Whitehaven Coal:
Climate Risk Assessment

Implications for Safeguard Compliance, Methane Abatement, and Medium-Term Climate Risk

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A quantitative assessment of the climate, regulatory, and Safeguard Mechanism liability implications of Whitehaven Coal's current and planned production pathways to 2030, as well as a qualitative examination of existing internal cost-benefit analyses and assumptions that underpin Whitehaven's long-term corporate strategy.

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Recommendations to Whitehaven

Reassess the cost-benefit analysis of onsite mitigation.

This report recommends Whitehaven proactively reassess existing commercial cost–benefit estimates of onsite mitigation. Rising Safeguard liabilities materially change the economics of onsite mitigation technologies that may previously have appeared uneconomic.

Prioritise methane mitigation at Narrabri.

Whitehaven has previously assessed methane mitigation at Narrabri and deemed capital costs uneconomic. Given the updated liability and climate cost estimates, this assessment should be revisited, potentially with the goal of expanding either VAM or pre-mine drainage mitigation opportunities.

Expand methane drainage across QLD.

As operations expand and reporting methodologies shift toward more site specific measurements, there is greater potential to address fugitive methane. Whitehaven should pursue a coordinated program of methane drainage and utilisation across QLD mines.

Bring forward electrification of mobile equipment before 2030.

Electrification or hybridisation before 2030 would slow emissions growth, reduce diesel-related liabilities, and improve alignment with emerging regulatory expectations.

Limit further expansions at Blackwater.

Whitehaven should limit any further expansion applications at Blackwater, significantly reducing the potential for long term risk exposure, and signal a more disciplined approach to capital allocation in an increasingly constrained policy and price environment.

Expand onsite solar generation and battery storage across the portfolio.

Whitehaven's expanding surface mine footprint offers significant opportunities for onsite solar generation and battery storage that can support methane utilisation projects, charging infrastructure, and broader electrification strategies.

Recommendation to Policymakers

Introduce a cap to Fuel Tax Credit Scheme for large miners to accelerate electrification.

CEF and CarbonBridge propose the FTC Scheme be capped at $50 million per year per consolidated group and reformed into a 'cap-and-reinvest' model with the introduction of a 'Transition Tax Incentive' (TTI). This would instantaneously reshape one of Australia's worst climate and industry policies to become a major tailwind to electrification, and has the potential to significantly restructure Whitehaven's cost-benefit analyses and marginal abatement cost curves to accelerate electrification.

Executive Summary

Whitehaven Coal is one of the fastest-growing coal mining companies in Australia. Over the past two years, the company has expanded its production capacity dramatically. The acquisition of the Daunia and Blackwater mines in 2023–24 has transformed their business, lifting annual coal production by 60% and reversing a multi-year production decline. This has placed the company at the centre of Australia's coal mining future. With planned developments across New South Wales (NSW) and Queensland (QLD), including the Vickery Extension, Winchester South, and Narrabri Stage 3 extensions, Whitehaven's production could expand further again, adding potentially tens of millions of tonnes of new coal output across the late 2020s and potentially extending well beyond 2050.

This rapid expansion creates a fundamental tension with Australia's energy transition, and opens up clear regulatory and climate liability risks going forward.

As Whitehaven's production has increased, so have its emissions. Fugitive methane from underground operations remains a critically difficult management and mitigation challenge, with Narrabri experiencing large year-to-year swings in emissions intensity as a result. The scale of Scope 1 greenhouse gas (GHG) emissions reported at Blackwater, coupled with a significant future expansion potential, raises material concerns regarding its long-term climate liability risk to shareholders.

As a result of rising production and recent acquisitions of open cut coal mining operations, diesel fuel consumption has risen sharply, becoming one of the fastest-growing, and largest sources of Whitehaven's Scope 1 GHG emissions. With the expected expansion of production at both the Vickery coal mine in NSW and the Winchester South coal mine in QLD, diesel consumption is set to significantly rise into the future. Without significant and rapid investments in heavy vehicle electrification, this consumption rate could further increase with the potential 90 year development application for the Blackwater South coal mine.

With limited material mitigation plans across Whitehaven's portfolio, these expansions expose the company to mounting regulatory, climate and financial risk in the medium term. Depending on production and carbon price variability, this analysis estimates Whitehaven could face between A$129–221m in cumulative Safeguard Mechanism liabilities by 2030. Much of this exposure originates from the fugitive emissions-intensive Narrabri underground mine, and the Blackwater open cut mine. This regulatory burden is likely to further expand post-2030, as production levels reach maturity at the Vickery Extension and Winchester South coal mines.

The absolute climate risk of these projects however, far outweighs the regulatory burden imposed by the Safeguard mechanism. When considering the Scope 1 emissions through the lens of NSW Treasury's shadow carbon price (TPG24–34), the social cost of Whitehaven's Scope 1 emissions to 2035 could reach a net present value of up to A$4.7 billion (NPV 2025). This figure reflects the climate-related liabilities the company carries into future regulatory cycles, and the extent to which tightening policy settings could translate externalised climate impacts into direct costs. However, this is before considering the cumulative scope 3 emissions of Whitehaven's coal, and their impacts on a global scale.

Taken together, Whitehaven's recent expansion increases, emissions trends, and liability estimates demonstrate a company growing rapidly while accumulating significant climate-related vulnerabilities. Whitehaven's trajectory exposes it to rising compliance costs, increasing operational uncertainty, and growing constraints on long-dated project development. These pressures directly shape the company's risk profile and the feasibility of its future investment strategy.

Furthermore, in December 2025, the NSW Net Zero Commission released a spotlight report on coal mining, finding that the sector faces escalating transition risks from weakening long-term demand, capital constraints, and growing policy and social licence pressures. While near-term production may remain resilient, the Commission warned of heightened medium- to long-term uncertainty, shortened asset lives, and rising risks of stranded assets. Critically, the Commission concluded continued coal mining expansion is inconsistent with the emissions reduction targets in the NSW Climate Change Act, or the temperature goals of the Paris Agreement.

Together, these dynamics demonstrate a structural misalignment between Whitehaven's planned production growth and Australia's legislated decarbonisation trajectory. This assessment concludes that Whitehaven's current development pathway would place sustained and intensifying pressure on Australia's climate governance frameworks, while heightening regulatory, approval, and liability risks for the company and its shareholders. In this context, the report recommends a reconsideration of the company's current project expansion plans, alongside the need for a significant re-evaluation of the company's existing mitigation approach and investments, to avoid compounding liability risks over the medium term.

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Authors

CarbonBridge is an Australian-based strategic advisory and coal-sector analytics firm, founded in 2025. The firm provides targeted support in decarbonisation planning, ESG reporting, regulatory accountability, and transition risk management. With a focus on the financial, industrial, and policy implications of the energy transition for Australian investments, CarbonBridge equips decision-makers with the insights needed to align strategy with sustainability. Through context-driven insights and tailored strategies, it enables stakeholders to manage risk, capture emerging opportunities, and drive a just and science-based energy transition.

Climate Energy Finance (CEF) is an Australian based, philanthropically funded think tank established in 2022 that works pro-bono in the public interest on mobilising capital at the speed and scale needed to accelerate decarbonisation and the energy transition consistent with climate science. We conduct research and analyses on global financial issues related to the energy transition from fossil fuels to clean energy, as well as the implications for the Australian economy, with a key focus on the threats and opportunities for Australian investments, regional employment and value-added exports.

1. Methodology and Analytical Framework

Data Sources

This analysis draws on publicly available disclosures and regulatory data, including Whitehaven's annual and sustainability reports (2020–2025), Safeguard Mechanism baselines and Clean Energy Regulator compliance data (FY18–FY22), project applications and forward production plans, and relevant government policy frameworks. These include the NSW Treasury Policy Guidelines for shadow carbon pricing (TPG24–34), the Resources Sectoral Plan (2025), and federal coal export projections. The assessment also incorporates information relating to Whitehaven's reported diesel consumption rates and modelling of emissions trajectories, baselines, fuel tax credits and potential liabilities.

