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Yancoal Australia Limited Submission - Proposed Climate Change Licensee Requirements

Via email: climatechange.review@epa.nsw.gov.au

Executive Summary

Yancoal is writing in response to the following draft documents released by the NSW Environment Protection Authority (NSW EPA) that have been released for consultation:

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

Yancoal endorses the submissions made by the NSW Minerals Council in representing the sector's views on the proposed policy reform, as well as our views on the elements of each of the abovementioned three draft documents.

Further to the submission made by NSW Minerals Council, Yancoal would like to place the following points on the record.

Yancoal strongly opposes the proposed reforms. We have 2 primary objections:

1. There is significant duplication between the NSW proposed reforms and the Federal Government's Safeguard Mechanism, with overlapping and inconsistent requirements relating to emissions reductions targets, mandated mitigation requirements, restrictions on the use of offsets, additional onerous reporting and compliance obligations and no change in predicted outcome.
2. The prescriptive nature of mitigation methodologies nominated in the draft documents is fundamentally flawed, in that it requires the implementation of technology that either does not exist, is unproven, cannot be safely implemented, has technical limitations or is uneconomic. The declining baselines under the Safeguard Mechanism already drive innovation and the deployment of "reasonable and feasible" technologies to reduce emissions.

It is our position that the draft documents will have a negligible impact on reducing net emissions from the sector. The requirements proposed by the NSW EPA are lengthy, complex and uncertain. Importantly, they will introduce a separate and distinct layer of greenhouse gas

(GHG)-related obligations for NSW based assets which are out of step with the predictable and outcomes-based Safeguard Mechanism at the Federal level. For clarity, we note that every operating Yancoal NSW coal mine is already subject to the Safeguard Mechanism.

In our view, the methods with which the NSW EPA seek to enforce its policies will not drive positive environmental outcomes – rather they will add significant cost and regulatory burdens to operations covered by the Federal Government’s Safeguard Mechanism. Our concerns include:

- Duplication of GHG Policy: the NSW EPA’s proposals heavily overlap the Safeguard Mechanism, which already regulates emissions from large facilities (including all Yancoal’s NSW producing mines). Yancoal emphasises that the Safeguard Mechanism is effectively driving reductions in net emissions.
- NSW Coal Sector on Track: The NSW coal sector is already projected to cut net emissions by more than 50% by 2030 against 2005 levels without the implementation of these draft policies. It is also one of the only sectors in NSW which is on track to meet the NSW emissions reduction targets by 2030.
- Duplication of Reporting: There is significant duplication of obligations with the existing statutory reporting regime, notwithstanding commitments from the NSW EPA to streamline reporting and avoid duplication.
- Lack of Justification: the NSW EPA has not provided any compelling rationale for introducing additional regulations that are more restrictive and costly. The Safeguard Mechanism incentivises flexible, cost-effective emissions reductions, including technology investments and carbon trading.
- Regulatory Overreach: the NSW EPA appears to be pushing for a “gross-zero” emissions policy, which goes beyond the national “net-zero” framework and lacks statutory authority.
- Sector Targeting: the NSW coal sector, already 95% covered by the Safeguard Mechanism, is disproportionately targeted, while other high-emitting sectors remain unaddressed.

Duplication of the Safeguard Mechanism

The Safeguard Mechanism is effectively reducing emissions attributable to Safeguard facilities and projections show that it will continue to drive down net emissions in line with NSW Government net GHG emissions reduction targets. The scheme is proven to be effective with its stated goals of:

- incentivising low-cost decarbonisation for covered industrial emitters,

- incentivising investments in technology and carbon trading to efficiently sequence abatement between sectors and across time, and
- providing flexibility to meet emissions reductions on a net basis.

We note that the NSW EPA is seeking emissions reduction across all sectors, however we are unclear why the primary focus of this body of work is on the NSW coal sector that is already successfully regulated for emissions reduction and is delivering against target, while other sectors in NSW fall outside the remit of the Safeguard Mechanism.

The proposed policy targets the NSW coal sector (95% of which is already regulated under the Safeguard Mechanism). Yancoal recommends the NSW EPA direct its attention to licencees who are not Safeguard facilities to more broadly drive down emissions.

Policy matters of note

We reiterate our support for the positions outlined in the submissions by the NSW Minerals Council.

