



CARBON BRIDGE | November, 2025

Whitehaven Climate Liability Risk Assessment

Assessing the Climate
and Safeguard liability
risks of Whitehaven Coal

About CarbonBridge

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

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and Emissions Context

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*Based on an assessment of Whitehaven's projected emissions through 2030, initial analysis indicates a potential cumulative Safeguard Mechanism liability of **A\$92–342m (net)**, depending on credit price paths, measurement approaches, and production outcomes.*

*This estimate is substantially lower than the potential social cost of the methane and carbon dioxide released during production, which is estimated at around **A\$4.7 billion (NPV 2025)**.*

*Regardless, the analysis suggests that **onsite abatement measures could be increasingly cost-effective** over the longer term, particularly when considering potential reforms, as marginal abatement obligations and compliance costs are expected to rise through 2035.*

Research Approach

Whitehaven

Maules Creek Continuation Project

Environmental Impact Statement

Appendix J
Whitehouse Gas Assessment

Whitehaven Document Review

Annual Reports 2015 - 2025
Sustainability 2021 - 2025
Mine Applications
Safeguard Reporting CER

resury

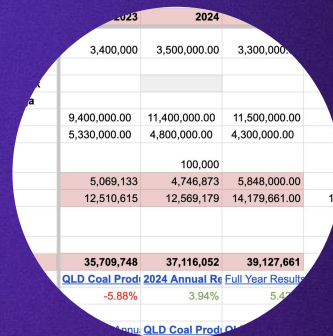
Carbon emissions in the Investment Framework

TPG24-34

September 2024

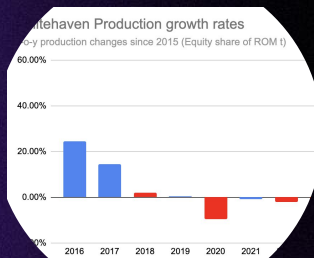
Comparative Assessment

2025 NSW CBA Guidelines
Safeguard Mechanism
Guidelines



Data collection

ROM coal production plans
Actual ROM production
Emissions reporting
Forward Projections
Comparative Coal demand
needs

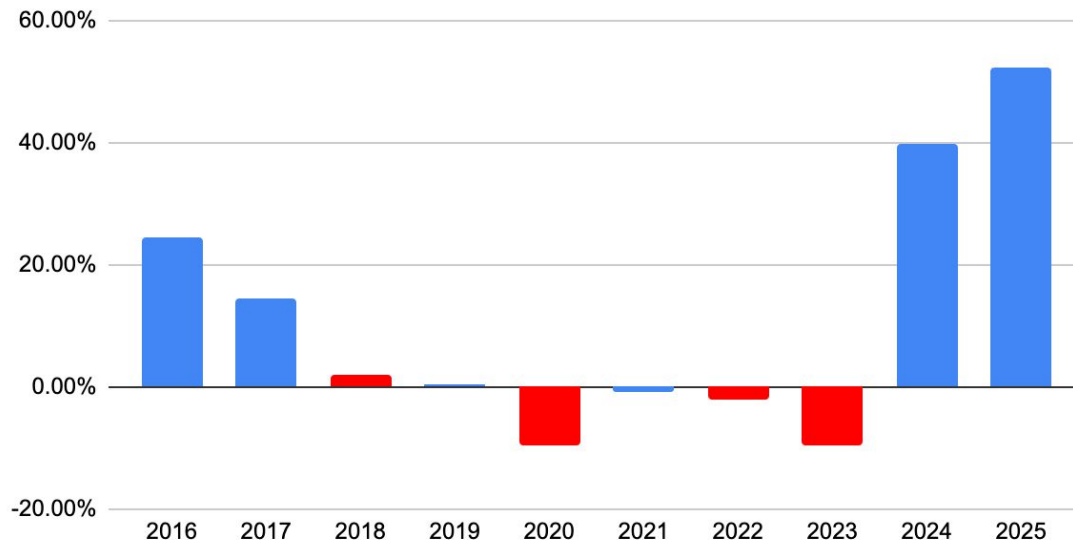


Analysis & Modelling

SGM Baseline impacts
2030 Scenarios
2035 SGM scenario's
CBA NPV

Whitehaven Production growth rates

Y-o-y production changes since 2015 (Equity share of ROM t)



CURRENT PRODUCTION

Whitehaven's recent growth

Whitehaven's acquisitions of Daunia and Blackwater have shifted a multi-year production decline, even through inflated prices.