Modelling Approach

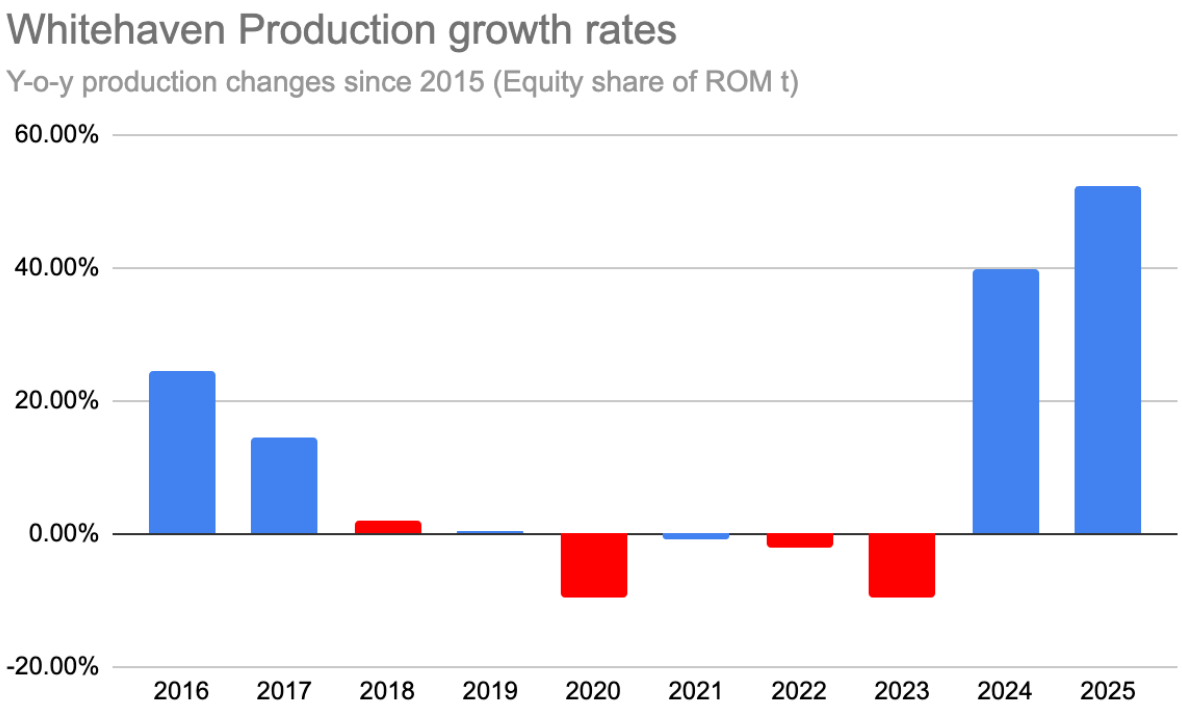
The assessment proceeds in four stages. First, facility-level Scope 1 emissions trajectories are constructed using reported ROM production, historical emissions intensity, and forward production assumptions across Whitehaven's operating and proposed assets. Secondly, Safeguard Mechanism baselines are applied where relevant, blending site-specific facility emissions intensities with the industry average emission intensity, and the sectorally specific decline rates. Third, potential Safeguard liabilities are estimated under both a static and rising Safeguard Mechanism Credit (SMC) price scenario that increases in a linear fashion to $100 by 2030. This is then presented against potential production variabilities and measurement uncertainties. Finally, total climate costs are assessed by applying the NSW shadow carbon price schedule with a 7% discount rate to projected Scope 1 emissions.

Scope of Assessment

The analysis covers Whitehaven's active operations at Narrabri, Maules Creek, Daunia, and Blackwater coal mines, as well as proposed expansions at Vickery Extension and Winchester South. It also incorporates the potential development of the Blackwater South project proposal, while the Blackwater North extension proposal has been excluded following its recent EPBC withdrawal. It also incorporates the Narrabri Stage 3 Mod 2, as revised on October 15th, 2025.

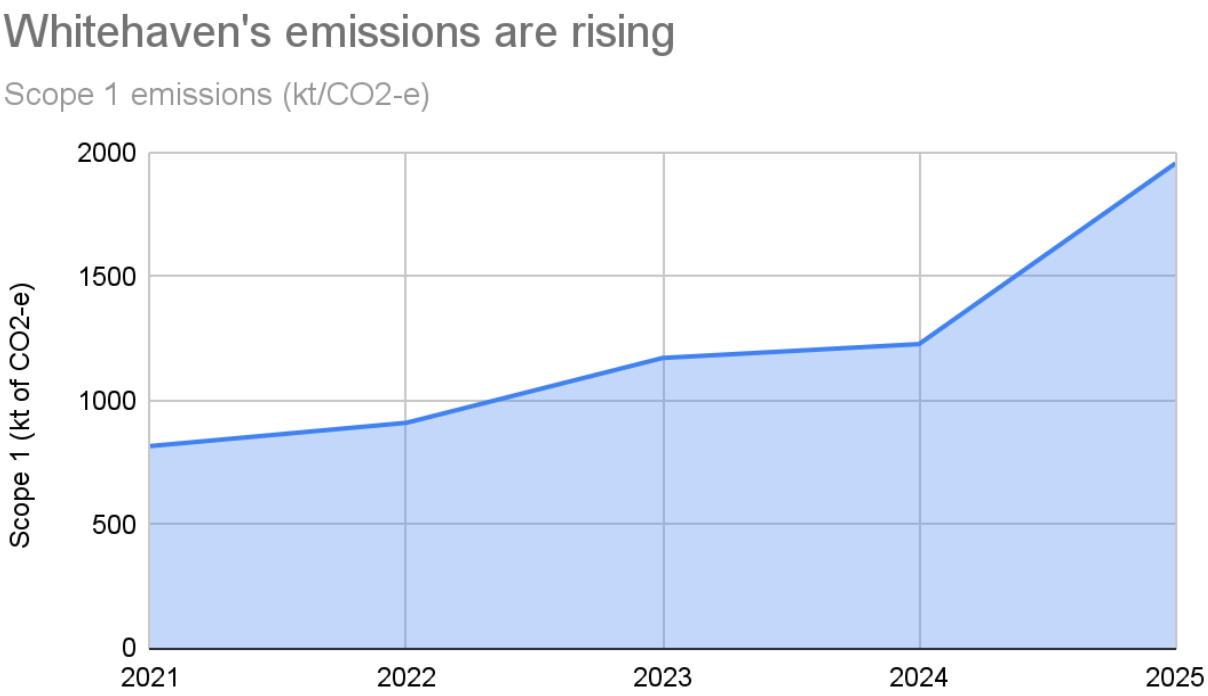
2. Current Production and Emissions Profile

Whitehaven's acquisition of Daunia and Blackwater reversed a multi-year production decline and established a renewed growth platform. Further production plans at Narrabri, Vickery Extension, Blackwater South, Winchester South put the company on a significant growth path through the late 2020s.

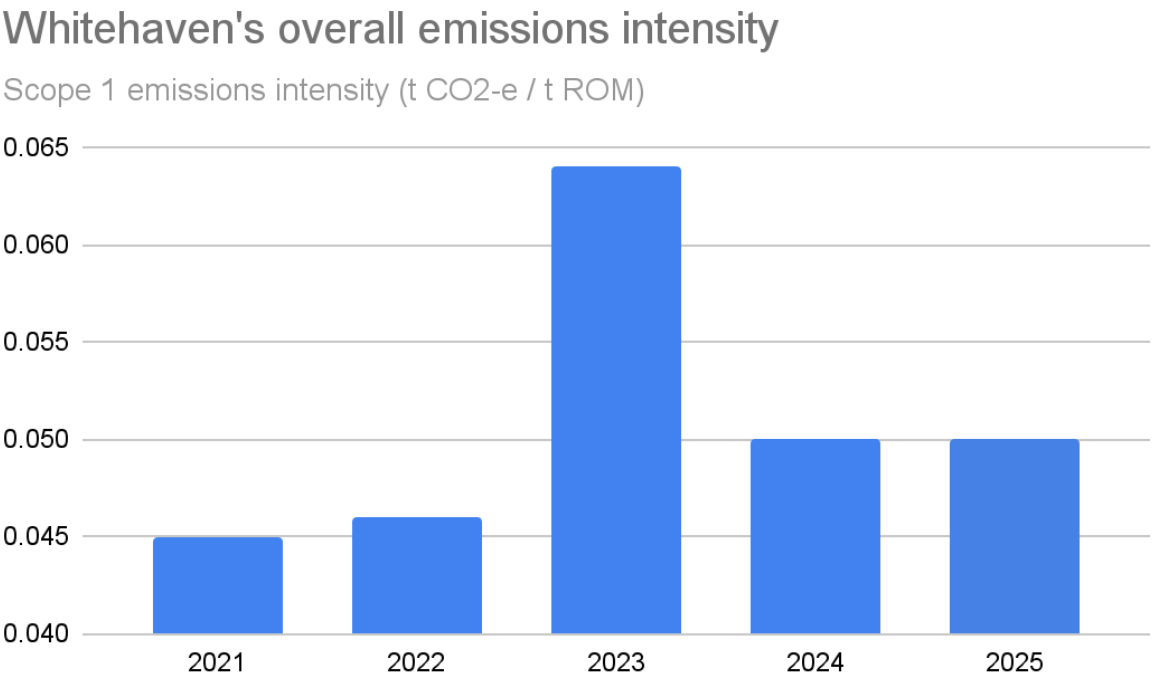


2.1. Emissions Growth Outpacing Production

Whitehaven's Scope 1 emissions have increased markedly, driven predominantly by rising diesel consumption and fugitive methane emissions. As the only underground mine in Whitehaven's portfolio, Narrabri is the most volatile GHG source, with year-to-year fugitive emissions fluctuations significantly impacting overall emissions, baseline calculations and liability modelling.