There are several noteworthy matters we wish to highlight given their significance and relative impacts, namely:

- The Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines' introduction of universal mandates regarding:
 - methane emissions; and
 - low carbon alternative fuels and zero emission vehicle quotas
- The Western Coalfields exemption
- The model for exempting mines from requirements
- The obligation for ten-year forecasts

Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines

We note the NSW EPA's Proposed Greenhouse Gas Mitigation Guide for NSW Coal Mines (Mitigation Guide) proposes two sets of emissions related obligations on NSW coal mines – the first set relating to NSW EPA expectations for fugitive emissions reductions and the second relating to diesel emissions reductions.

NSW EPA expectations for fugitive emissions reductions at NSW coal mines

Table 1 on Page v of the Mitigation Guide sets out proposed NSW EPA expectations for fugitive emissions reductions at NSW coal mines:

Table 1 EPA expectations for fugitive emissions reductions at NSW coal mines⁶

Mitigation objective	Proposed EPA requirement and expected commencement	Criteria
Destroy methane in drainage gas at underground mines	By July 2027: gas drainage with flaring or utilisation is in place.	Active (operational) underground mines that: - are located outside of the Western coalfields, and - emit (or are likely to emit) >25,000 tonnes carbon dioxide equivalent per year (t CO₂-e/year) (scope 1).
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 are managed.	Active (operational) underground mines that: emit (or are likely to emit) >100,000 t CO₂-e/year (scope 1)
Destroy ventilation air methane (VAM) at underground mines	By July 2030: VAM abatement is installed on mine shafts. In 2028, the EPA will review whether the safety issues for VAM regenerative thermal oxidation (RTO) have been resolved before implementing mandatory requirements.	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).

Yancoal does not support the introduction of these universal obligations as each underground mine is inherently different depending on mining technique, mine configuration, mine type, geological characteristics, gas composition, VAM emission profile, mine ventilation and control characteristics, methane sources and drainage interactions, site integration and utilities and operating schedule/life horizon. The gas concentration, gas composition, gas volume and variability of methane in the emissions profile of a mine can vary significantly both between operations and within an operating area of a mine. The emissions profile of an operation is not stagnant and can vary significantly over time based on the mine production activity plan, mining technique, number of active panels, mine layout, equipment/panel relocations, seasonal and barometric effects. Furthermore, the emissions profile of a mine is not the sole factor to be assessed when considering the use of emissions reduction technologies.

VAM abatement technologies present technical, technology readiness and safety integrity level (SIL) challenges that impact regulatory compliance standards for underground mines. Regenerative thermal oxidiser (RTO) abatement, which is currently the only available technology, is not at a standard or scale that it can address whole of mine ventilation quantities reliably and economically that address specific engineering controls, functional safety measures, monitoring/verification and engagement commitments to ensure a compliant and safe operation for Australian mining operations. The low and fluctuating VAM concentration range that NSW underground mines operate in is generally below the range that VAM abatement RTO can reliably achieve unless co-firing/enrichment is addressed, presenting both technical and safety barriers to implementation.

In addition, contamination and condensation will affect thermal and process stability making measurement and verification technically challenging. Site specific functional safety and SIL-rated trip/interlock harmonisation, ignition prevention/containment and fail-safe ventilation and emergency integration will require bespoke certified and compliant designs that meet statutory and regulatory ventilation management plans and emergency response plans to the satisfaction of the Resources Regulator.

Research continues in the space of VAM abatement technologies, with Catalytic oxidation technologies offering potential remedies to at least some of the technical challenges presented, however it is still in development, not yet proven and, if proved up, still several years away from being available for commercial use.

The installation and operation of VAM abatement technology would apply a disproportionate cost for marginal additional abatement due to the high CAPEX/OPEX and parasitic loads eroding net abatement benefits, yield and process efficiency which is likely to be cost-prohibitive for some operations, particularly those with shorter mine life.

Notwithstanding the NSW EPA's goal of reducing on-site emissions, the use of universal obligations – including obligations to adopt technology that has not been adequately developed for commercial use – will have significant adverse impacts on the industry without genuinely driving emissions reduction. As such, we do not support the introduction of universal obligations to address fugitive emissions as outlined in the Mitigation Guide and summarised in the table above.

If the NSW EPA intends to increase its regulatory requirements to address on-site emissions, Yancoal believes a more pragmatic solution would be one that assesses emissions reduction pathways on a site-by-site basis and has regard for the commercial availability of abatement technologies, site heterogeneity and safety case requirements.