Further production plans at Narrabri, Vickery Extension, Blackwater South, Winchester South put the company on a significant growth path

CURRENT PRODUCTION

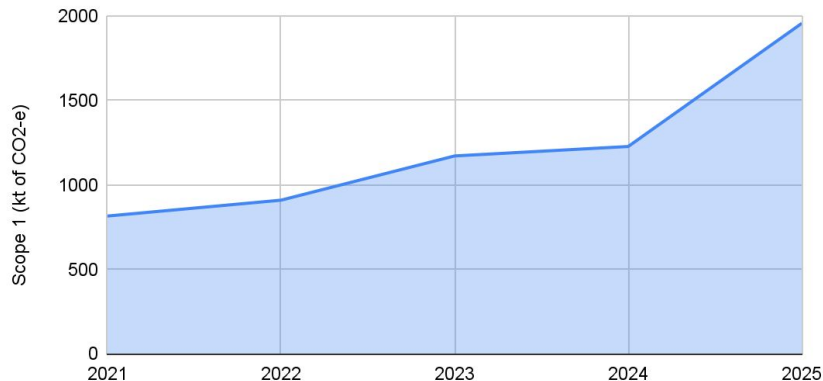
Whitehaven's recent growth

Production shifts have been mirrored by emissions increases, though this has also been due to an unexpected increase in fugitive emissions at Narrabri in 2023.

Emissions intensity has also grown over this time. The recent decline in emissions intensity has been driven by unexpected changes at Narrabri, and new acquisitions, rather than onsite abatement.

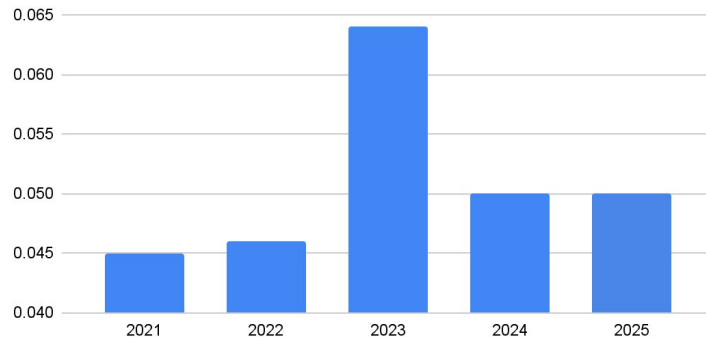
Whitehaven's emissions are rising

Scope 1 emissions (kt/CO₂-e)



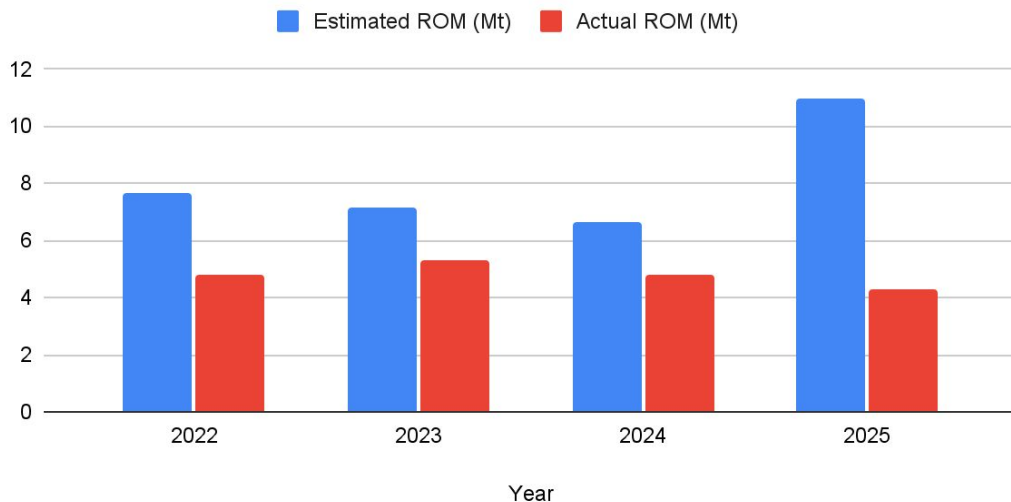
Whitehaven's overall emissions intensity