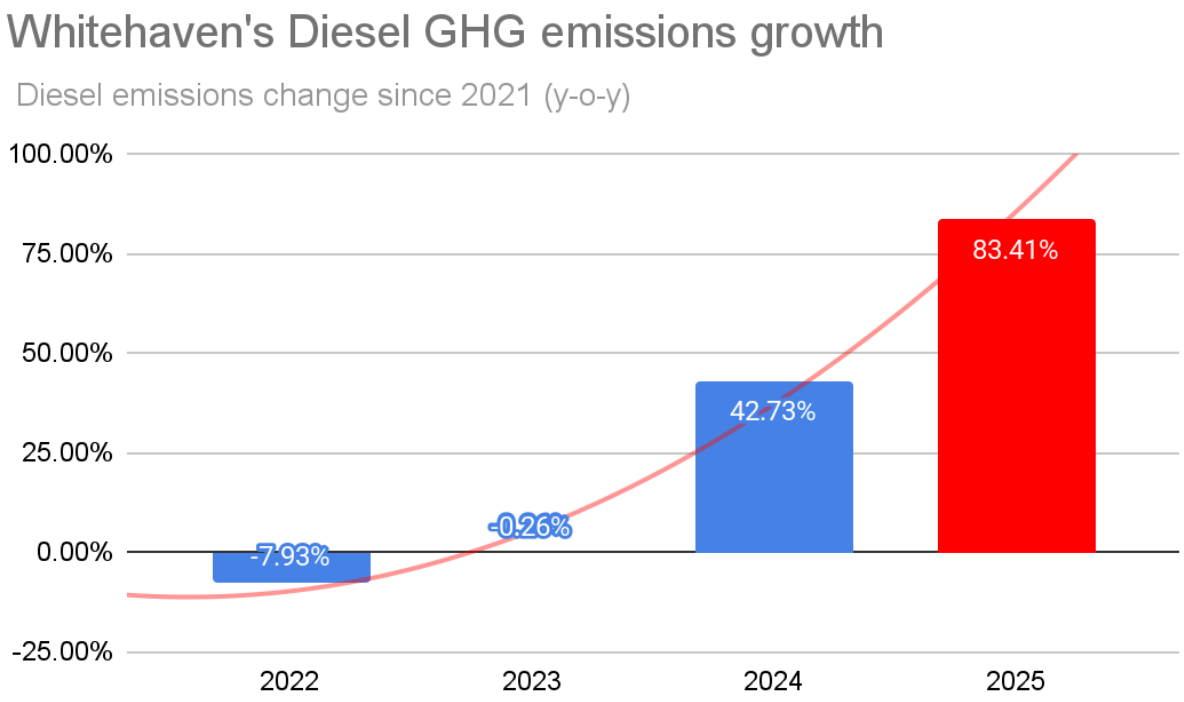


The acquisition of Daunia and Blackwater coal mines has also resulted in a significant shift in the company's emissions intensity over time. These shifts are largely attributable to asset-mix changes. No significant fugitive emissions mitigation investment has yet been deployed.



2.2. Diesel Emissions: A Rapidly Growing Source of Emissions

Diesel combustion at Whitehaven's surface operations has increased materially following the acquisition of QLD assets, reflecting higher fuel intensities of large-scale open-cut mining. This trend is expected to continue under active and proposed developments, particularly the Vickery Extension and Winchester South, both of which rely on expanded truck-and-shovel operations, longer haul distances, and higher stripping ratios. As a result, diesel is becoming one of the fastest-growing components of Whitehaven's Scope 1 emissions profile, and the largest source of emissions in FY25.



Diesel combustion has become a dominant driver of Whitehaven's emissions profile and a material source of regulatory and transition risk. In its most recent Sustainability Report, the company notes that diesel now accounts for 51% of Scope 1 emissions, marking a structural shift in the composition of its emissions and elevating diesel from an operational input to a central compliance variable.

Whitehaven's disclosures indicate that near-term options for reducing diesel emissions are limited. At Maules Creek, the company reports having completed a trial of renewable diesel and states that it will continue to assess the availability and affordability of alternative fuels. These initiatives are presented as exploratory and are not accompanied by targets, timelines, or a commitment to portfolio-wide deployment.

For the period FY2025–2030, the company lists only that "operational efficiencies and diesel substitution options" will be trialled. More substantive actions, including low-carbon haulage fleets and electrified mining equipment, are explicitly deferred to the FY2030–2040 period.

Consistent with this sequencing, the company states that abatement is expected to be modest before 2030 and they "do not anticipate low-carbon truck electrified solutions will be a feasible solution for our open cut mines over the next decade."

Whitehaven attributes this position to ongoing technical and operational constraints, including limitations in truck range and battery life, long charging times without dynamic systems, and the need for substantial upgrades to infrastructure, power supply, and mine operations, particularly in relation to safety and blasting requirements.

Key Challenge

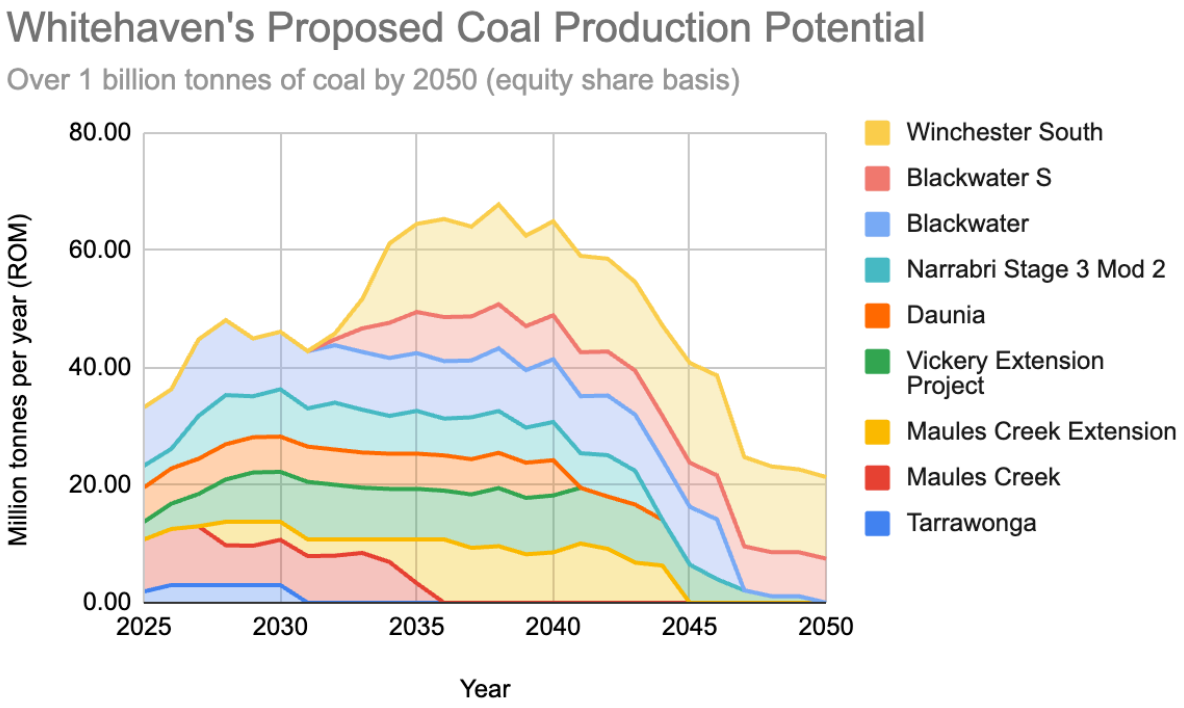
Taken together, these disclosures indicate that diesel-related emissions are expected to remain structurally high throughout the remainder of the 2020s. As Safeguard Mechanism baselines decline annually, this materially increases Whitehaven's exposure to rising compliance costs and narrows the scope for near-term operational mitigation. From a regulatory and investor perspective, the company's own disclosures point to a growing mismatch between the pace of policy tightening and the timing of proposed diesel abatement, heightening transition risk and constraining strategic flexibility in the years ahead.

For Whitehaven, this creates a structural risk. Projects designed around long-lived diesel fleets face the prospect of retrofitting costs, stranded mobile assets, or revised rebates into the future. In this context, diesel-intensive expansions such as Vickery Extension and Winchester South embed not only higher near-term Safeguard liabilities, but also heightened long-term transition risk.

3. Significant Expansion Going Forward

Whitehaven's current expansion pathway is anchored in a series of proposed production increases across both NSW and QLD. Key elements of this strategy include the Narrabri Stage 3 expansion, intended to materially lift underground production in NSW, and the Vickery Extension, which would significantly expand open-cut operations in the Gunnedah Basin. Additionally, the proposed Winchester South mine in QLD, a large-scale greenfield development, would significantly add to Whitehaven's QLD operations of Daunia and Blackwater. These projects would increase Whitehaven's production capacity substantially over the next decade, significantly extending the company's operational footprint well beyond its historical production profile.

On an equity-share basis, this pathway implies potentially more than 1 billion tonnes of coal production through to 2050, with annual output rising sharply through the late 2020s and then again in the mid-2030s. At its peak, Whitehaven's equity share of coal production could double in the next decade, through the additions of Maules Creek Extension, Winchester South, Blackwater South and Vickery Extension project.



While actual production timelines may vary from planned capacity additions, the aggregate picture is clear: Whitehaven's strategic planning remains anchored in sustained, large-scale coal production over multiple decades. This trajectory embeds long-lived emissions exposure at precisely the point where regulatory, policy, and compliance constraints are tightening. From both a regulatory and investor perspective, the figure underscores the growing disconnect between the company's expansion assumptions and the direction of Australia's and key export

markets' climate policy framework, amplifying the risk of stranded assets, rising compliance costs, and constrained optionality as the transition accelerates.

3.1. Australia's Changing Regulatory Frameworks

Whitehaven's current expansion strategy was largely developed throughout the most recent boom cycle of inflated coal prices that extended between 2021 and 2024. Projects such as Narrabri Stage 3, Vickery Extension, and Winchester South were advanced, while the Daunia and Blackwater mines were acquired from BHP, with significant existing expansion and extension plans.