Yancoal underground operations

Yancoal operates two underground mines in NSW that would potentially fall under the proposed fugitive obligations – Ashton and Moolarben, with Moolarben operating both an open cut and underground operation.

Ashton is currently approved to mine until December 2035.

Moolarben operates both an open cut and underground operation and is currently approved for coal production until 2038. Moolarben, which is the lowest emissions intensity coal mine in NSW, operates in the Western Coalfields and as such may be exempt from these obligations.

Fugitive emissions obligations

As our only operational NSW underground mine outside the western coalfields, our Ashton mine is a relevant case study in relation to these proposed controls.

We note three obligations are put forward relating to fugitive emissions in underground mines and, specifically, in response to methane emissions:

1. Utilisation of gas drainage with flaring or utilisation in place by July 2027
2. Undertaking adequate sealing of old mine workings to minimise methane emissions by July 2027; and
3. Installation of VAM abatement on mine shafts by July 2030

On point 1, flaring infrastructure has been in place at Ashton since 2013.

On point 2, Ashton is currently advancing a program of sealing old mine areas in conjunction with NSW DCCEEW's Net Zero Industry and Innovation Program under the High Emitting Industries initiative.

On point 3, VAM abatement has not been pursued to date for Ashton for a number of reasons:

- Technology is still in development,
- Site methane concentrations at Ashton are too low for RTO
- The cost implications would be prohibitive, particularly given the relatively short (2035) mine life

Given its limited life beyond the proposed 2032 timeframe, Ashton would not be able to sustain operations from a financial perspective if it was obligated to install VAM abatement as a part of continuing operations.

As a Safeguard Facility, we have assessed (and continue to regularly assess) emissions reduction strategies and opportunities for Ashton, along with our other operations, well before the release of the NSW EPA draft papers.

Ashton's mitigation strategies are unlikely to be altered due to the introduction of the NSW EPA obligations as currently proposed – two of the three obligations have already been adopted and the third presents barriers to adoption that cannot presently be overcome.

We note the existence of an exemption scheme (to which we provide further commentary below). However, we do not believe the current proposal is an appropriate pathway to drive

down emissions – it is not rational to introduce mandates that are not technically or commercially achievable and couple them with extensive exemption application criteria.

We reiterate that a site-based assessment of emissions reduction that is cognisant of the readiness and appropriateness of technology for a site would be more appropriate.

Western Coalfields Exemption

Moolarben operates in the Western Coalfields and, as such is expected to be exempt from certain obligations and expectations proposed in Table 1 of the Mitigation Guide.

We note and support the proposed exclusion of underground mines in the western coalfields for requirements relating to gas flaring and continuous measurement of methane concentrations in ventilation air. Any obligation on our Moolarben underground mine would be a redundant exercise given its negligible methane emissions.

The exemption, however, does not appear to be consistent throughout all fugitive related obligations. The draft paper does not appear to extend this exclusion to VAM abatement installation by 2030. Rather, it notes that the obligation applies to mines that remain active after 2032 with direct emissions greater than 100,000t CO₂-e/year.

As an integrated open cut/underground operation Moolarben is a Safeguard Facility with emissions greater than this threshold. The bulk of emissions, however, relate to diesel used by the heavy mobile equipment fleet in the open pit operation.

It would be logical to extend the exemption for western coalfields mines to **all** of the NSW “EPA expectations for fugitive emissions reductions at NSW coal mines”.

NSW EPA expectations for reducing diesel emissions

Table 2 on page vi of the Mitigation Guide sets out NSW EPA expectations for diesel emissions reductions at NSW coal mines.

Table 2 EPA expectations for diesel emissions reductions at NSW coal mines

Mitigation objective	Proposed EPA requirement and expected commencement	Criteria
Reduce fossil diesel emissions at all coal mines	• By July 2030: 5% of fuel used is a low carbon alternative to fossil diesel. • By July 2035: 10% of fuel used is a low carbon alternative to fossil diesel. • By July 2040: 25% of fuel used is a low carbon alternative to fossil diesel AND 75% of large mining machinery and vehicles are zero emissions. • By July 2050: 25% of fuel used is a low carbon alternative to fossil diesel AND 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). (Large mining machinery and vehicles means >560 kW capacity).