Scope 1 emissions intensity (t CO₂-e / t ROM)



Narrabri's delayed expansion

Estimated ROM (Mt) and Actual ROM (Mt)



EXPANSION PATHWAY

Narrabri Production realities

Narrabri Stage 3 expansions have been delayed, and look unlikely to change significantly in FY26, with forward guidance limited at this stage

EXPANSION PATHWAY

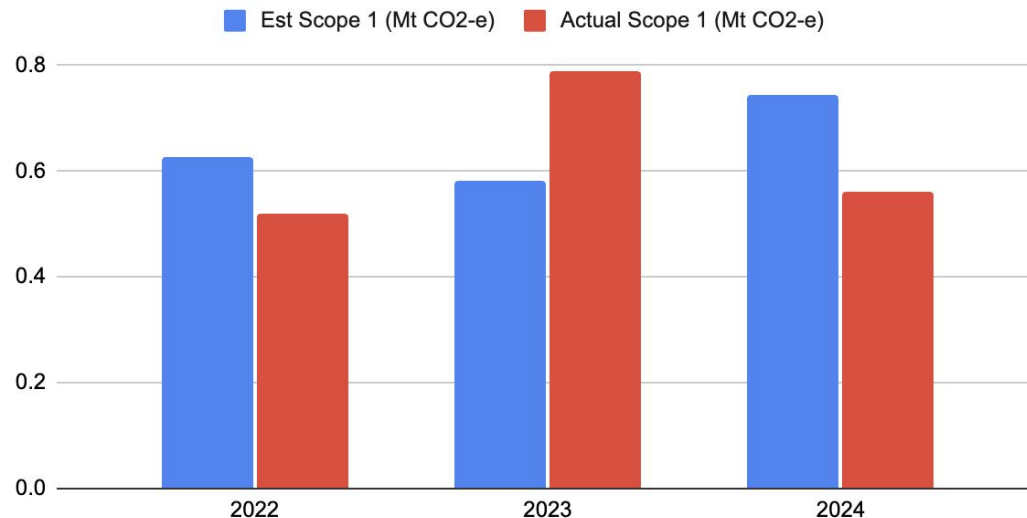
Narrabri Emission realities

Narrabri estimated emissions have also fluctuated significantly over the last few years, as emissions intensity rates have seen considerable variance.

As the biggest variable in Whitehaven's SGM portfolio, projecting production realities, and SGM liability estimates has been challenging