Any planned extension, expansion or acquisition process usually involves considerably long lead times. As such, it is likely that many of these plans were also largely developed prior to the reform of the Safeguard Mechanism, the NSW Net Zero Future Act, and the Commonwealth government's most recently developed Nationally Determined Contribution (NDC) to reduce emissions by between 62-70% by 2035.

It also runs counter to the Resources Sectoral Plan (2025), developed as part of the broader 2035 NDC. This plan sets a significant sector-wide trajectory for emissions reductions, with an aim to approximately halve Scope 1 GHG emissions over the next decade, in order to support Australia's broader economy-wide emissions reduction targets. Whitehaven's planned development pathway delivers the inverse: multi-decade expansion of high-emissions production capacity.

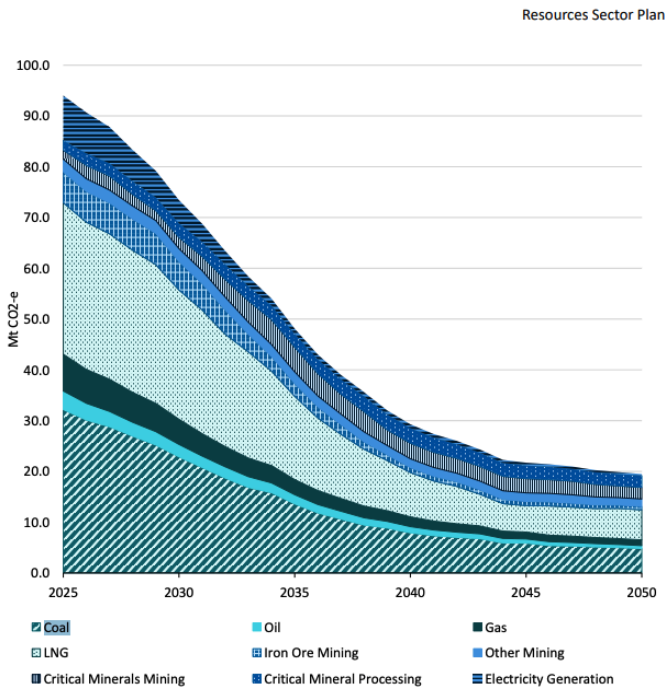


Figure 4 – Resources sector emissions projections to 2050, by commodity group under the Baseline Scenario.[2]

Source: Modelling report: Treasury (2025) *Australia's net zero transformation: Treasury modelling and analysis*, Treasury, accessed September 2025.

Australia's climate policy framework is now tightening in ways that directly constrain emissions-intensive growth. Declining Safeguard Mechanism baselines, rising compliance costs, heightened scrutiny of methane emissions, and the growing regulatory focus on diesel combustion are no longer peripheral considerations.

The recent EPBC withdrawal of the Blackwater North may indicate how market shifts are beginning to impact project expectations. However, recent ASX announcements indicate that Whitehaven remains optimistic, and may soon re-apply for a larger mine expansion going forward.

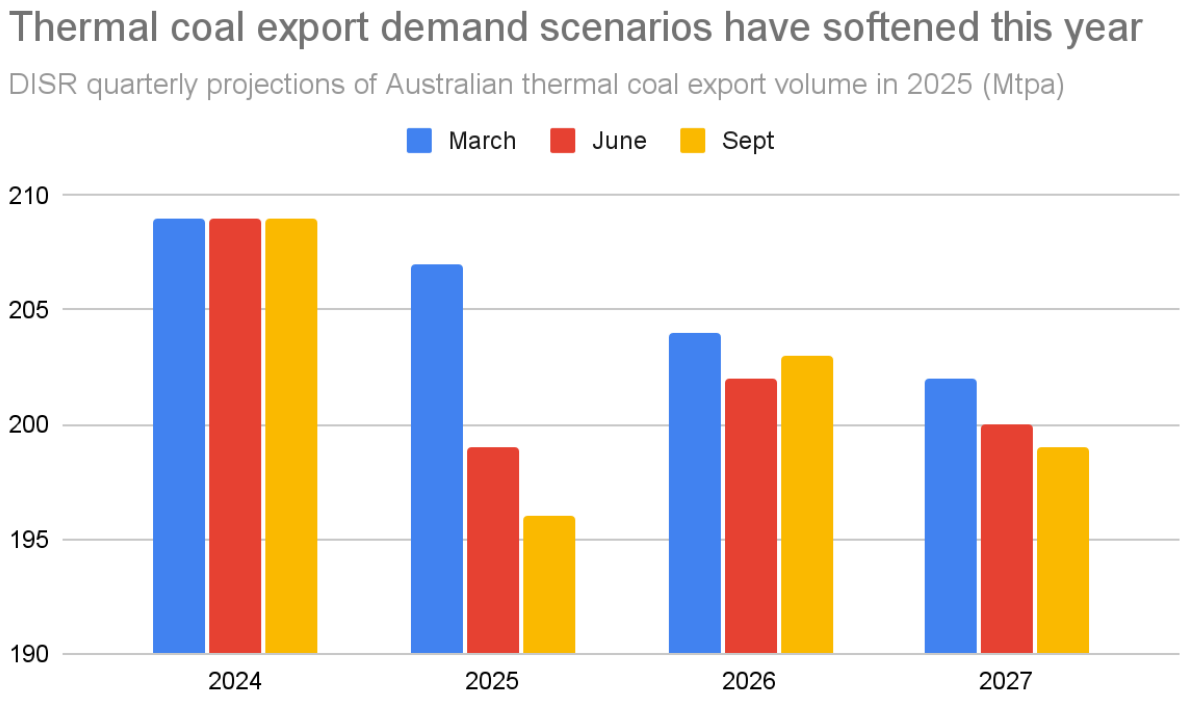
The decision to abandon a fully advanced, state-approved project involving approximately 220 million

tonnes of coal, with a projected operating life extending to 2085, marks a significant recalibration of the company's risk assessment. While the company has not officially commented on the project decision, it may signal how changing economic and regulatory conditions are beginning to erode. As policy measures tighten further, compliance risks may also begin to increasingly shape outcomes in the sector.

3.2. Changing Market Conditions

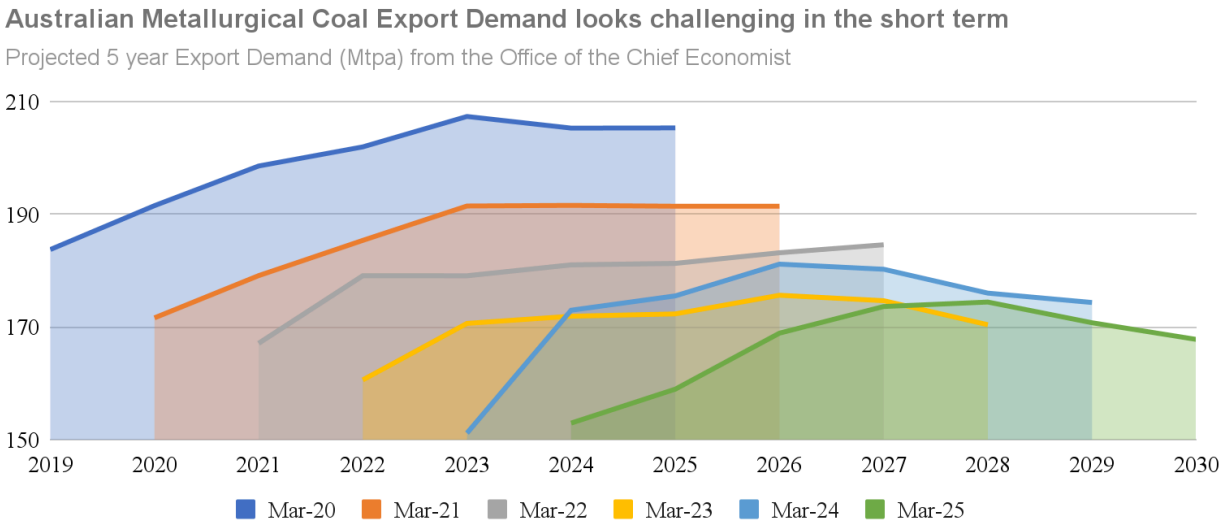
Recent government demand projections further point to a weakening outlook for both thermal and metallurgical coal exports over the second half of the decade. While these projections are subject to revision, export volumes, demand, and prices are projected to decline as Whitehaven's planned production profile assumes sustained scale and longevity.

According to the Department of Industry, Science and Resources (DISR), Australia's thermal coal export outlook has softened significantly throughout 2024. Between March and September this year, projected export volumes for 2025 were revised down by more than 10 Mt, with further weakness evident through to 2027. This raises the risk that producers relying on extended production runs and long mine lives may face shorter-than-expected demand windows, greater price volatility, and increased competition for marginal export markets.



Metallurgical coal markets are similarly projected to be constrained over the next decade. Once considered highly resilient, metallurgical coal markets have seen considerable volatility on the back of China's real estate downturns. Forward projections from DISR now indicate that forward

demand may similarly be lower and more volatile than previously expected.



While these projections are subject to revision, the direction of travel is increasingly clear: expected export demand is being revised down, not up, at precisely the point where Whitehaven's planned production profile assumes sustained scale and longevity.

These demand signals reinforce the risks embedded in Whitehaven's long-duration expansion pathway. The company's production profile assumes sustained export demand well into the 2030s and 2040s, yet official projections are being revised downward over much shorter horizons. This mismatch increases the risk that assets planned for long operating lives may face compressed economic windows, particularly when combined with rising Safeguard Mechanism liabilities and limited near-term abatement options.