Yancoal does not support the proposed obligations. The policy appears to be a disproportionate and advantageous singling out of one industry. Australian Energy Statistics notes that NSW coal mines represented 16% of total diesel use in NSW in 2022-23, yet our sector is being singled out with such obligations, notwithstanding the fact it is one of the only sectors which is on track to meet the NSW Government's emissions reduction target.

The stepwise mandates listed in Table 2 (5%/10% low-carbon diesel by 2030/2035 and zero-emissions conversion of 75%/100% of >560 kW fleets by 2040/2050) are technology- and supply-prescriptive, operationally impracticable at many NSW mine sites, and misaligned with safety, energy-system constraints, and OEM support.

Introduction of a low carbon alternative mandate

Yancoal has assessed the use of diesel alternatives from both a cost and emissions optimisation perspective. This is not a new exercise, noting that our operating NSW mine sites are already Safeguard Facilities with a declining emissions baseline. This incentivises Yancoal to undertake a holistic assessment of our operations on a site-by-site basis and determine the optimum path to reducing net emissions on each operating site.

The adoption of lower carbon alternative fuels to diesel presents challenges in terms of supply chain availability, logistics, storage, handling, blending, contamination risks and, importantly, OEM approvals/warranty and price.

We note that the policy appears to be product neutral on the type of low carbon alternative fuel adopted. In practice, however, biodiesel appears to be the only option for use based on availability of sufficient quantities. The NSW supply chain for Hydrotreated Vegetable Oil (HVO) diesel is nascent and import-dependent; firm volumes sufficient for 5–10–25% substitution across the coal sector are uncertain within the EPA's dates. The fuel quality and stability of biodiesel presents cold-flow, oxidation, and microbial concerns in bulk storage; blending requires tank/material compatibility upgrades and strict housekeeping.

HVO diesel is a renewable diesel that has been examined by Yancoal; however its limited availability and significant price premium have not made it a viable source at scale to date.

Further to the increased costs for procuring biodiesel, cost impacts will flow through to storage, handling and blending infrastructure as well as more frequent filter changes and increased fleet maintenance requirements based on OEM approvals and warranty risk. Separate infrastructure will be required for storing and handling biodiesel as well as new blending infrastructure. Biodiesel/HVO usage will depend on engine-by-engine OEM approvals (blend limits, service intervals). Imposing percentage targets regardless of OEM limits risks voided warranties and higher failure rates, with safety and production consequence.

Yancoal is concerned about the cost impacts for biodiesel. Work by the NSW Minerals Council to collate pricing information from fuel suppliers and industry notes a marginal abatement cost of between \$266 and \$598/t CO₂-e. This is in contrast with an ACCU spot price of \$38.30 as of 28 October 2025. This would constitute an enormous increase in compliance costs that runs counter to the importance of cost-effective emissions reductions.

Zero emission mining machinery and vehicles

Yancoal does not support the 2040 and 2050 targets for zero emissions mine vehicles. Zero emission options for >560 kW classes are nascent. Ultra-class haul trucks, large dozers, excavators, shovels, graders, drills (>560 kW) have limited commercial zero-emissions availability.

We note the findings in the Mitigation Guide regarding electrification and battery electric vehicles which acknowledges that, while there has been significant research and development in this space, with trials planned at some iron ore mines, the challenges for coal mines which have shorter mine lives and use larger haul fleets are significantly greater. Battery-electric prototypes exist but lack broad OEM warranty coverage, dealer support, or proven performance across NSW duty cycles (ambient heat, gradients, long haul profiles, high availability targets).

Page 21 of the Mitigation Guide acknowledges that:

“Technology for battery electric vehicles of the size used at NSW coal mines is not at the same level of maturity or trial stage.”

It is, in our view, inappropriate to issue a mandate for the uptake of technologies that are not commercially available. The fact that a concept is theoretically possible, that R&D investment is being undertaken, and that announcements have been made by producers to develop new technologies does not guarantee the production at scale of commercially viable products. A product needs to be shown to be viable before its uptake is mandated.

A zero-emission vehicle fleet is not currently available to us, regardless of price, and in the absence of this we believe the obligation to implement concept technology at scale is poor policy and should not be pursued. The NSW EPA either fails to acknowledge or is ignorant to the fact of duty cycle, energy density, energy management, grid, power quality and infrastructure constraints as probable barriers to adoption.