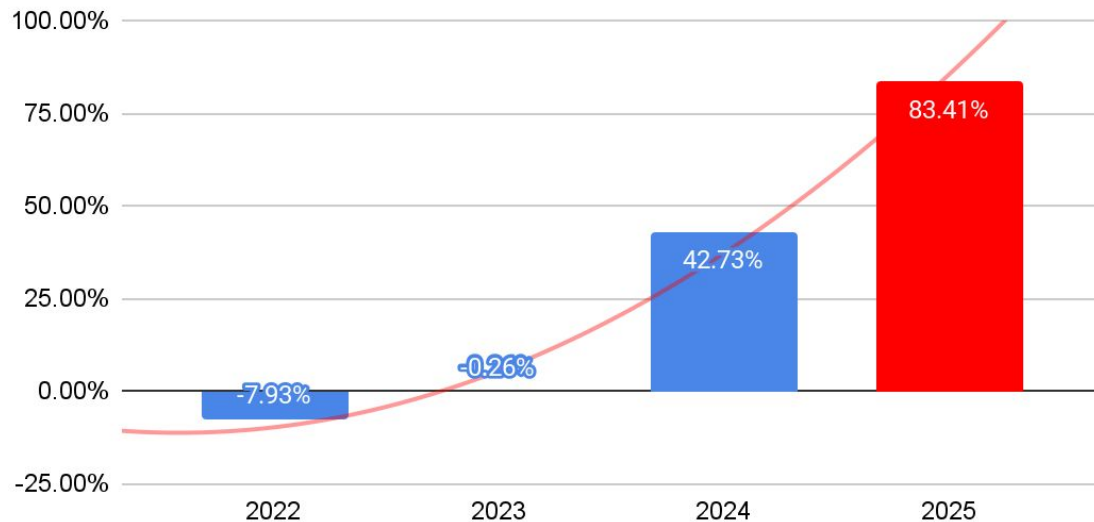
Low confidence in Narrabri's emission projections

Comparing Est. emissions t/CO₂-e (2021) vs actual



Whitehaven's Diesel GHG emissions growth

Diesel emissions change since 2021 (y-o-y)



ADDITIONAL CHALLENGE

Diesel emissions have grown rapidly

Diesel emissions are growing exponentially with expanded surface mining in QLD.

With volume increases expected at Vickery Extension Project, Blackwater South & Winchester South, there is a unique growing need to manage climate risk through electrification.

EXPANSION PATHWAY

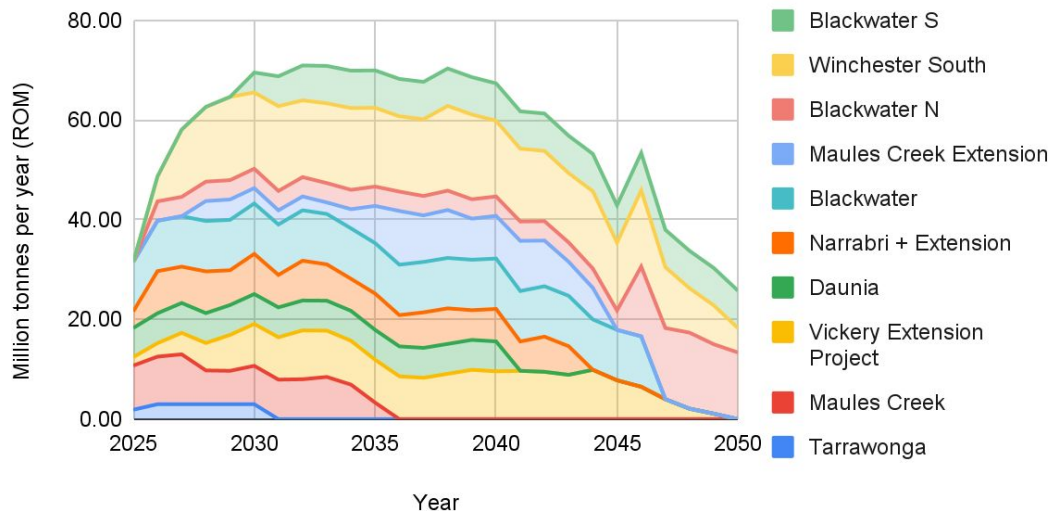
Whitehaven's Big plans

Whitehaven has a suite of projects that are currently in various stages of approval. Actual production timelines vary significantly from planned capacity additions.

Regardless, this is in no way aligned with the Paris Agreement or Net Zero targets and carries significant stranded asset risks.