4. Safeguard Mechanism Exposure

Whitehaven's emissions trajectory is increasingly at odds with the direction of the Safeguard Mechanism. Since its reform, the scheme no longer functions as a background compliance requirement, but has become a binding constraint that directly affects the costs, flexibility, and in some cases, the viability of continued production growth. For assets with high GHG emission intensities and limited abatement options, the Safeguard Mechanism converts operational characteristics into escalating financial exposure.

This pressure is most acute at Narrabri, Whitehaven's only underground mine and the company's most methane-intensive asset. Narrabri enters the current compliance period with a relatively high emissions intensity and little evidence of sustained potential improvement over time. As baselines tighten year by year towards 2030, the facility faces a declining emissions intensity challenge. Closing the compliance gap would require emissions-intensity reductions beyond anything previously demonstrated in Narrabri's operating history, or ongoing reliance on compliance credit purchases at what is likely to be rising credit prices.

At Narrabri, this challenge is compounded by annual emissions volatility, with fugitive methane intensity fluctuating sharply in recent years. This instability increases uncertainty around future compliance outcomes, particularly as the Safeguard Mechanism becomes more restrictive.

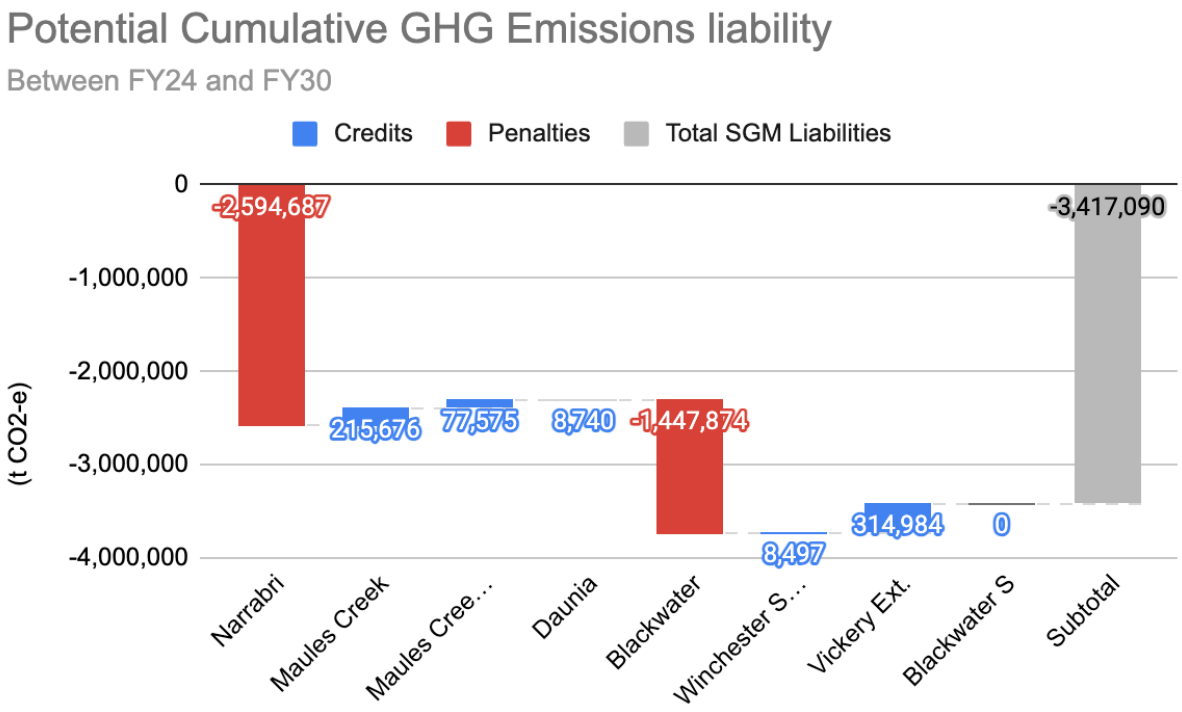
While Blackwater is not an underground operation, it remains materially exposed under the Safeguard Mechanism due to the scale of its operations and diesel combustion. Currently it also has a considerable estimated fugitive emissions footprint.

Blackwater's reported emissions profile is expected to change as fugitive methane reporting transitions from a state-average emissions factor, to a site-specific emissions factor under updated NGER requirements. This shift has implications for both reported emissions intensity and Safeguard compliance outcomes. While this shift has seen considerable impacts on other mines that have undergone the shift, this has not been taken into account in this estimate, due to the uncertainty involved.

In contrast, the relatively low reported emissions intensity at Maules Creek and Daunia coal mines will likely lead to surplus Safeguard credits, partially offsetting liabilities elsewhere in the portfolio. This credit achievement is likely to be closely reviewed in next year's Safeguard Mechanism review process.

4.1. Potential Exposure

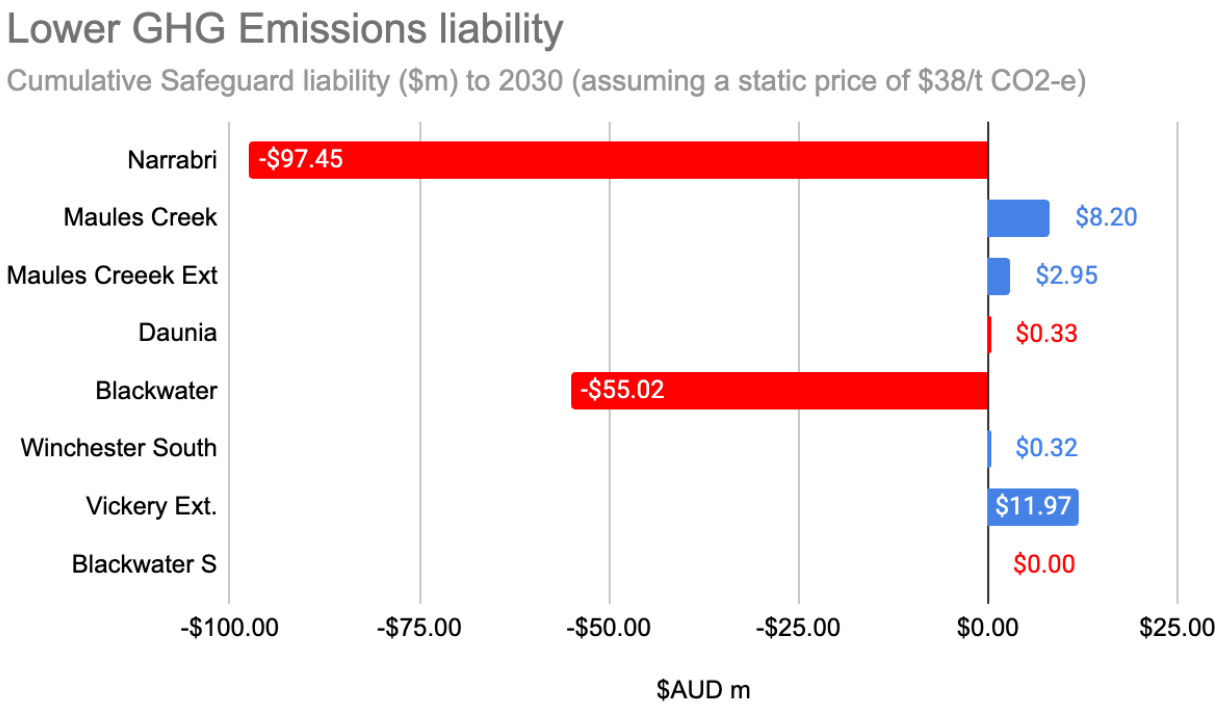
Whitehaven's projected Safeguard Mechanism exposure to 2030 is significant and highly concentrated. Narrabri and Blackwater account for the majority of excess emissions, while several lower-intensity sites generate modest surplus credits that only partially offset these liabilities.



The emissions gap is dominated by Narrabri, the single largest source of non-compliance over the period as its methane-intensive profile and emissions volatility result in substantial excess emissions relative to its declining baseline. Blackwater is the second-largest contributor, reflecting its scale, diesel intensity, and the expectation that fugitive methane reporting will change as the operation transitions from default factors to site-specific measurement. Together, these two assets account for the majority of Whitehaven's cumulative excess emissions through 2030.

By contrast, several surface operations generate surplus compliance positions under current Safeguard settings. Maules Creek, its extension, Daunia, and Vickery Extension coal mines all contribute net credits, reflecting lower reported emissions intensity relative to their baselines. These credits reduce the portfolio's net exposure. Through 2030, Whitehaven's portfolio carries a net cumulative emissions liability of more than 3.4Mt CO_2-e over FY24-30.

Under a static Safeguard compliance cost of A$38 per tonne CO_2-e scenario, Narrabri alone contributes close to A$100m in cumulative Safeguard penalties by 2030, making it the dominant source of financial exposure. Blackwater adds a further A$55m, reinforcing its position as a structurally exposed asset. Depending on fugitive emissions measurement variability going forward, these two sites will likely account for the overwhelming majority of portfolio-level costs.