Applications will require continuous high draw (traction plus hydraulics). Battery swapping/fast charging at multi-MW per bay is not yet proven at scale for mixed fleets; battery fuel-cell systems face storage, ventilation and fire-risk challenges at scale both on the surface and at infrastructure locations.

Rapid charging, high-voltage distribution, and battery rooms introduce new ignition sources and arc-flash/fault energy; battery/electrical conversions will require additional electrical and fire safety suppression, gas monitoring and compliance.

Grid capacity and reliability will also be a concern. To convert 75–100% of >560 kW fleets to electric by 2040–2050 would require tens to hundreds of MW of additional firm capacity per large mine for charging/trolley-assist, plus network augmentations, voltage control, harmonic mitigation and redundancy to maintain safety-critical operations. Many mine locations lack that headroom or would require long-lead transmission works that sit outside a mine's control.

Electrification moves emissions to Scope 2 i.e. scope shift without net reduction guarantee. Without assured, consistently reliable low-emissions electricity at the point of use, mandated electrification can produce limited (or no) lifecycle reductions while adding grid risk to safety-critical plant (dewatering, communications, etc) and grid stress and potential curtailment of mine-critical loads during peak events.

Mandated electrified fleet conversions and site infrastructure electrical works (substations, feeders, chargers, trolley lines) represent very high capex with long approval and construction lead times driving disproportionate cost Vs abatement economics and exposure.

The paper notes a number of alternate, lower carbon fuel substitutions for consideration – each of which presents financial and technical challenges. A lower carbon fuel, however, does not appear to be eligible given the current wording requiring *zero emission* vehicles. Not only is this impossible with current technology, but such a policy also takes a gross-zero policy approach – it does not allow our mines to operate under a net-zero framework which takes a technology agnostic approach and permits the use of abatement or offsets as part of the task of managing net emissions reduction. We are not aware of any jurisdiction globally that is pursuing a gross-zero emissions policy. Nor do we believe the NSW Government has a mandate for gross-zero emissions policies under the *Climate Change (Net Zero Future) Act 2023* (NSW) or other regulatory instruments.

It is aspirational policy based on technology that currently is not available to us and is contradictory to the Government's stated commitment to *Net Zero* emissions policies.

Zero emissions vehicle mandates should be removed.

Proposed process for seeking to be exempt from an NSW EPA requirement

Chapter 7 of the Mitigation Guide provides for a process to seek an exemption from a NSW EPA requirement.

The NSW EPA correctly notes under its exemption process that ‘the NSW coal mining sector is complex, with a range of mine types, geological characteristics, mine configurations, mining techniques and regulatory requirements. Coal mining companies are best placed to consider, in detail, whether the various mitigation measures described in this Mitigation Guide are feasible for their operation.’

The above statement is not only true but the assessments are already being undertaken, with the national Safeguard mechanism providing a regulatory incentive to do so.

It is on this basis that we believe that the current concept of universal obligations with an exemption process is flawed. A more appropriate pathway would be to assess viable opportunities on a site-by-site basis, rather than placing blanket obligations on them even when it would be apparent that they are inappropriate for a site and place the burden of seeking an exemption on the applicant.

Should the exemption system come into force, we note that the requisite threshold for seeking an exemption is a pre-feasibility assessment with independent verification. This is an inappropriately high benchmark for circumstances where it may be quickly and easily demonstrated that certain mitigation technologies are not technically or financially applicable for sites.

Pre-feasibility assessments are expensive endeavours that generally run into the hundreds of thousands of dollars, take many months to complete and draw upon significant resources. This is an inappropriate requirement for an assessment that could potentially be determined on the spot by a qualified individual. The NSW EPA should allow for a more cost-effective and streamlined process for circumstances where there is a clear feasibility issue for certain mitigation obligations on sites.

Ten-Year Forecast obligations

Page 13 of the Climate Change Mitigation and Adaption Plans: Proposed Mitigation Plan Requirements sets out an obligation for reporting emissions estimates for the next ten years. We believe this should be removed.

An obligation to provide ten-year emission forecasts will reveal commercially sensitive mine-plan information regarding forecast production for a mine site(s) with negligible abatement benefit. This is an unacceptable impost on commercial operations without a clear rationale for it – we note that the NSW EPA has not identified any other reporting obligations of this nature elsewhere.

In our view, this proposed reporting obligation should be deleted.