Whitehaven's Proposed Coal Production Potential

Over 1.5 billion tonnes of coal by 2050 (equity share basis)



EXPANSION PATHWAY

Resources Sectoral Plan

Whitehaven's projected production expansion will have a significant impact on emissions growth.

This is in direct contrast to the recently released Sectoral Resources Plan, targeting a ~ 50% decline in Scope 1 ghg emissions from the coal sector nationally by 2035 as well as a -4.4% Annual decline in emissions by 2050 (CAGR).

Source: Resources Sector Plan
September 2025, DISR & DCCEW

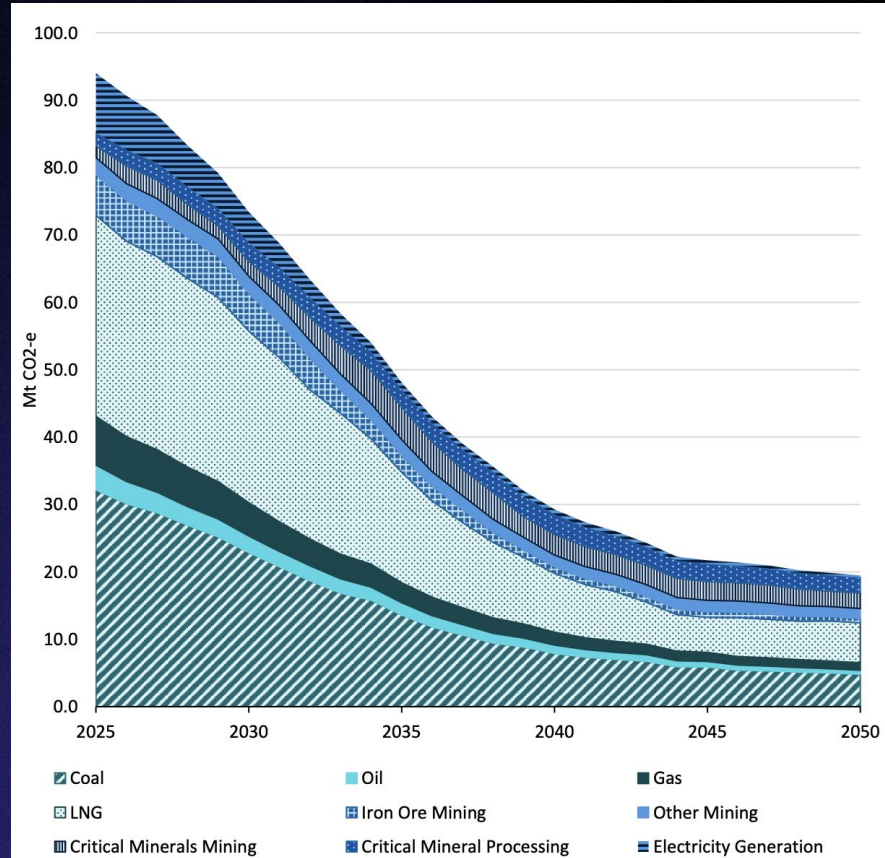


Figure 4 – Resources sector emissions projections to 2050, by commodity group under the Baseline Scenario.²