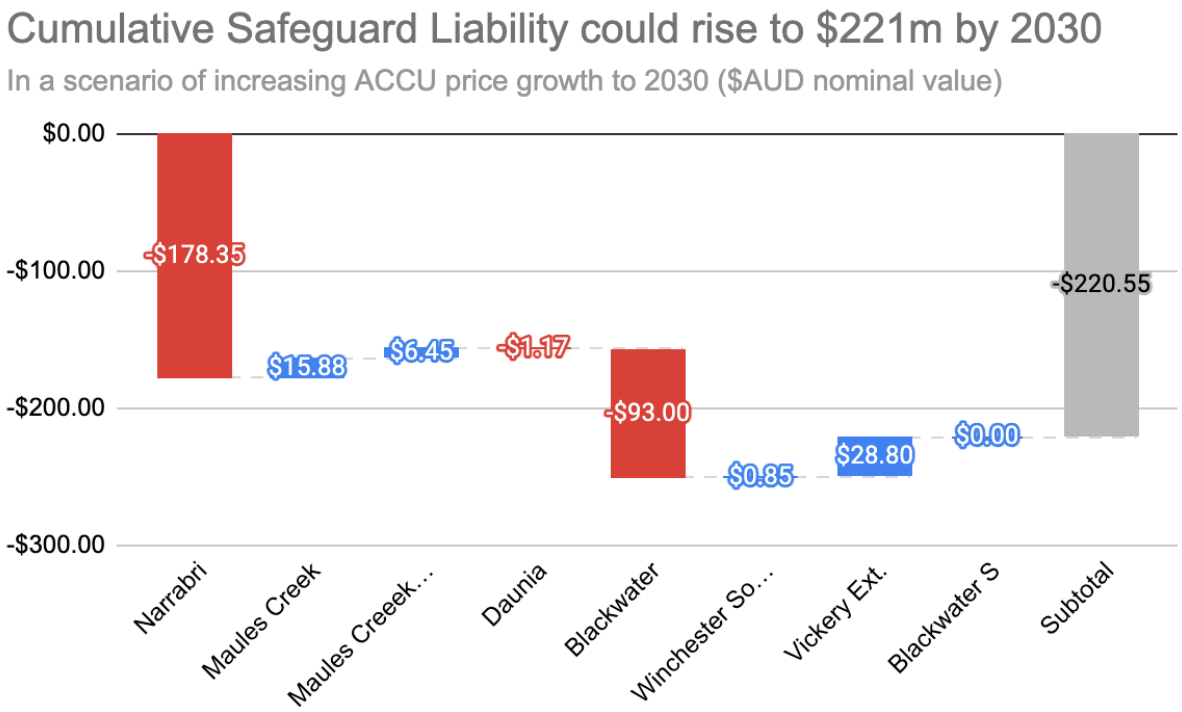


This highlights that Whitehaven's Safeguard exposure is asset-specific rather than portfolio-wide. Outcomes will be driven primarily by performance at the Narrabri mine site, and to a lesser extent, Blackwater and the potential extension at Blackwater South. By contrast, Maules Creek and its extension generate modest positive balances under this scenario, alongside smaller contributions from Vickery Extension and Winchester South.

These credits partially offset portfolio-level costs but do not change the underlying risk structure. The chart makes clear that Whitehaven's Safeguard exposure is asymmetric: liabilities are deep and concentrated, while credits are shallow and potentially temporary.

4.2. Safeguard Liability Under an Escalating Carbon Price Scenario

When Safeguard Mechanism liabilities are assessed under an escalating carbon price scenario, Whitehaven's exposure increases sharply. Assuming a linear growth rate in ACCU/SMC prices to A$100 per tonne by 2030 (nominal), cumulative Safeguard liabilities across the portfolio rise to approximately A$221 million.



Under this scenario, Narrabri is the dominant source of liability, contributing close to A$180m in cumulative penalties. This reflects the mine's fugitive-intensive emissions profile, emissions volatility, and limited scope for near-term abatement. As carbon prices rise year by year, Narrabri's emissions gap translates directly into escalating cash costs, making it the single largest driver of portfolio-level exposure.

Blackwater represents the second-largest contributor, with approximately A$93m in cumulative liability. This reflects the scale of operations, rising diesel emissions, and the expected transition from default fugitive emission factors to site-specific measurement. Under a rising price trajectory, even modest increases in reported emissions intensity materially increase compliance costs.

These liabilities are partially offset by surplus positions at several surface operations. Maules Creek and its extension generate combined credits of ~A$22m, while Vickery Extension contributes a further ~A$29m. Other assets provide only marginal offsets. Overall, the depth of liabilities at Narrabri and Blackwater far exceeds the value of credits elsewhere, leaving the portfolio with a net cumulative liability of approximately A$221m.

The comparison with lower price scenarios is instructive. Under a static A$38 price, cumulative Safeguard costs are materially lower but remain concentrated in the same assets, with Narrabri and Blackwater still driving the majority of exposure. Under a moderate price trajectory toward A$75, liabilities increase substantially but remain well below the A$100 scenario. The escalation to A$100 by 2030 more than doubles portfolio-level costs relative to the low-price case, demonstrating the portfolio's high sensitivity to carbon price growth rather than changes in production assumptions.

Importantly, this outcome does not rely on a sudden or punitive price shock. A linear path to A$100 reflects a gradual tightening consistent with current policy direction. For investors, this highlights that Safeguard liabilities represent a material and growing cash cost, highly sensitive to carbon price assumptions and concentrated in a small number of high-emissions assets. Absent material methane abatement at Narrabri or reductions in diesel emissions elsewhere before 2030, rising carbon prices materially increase Whitehaven's compliance burden and further constrain the economics of emissions-intensive production growth.

There is considerable uncertainty in these estimations.[1] These uncertainties pertain to the significant annual variance in emissions intensities of underground mining, changing production plans, delays, extensions and ongoing carbon pricing changes under the Safeguard Mechanism. The potential variability at Blackwater mine not only extends to its planned expansions, but also includes significant uncertainty regarding its future reported fugitive methane emissions, following an expected shift in its measurement approach. However, we also have reason to believe that these estimates are conservative, and are likely to increase to 2035. Following the review and likely extension of the Safeguard Mechanism in FY2026-2027, we expect these liabilities to continue to expand through to 2035, with more clarity as to their estimated compliance obligations.

4.3. Variability and Uncertainty

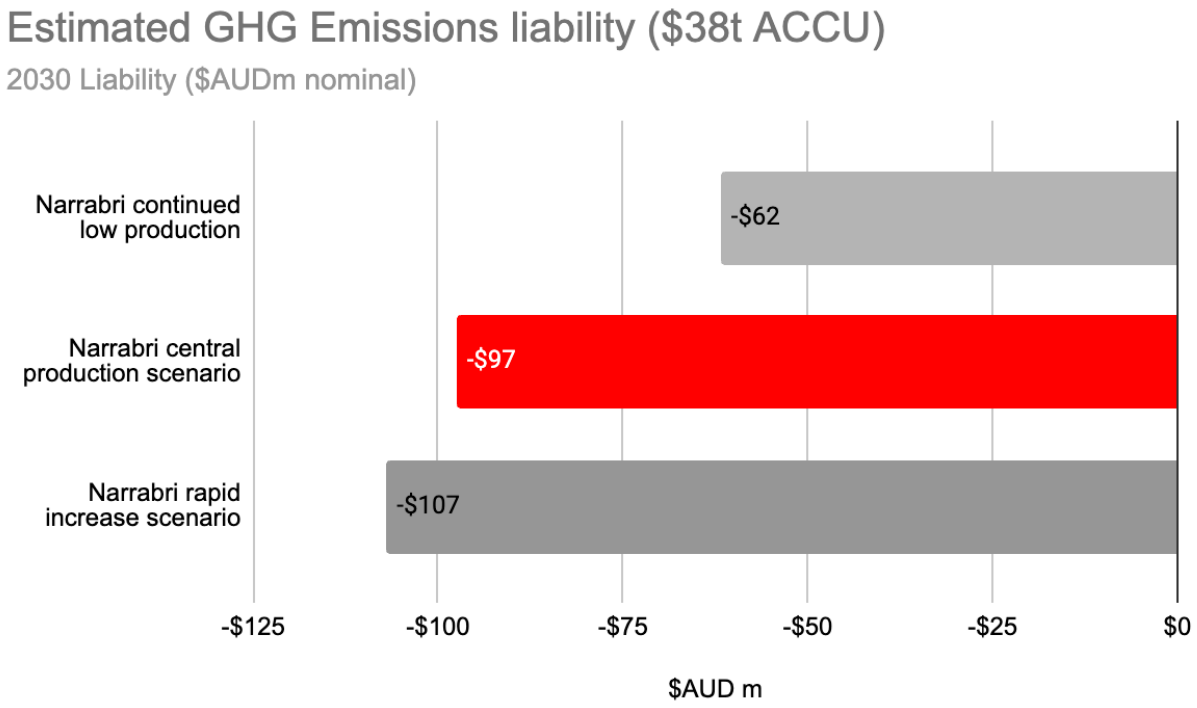
Whitehaven's Safeguard exposure is highly sensitive to the timing and pace of production increases at Narrabri Stage 3, making this asset the key swing factor in portfolio-level outcomes. Under a conservative A$38 per ACCU assumption, cumulative liability to 2030 remains materially lower if production stays near current levels of around 4.3 Mtpa, but rises sharply if output accelerates toward planned levels above 10 Mtpa, as indicated in their recent Modification request. The difference between these outcomes is driven not by changes in emissions intensity, as this is not currently available to be assessed, but by the interaction between higher volumes, declining baselines, and rising compliance costs.

