbonisation of the grid. There is no need to impose additional requirements on businesses.
Scope 2 emissions - 'strongly encouraged' to implement energy efficiency measures and reduce emissions intensity of grid electricity consumption	Q5.2 How should the decarbonisation of the grid be considered, if EPA expectations for scope 2 are to be established?	Figure 1 (p31) of the Coal Mine Mitigation Guide highlights the forecast rapid decarbonisation of the grid. Mines have contributed to the funding of the decarbonisation through the Large-Scale Renewable Energy Target (LRET) and will continue to fund grid decarbonisation through electricity prices.
Scope 3 emissions - 'strongly encourages' mines to implement measures to reduce Scope 3 emissions, including purchasing green explosives	Q6.1 Should the guide include expectations for coal mine companies to address certain scope 3 emissions? For example, an expectation that mines use green explosives? (p36)	Scope 3 emissions are outside the operational control of mine sites and licensees should not be subject to Scope 3 requirements. They are the Scope 1 emissions of another business, which has the operational control to mitigate emissions. The NSW Green Ammonia Market Study referred to by the EPA does not provide the evidence to support this potential expectation. The consultation question contradicts the expert panel's advice that the Scope 3 section should be deleted entirely and the potential use of green explosives should be de-emphasised.
Exemption process - overarching policy design	<i>"If a mining company determines it is not feasible to implement a mitigation measure, it will be able to seek to be exempt from that requirement. This will need to be supported by documentation that demonstrates the measure is not feasible at the site, by providing a pre-feasibility assessment that is independently verified."</i>	The concept of the proposed exemption framework is not fit-for-purpose and the EPA should consider a more appropriate policy approach. NSWMC does not support the proposed concept of prescribing generic mitigation requirements and timeframes across the industry and requiring mines to seek exemptions from the requirements. Coal mines are already pursuing the proposed mitigation measures where they are technically and financially feasible. As a result, the framework will not change industry practices, but the exemption process will divert significant resources in order to justify exemption applications for measures that are clearly not feasible. Furthermore, the proposed criteria against which exemptions would be assessed has not been provided and there is the potential for subjective and varying approaches in assessments.

Exemption process - technical and logistical viability	Q7.1 Do you have any suggestions to improve the robustness and transparency of the pre-feasibility assessment process, and to reduce compliance costs for licensees?	The assessment of mitigation measures across the mining industry is approached in stages. Pre feasibility studies will generally only be conducted following positive results from conceptual or scoping studies. Given the EPA's proposals are clearly not feasible in many cases, the requirement to prepare pre-feasibility studies is excessive. The appropriate level of studies for any mitigation measure should be determined on a case-by-case basis. This would be best addressed and justified through the CCMAPs. The compliance costs for licensees would be reduced if the exemption process was removed and sites were required to justify their site-specific strategy in their CCMAP.
Exemption process - technical and logistical viability	Q7.2 Should the exemptions process outline the circumstances in which an exemption does not need to be sought on specific technical feasibility grounds?	If the EPA persists with the exemption process despite it not being fit for purpose, NSWMC would support this approach to avoid unnecessary work. However, we are also wary of the introduction of even more criteria to an already complicated framework. Developing the criteria would require further iterative consultation with the industry to ensure they were appropriate.
Exemption process - technical and logistical viability	Q7.3 Any exemptions issued by the EPA would be made public. Should any of the information in the pre-feasibility assessment be made public?	Pre feasibility studies contain commercially sensitive information and should not be made public.
Exemption process - technical and logistical viability	Q7.4 Should there be an avenue for public input into the exemptions process and, if so, how? Is the publication of CCMAPs and progress against CCMAPs sufficient to provide transparency?	CCMAPs will be published and are the appropriate mechanism to provide transparency on mitigation strategies.
Exemption process - technical and logistical viability	Q7.5 Could grounds for an exemption include reducing the equivalent level of scope 1 and 2 emissions on site?	All sites should have the ability to prepare a site-specific mitigation strategy that assesses viable mitigation measures for the site.
Exemption process - financial viability	<i>"Some advisory group members suggested that an objective test for financial</i>	The Safeguard Mechanism provides appropriate financial signals to drive efficient abatement

viability would be helpful for industry certainty, such as using the Commonwealth ACCU cost containment price as an upper limit on mitigation cost expectations. An alternative option would be to consider the NSW Treasury carbon values that NSW Government agencies must use when valuing the impact of carbon emissions in cost-benefit analysis. A cost-benefit analysis assesses the societal benefits and costs of emissions reduction actions and not the financial feasibility of mitigation actions for specific businesses."

NSWMC is highly concerned that the EPA appears to be considering developing its own measure of financial viability that is completely disconnected from economically rational decision making in order to force the coal mining industry to adopt uneconomic abatement measures.

The industry has existing price signals under the Safeguard Mechanism that drive efficient abatement.

The consideration of the NSW Treasury carbon values report is inappropriate given that it is clearly not intended for the purpose of determining financial viability of site-specific commercial projects.

There is no standard objective test that can be applied to determine financial viability. The commercial viability of mitigation measures is assessed by individual companies based on a wide range of factors that are specific to the project and the company in question, some of which include:

- CAPEX, the ability to access capital and costs of capital
- OPEX
- Execution risk
- Marginal abatement costs
- Payback periods
- Approved and expected mine life
- Safeguard Mechanism implications
- Internal position on forward carbon prices
- Alternative abatement opportunities across asset portfolio.