EXPANSION PATHWAY

Thermal coal demand shifts

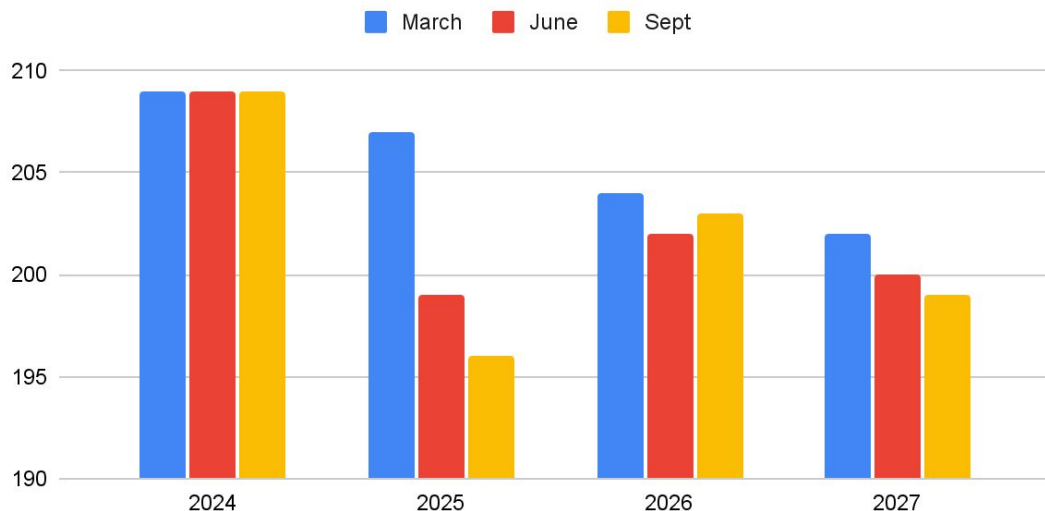
greater than or equal to

The Australian government's quarterly projections of expected thermal coal exports have softened short term demand expectations each quarter this year.

They have however, consistently projected > 35% decline in thermal coal export revenues to 2027.

Thermal coal export demand scenarios have softened this year

DISR quarterly projections of Australian thermal coal export volume in 2025 (Mtpa)

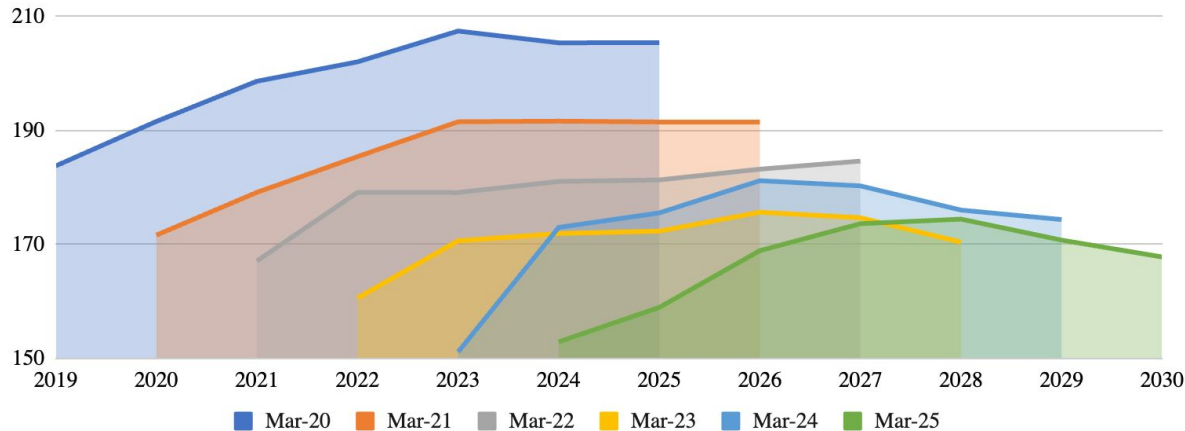


MARKET SHIFTS

Medium term demand shifts

Australian Metallurgical Coal Export Demand looks challenging in the short term

Projected 5 year Export Demand (Mtpa) from the Office of the Chief Economist



The Office of the Chief Economist expects that Metallurgical export opportunities will rise in the medium term, but will remain significantly lower than previous growth expectations.

A decline in expectations has been consistent over the past 5 years.