These outcomes remain subject to material uncertainty. Narrabri's fugitive methane emissions have shown significant historical variability, and future reported emissions are sensitive to measurement practices, operational conditions, regulatory requirements, and mitigation performance. Small changes in emissions intensity, reporting methodology, or approval conditions can translate into disproportionate changes in Safeguard liability when combined with higher production and tightening baselines.

As a result, while recent approvals reduce near-term risk, they do not materially alter Narrabri's status as the single most consequential and uncertain driver of Whitehaven's Safeguard liability outlook. For both investors and regulators, the unresolved status of Stage 3 Mod 2 reinforces that Narrabri's future contribution to portfolio-level compliance costs remains contingent, asymmetric, and highly sensitive to timing

[1] This assessment contains significant uncertainties, and reflects several material adjustments relative to earlier modelling, due to project uncertainties and changes.

The scale of the potential SGM liability costs is outlined below, using a static low production scenario, a moderate growth scenario, increasing production in 2028, and a final rapid increase scenario.



5. Fuel Tax Credits Undermines Safeguard Mechanism Effectiveness

A number of fossil fuel producers and industry representative organisations within the minerals and resources sector have urged against Fuel Tax Credit (FTC) Scheme reform. A key point consistently elevated is that Australia has now introduced an implicit carbon pricing scheme that covers the main industrial emitters, which includes the FTC Scheme's largest beneficiaries, via the Safeguard Mechanism. As a result, fossil fuel subsidy reform is unnecessary, burdensome, and duplicates regulatory restrictions for large operators in Australia's resource sector.

Under the reformed Safeguard Mechanism, the carbon price for marginal emissions abatement is represented as the price of an SMC or ACCU, with average prices maintaining ~A$30-40 per unit since 2022. The like-for-like comparison between the introduction of marginal emission penalties via reducing baselines under the Safeguard Mechanism to that of the FTC fossil fuel subsidy scheme is intentional and deliberate, to both overinflate the carbon imposts imposed under the SGM and underrepresent the scale of the subsidy of the FTC Scheme represented as an equivalent carbon cost.

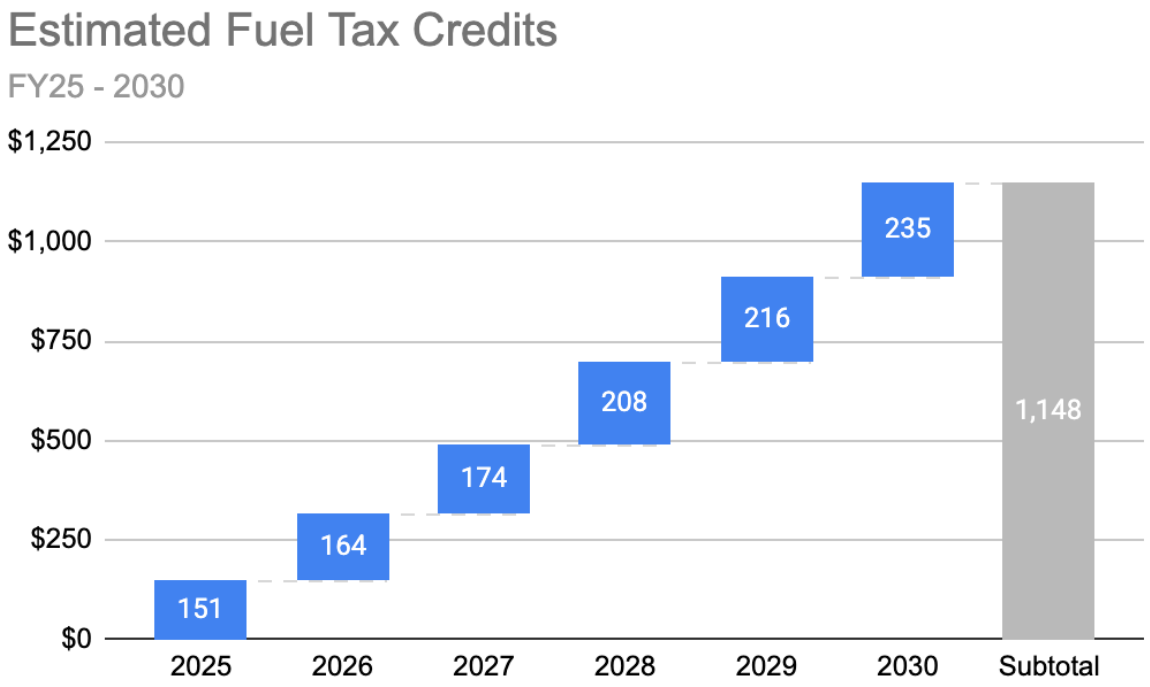
As outlined above, CarbonBridge and CEF have determined Whitehaven's Safeguard liability to 2030 at A$129-221m, reflecting carbon pricing scenarios of a static A$38 marginal emissions cost, to a rising price of A$100 a unit by 2030, reflecting the indexed cap of the Cost Containment measure of the Safeguard Mechanism.

At the FY25 weighted-average fuel tax rate of 51.6 cpl, fuel tax credits provide an implicit carbon emission subsidy of $190/t$CO_2$-e. CEF and CarbonBridge analysis estimates Whitehaven's direct fossil fuel subsidies via the FTC Scheme could rise significantly from $75m in 2024 to $235m in 2030, driven primarily by Whitehaven's growth plans and fuel excise indexation. Cumulatively, Whitehaven is estimated to receive $1,148m in fossil fuel subsidies from FY24-30 under the FTC Scheme.

Under current policy settings, cumulative fossil fuel subsidies under the FTC Scheme translate to subsidies between 5 to 9 times larger than Whitehaven's estimated net Safeguard compliance cost by 2030.

Whitehaven's rapid growth in diesel emissions is reflective of the broader industry, in which diesel consumption has continued to rise unsustainability, undermining Australia's progress towards its legislated climate targets. The current climate-industry policy landscape has proven insufficient to drive structural change in phasing-out diesel in Australia's mining sector, largely a consequence of the tailwind to continued use provided by the FTC Scheme.

Whitehaven's diesel intensity continues to rise. From FY21 to FY25, Whitehaven's diesel intensity per tonne of run-of-mine coal has risen 26% to over 9.4 litres. Coupled with Whitehaven's aggressive growth in production volumes in recent years, Whitehaven's diesel consumption rose over 83% year-on-year in FY25, following a 43% growth year-on-year in diesel emissions in FY24.



CEF proposes the introduction of a $50m per annum cap per consolidated corporate entity on credits able to be claimed under the Scheme. Under CEF's proposal, FTC receipts above the $50m cap would be returned to the company as a conditional investment tax incentive – a Transition Tax Incentive (TTI) – on the proviso that the miner deploys that capital return into defined investment classes that will enable the phase-out of diesel in its operations. In other words, entities would retain the value of the TTIs if a commensurate investment into decarbonisation capex is made.

Eligible infrastructure and technology investments would be defined by a common sustainable finance taxonomy, including but not limited to enabling electrification infrastructure such as transmission and distribution networks, charging networks, renewable energy generation and firming capacity, or electrified heavy mobile equipment procurement – for example battery-electric heavy haulage trucks to replace diesel fleets, where technology innovation and capacities have raced ahead in 2024-25.

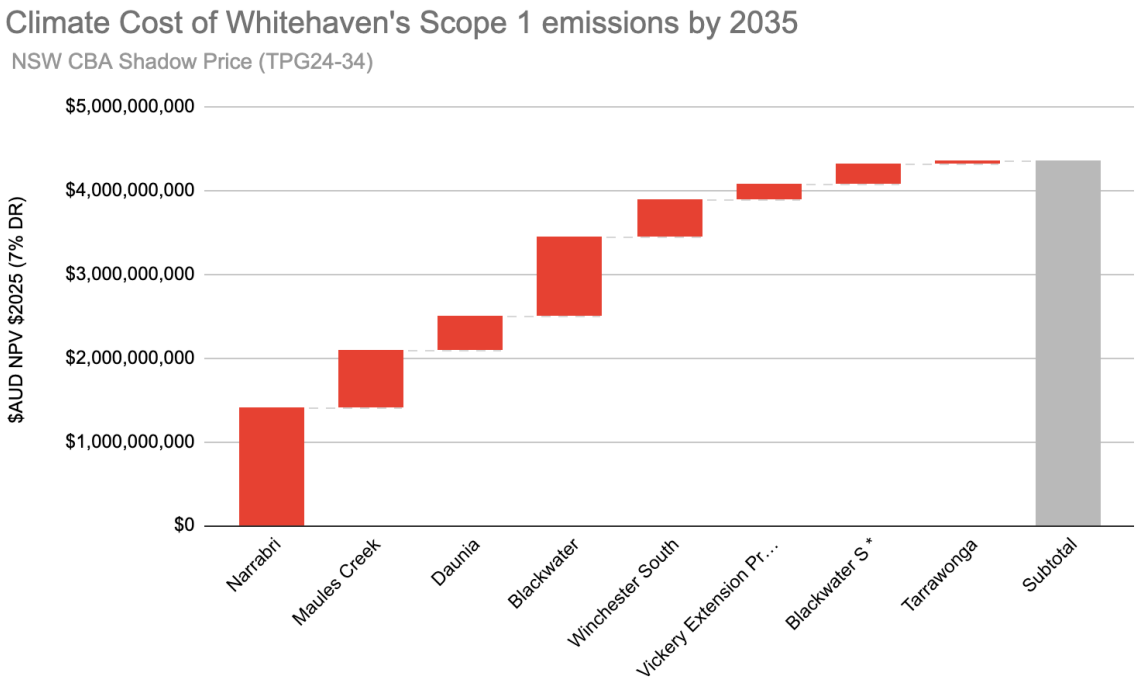
The most economically-efficient and optimal reform of government incentives would be the introduction of an economy-wide carbon pricing mechanism. CEF sees the progression towards this as imperative to drive structural change in fossil fuel consumption across all economic sectors in Australia. CEF's TTI proposal is a transitional measure that can be effectively deployed right now that aligns economic incentives with Australia's industrial decarbonisation objectives in a targeted measure to Australia's largest consumers of fossil liquid fuels.

6. Social Cost of Carbon

Estimating the social cost of Whitehaven's Scope 1 emissions provides a fundamentally different lens on climate risk than regulatory compliance metrics alone. Unlike the Safeguard Mechanism, which captures only a portion of emissions-related costs through a constrained compliance framework, the social cost of carbon seeks to quantify the broader economic harm associated with GHG emissions, including climate damages, environmental degradation, and long-term systemic risks borne by society.

In contrast, applying the NSW Treasury shadow carbon price (TPG24-34) provides an economic valuation of an externalised climate cost, embedded in Whitehaven's current operating and expansion pathway. This approach allows a more holistic assessment of the climate-related risk of the company's Scope 1 emissions, including costs that may not yet be internalised through regulation but remain economically real.

Utilising this approach, the social cost of Whitehaven's Scope 1 emissions may be represented through to 2035. On this basis, the climate cost of Whitehaven's direct operational emissions exceeds A$4 billion (NPV $2025). This has been estimated utilising a 7% discount rate, and is therefore practically conservative.



Importantly, focusing on Scope 1 emissions keeps the analysis conservative and grounded in direct operational control. Even on this limited basis, the resulting figures demonstrate that the economic footprint of Whitehaven's emissions is large, persistent, and concentrated in a small number of assets.

This assessment is not a forecast of regulatory penalties and does not imply that these costs will be recovered through existing policy settings. Rather, it estimates the economic impacts associated with Whitehaven's Scope 1 emissions that are not currently internalised. It therefore provides a broader measure of climate risk than Safeguard liabilities alone, using a price signal adopted by NSW Treasury for evaluating the public interest impacts of emissions-intensive projects.

The contrast with the Safeguard Mechanism is instructive. Safeguard liabilities reflect emissions relative to declining baselines and are shaped by transitional design features, offset availability, and policy constraints. As a result, they represent a partial and lagged signal of climate cost. Even under scenarios where Safeguard liabilities rise into the hundreds of millions of dollars by 2030, they remain an order of magnitude smaller than the estimated social cost of Scope 1 emissions through the mid-2030s.

For regulators, the comparison highlights the importance of forward-looking assessment. While Safeguard compliance focuses on near-term emissions performance, the social cost perspective illustrates the long-term economic implications of permitting emissions-intensive activity to persist or expand. This is particularly relevant for long-dated projects where climate costs accumulate well beyond initial approval and compliance horizons.

In this context, the social cost assessment complements rather than replaces Safeguard analysis. Together, they show both the immediate, monetised liabilities facing Whitehaven under current policy settings and the much larger pool of climate risk that remains externalised. The widening gap between these two measures underscores why reliance on compliance metrics alone understates the true scale of climate-related risk embedded in the company's portfolio.

In this context, the social-cost assessment does not replace Safeguard analysis; it completes it. Together, they show both the near-term costs Whitehaven is likely to face under existing rules and the much larger pool of climate risk that remains externalised under the company's current production and expansion pathway.

7. Recommendations

The projected Safeguard Mechanism liabilities and the estimated social cost of Whitehaven's Scope 1 emissions materially alter the economic case for continued emissions-intensive operation and expansion.

Together, these analyses demonstrate that climate risk is no longer a peripheral consideration but a core determinant of asset viability, capital allocation, and regulatory exposure. The following recommendations set out priority actions that would materially improve Whitehaven's risk profile under both current and plausible future policy settings.

1. Reassess the Cost–Benefit Analysis of Onsite Mitigation

Based on this analysis, we recommend that Whitehaven proactively reassess existing commercial cost–benefit estimates of onsite mitigation. The analysis in this report shows that projected Safeguard liabilities alone reach hundreds of millions of dollars under plausible price trajectories, while the estimated social cost of Scope 1 emissions exceeds A$4 billion through the mid-2030s. These values materially change the economics of onsite mitigation technologies that may previously have appeared uneconomic.

2. Prioritise Methane Mitigation at Narrabri

Narrabri is the single largest driver of both Safeguard liability and climate cost in Whitehaven's portfolio. As the company's only underground mine, its methane intensity, emissions volatility, and sensitivity to production ramp-up make it the most consequential asset from a compliance and climate-risk perspective.

Whitehaven has previously assessed Regenerative Thermal Oxidisers (RTOs) at Narrabri and concluded that the capital cost (approximately A$190 million) rendered them uneconomic. Given the updated liability and climate cost estimates, this assessment should be revisited, potentially with the goal of expanding either VAM or pre-mine drainage mitigation opportunities. Even partial methane abatement could materially reduce Narrabri's contribution to portfolio-level risk, particularly under rising carbon price scenarios.

3. Expand Methane Drainage Across QLD

There is also the potential for significant expansion of fugitive methane mitigation across Whitehaven's QLD open-cut operations, particularly at Daunia and Blackwater. As these operations expand and reporting methodologies shift toward more site specific measurements, there is greater potential to address fugitive methane.

Whitehaven should pursue a coordinated program of methane drainage and utilisation across all QLD open-cut mines, rather than treating fugitive emissions as a residual compliance issue. Treating fugitive methane as a portfolio-level issue, rather than an asset-by-asset afterthought, would materially strengthen Whitehaven's emissions management strategy.

4. Bring Forward Electrification of Mobile Equipment Before 2030

Diesel combustion now accounts for more than half of Whitehaven's Scope 1 emissions and is one of the fastest-growing components of the company's emissions profile. Under current plans, material electrification of haulage and mobile equipment is deferred until after 2030, despite accelerating Safeguard exposure and rising climate costs in the intervening years.

Whitehaven should reassess this sequencing. Even partial electrification or hybridisation before 2030 would slow emissions growth, reduce diesel-related liabilities, and improve alignment with emerging regulatory expectations.

The geographic clustering of Whitehaven's NSW and QLD operations — particularly in the Gunnedah and Bowen basins creates opportunities for shared charging infrastructure, grid upgrades, and staged deployment of electric or hybrid fleets. Early investment would reduce long-term transition risk and avoid locking in diesel-intensive operating models that may become increasingly costly or constrained.

5. Introduce Cap to Fuel Tax Credit Scheme for Large Miners to Accelerate Electrification and Decarbonisation

CEF and CarbonBridge propose the FTC Scheme, which subsidises imported high-emissions diesel use, be capped at $50 million per year per consolidated group claiming under the Scheme. We recommend a 'Transition Tax Incentive' (TTI) to reform the FTC Scheme. Any tax credits an entity would be eligible to receive above the cap are returned to that entity on the condition the entity deploys an equal or greater investment into decarbonisation capex each year.

This would reform the FTC Scheme into a 'cap-and-reinvest' model, turning a headwind to diesel displacement by electrification and decarbonisation into a tailwind. A $50m cap means no changes to fuel tax credits to farmers, road transport companies, agriculture, family businesses, sole traders or small-medium enterprises. This reform would only impact large mining-related entities, such as Whitehaven.

This reform would instantaneously reshape one of Australia's worst climate and industry policies to become a major tailwind to electrification, and has the potential to significantly restructure Whitehaven's cost-benefit analyses and marginal abatement cost curves to accelerate the deployment of electrified mobile mining equipment, construction of onsite solar and battery storage capacity, as well as underwrite large-scale firmed renewables across the NEM.

6. Limit further Expansions at Blackwater

The withdrawal of Blackwater North marked a significant recalibration of Whitehaven's expansion strategy. However, a recent ASX announcement indicates significantly increased recoverable reserves and ambition to expand coal production across sites connected to the Blackwater mine.

This report suggests not only that onsite mitigation and electrification should be significantly expanded at the Blackwater mine, but that Whitehaven should limit the extent and duration of

any further expansions. This will be critical to reducing longer term risk exposure and would signal a more disciplined approach to capital allocation in an increasingly constrained policy and price environment. This would also be critical to realigning with Australia's 2050 Net Zero ambition.

7. Expand Onsite Solar Generation and Battery Storage Across the Portfolio

Whitehaven's expanding surface mine footprint offers significant opportunities for onsite solar generation and battery storage, particularly when paired with future electrified equipment. Onsite solar power is already being developed at Narrabri coal mine, but broader investments, especially across its open cut mines could reduce reliance on diesel, lower operating costs over time, and provide a hedge against rising energy and carbon prices.

Onsite solar generation could also support methane utilisation projects, charging infrastructure, and broader electrification strategies. Integrating renewable generation into mine planning would strengthen the economic and environmental resilience of Whitehaven's assets, particularly as regulatory and investor scrutiny intensifies.