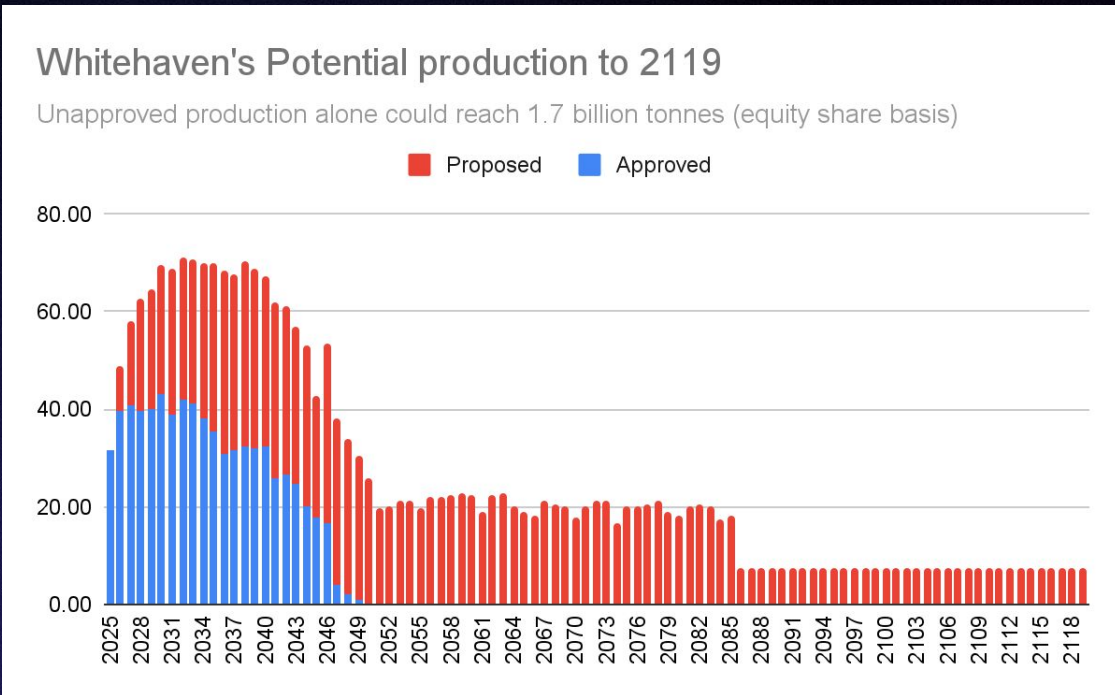
EXPANSION PATHWAY

Back to Whitehaven's capacity plans

Beyond 2054, Blackwater North and South, are the only potential projects planned for continued production.

Neither project advanced applications for approval, nor incurred significant capital investment thus far.

If approved, Scope 1 emissions projected to 2085 exceed those of the Woodside North West Shelf gas project.



Estimating Safeguard liabilities

4-5 mines

Narrabri, Blackwater, Maules Creek and Daunia all currently report to the Safeguard Mechanism.

This scenario also includes Vickery Extension and Winchester South as needing to report under SGM post 2028

5 year average

Safeguard Baselines constructed through 5 year emissions averages of all Scope 1 emissions per facility (FY18-FY22). Excluding two outliers

FSEI

A Facility Specific Emissions Intensity (FSEI) is then developed which forms a key part of the blended facility baseline

Industry Av.

This SEI then needs to be combined with an industry average emissions intensity, which is progressively applied at an increasing ratio each year to 2030.

EDR

After the blended emissions intensity baseline is set, a 4.9% emissions decline rate (EDR) is then applied to a facility's forward baseline targets

SGM Variables

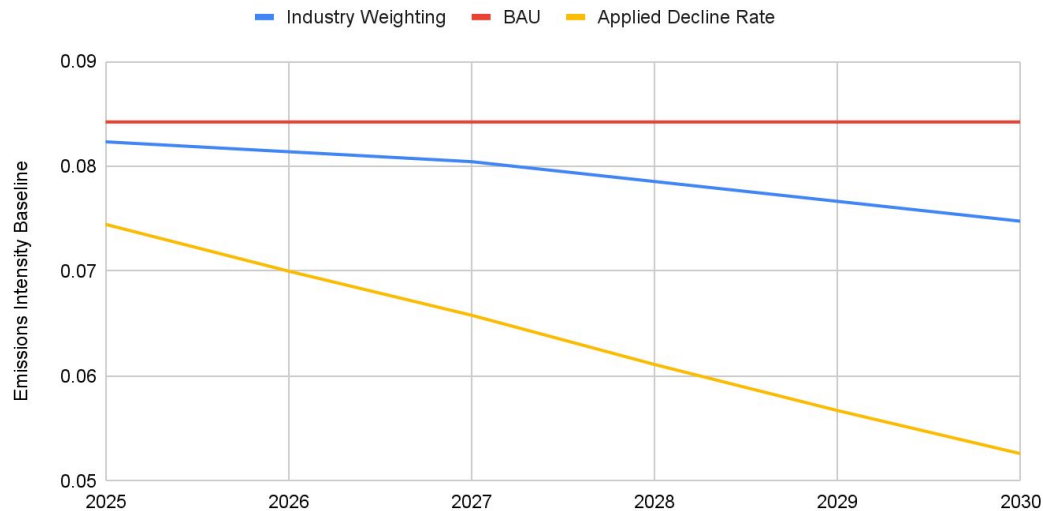
Safeguard Baselines on underground mines

High emissions intensity underground mines are now required to make significant emissions intensity reductions to meet their Safeguard obligations

However, the rate of change is dynamic and influenced by production and fugitive emission variables

The estimated impact of the SGM on Narrabri Coal Operations

t CO₂-e/ ROM t



SGM VARIABLES

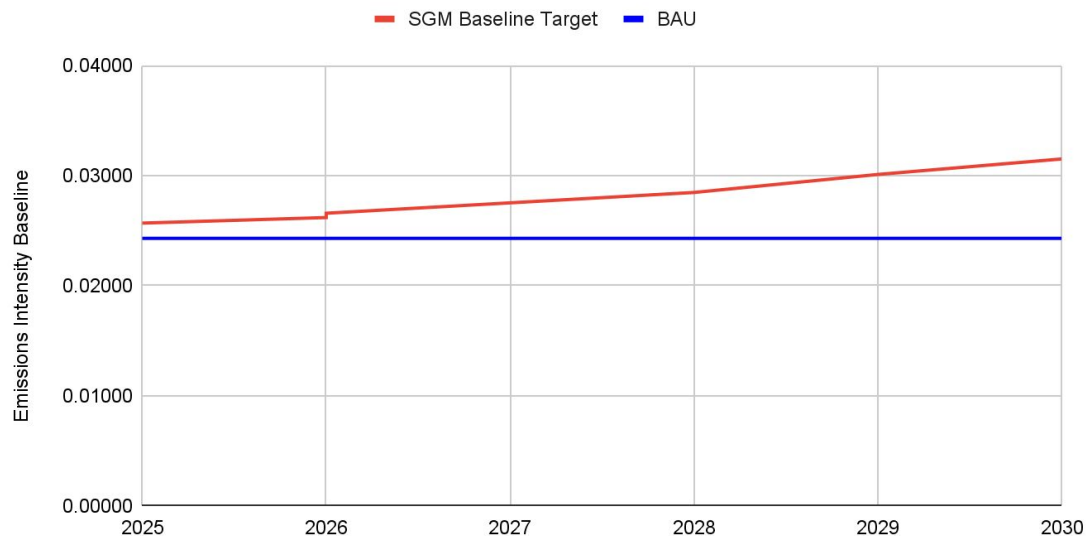
It may also create credit opportunities for lower emissions intensity mines

The current application of the industry average creates a distorted credit opportunity for lower intensity surface mines under the existing Safeguard Mechanism.

This will likely be closely reviewed in 2026/27

Maules Creek Safeguard Mechanism Simulation Model

t CO₂-e/ ROM t



SGM Variables

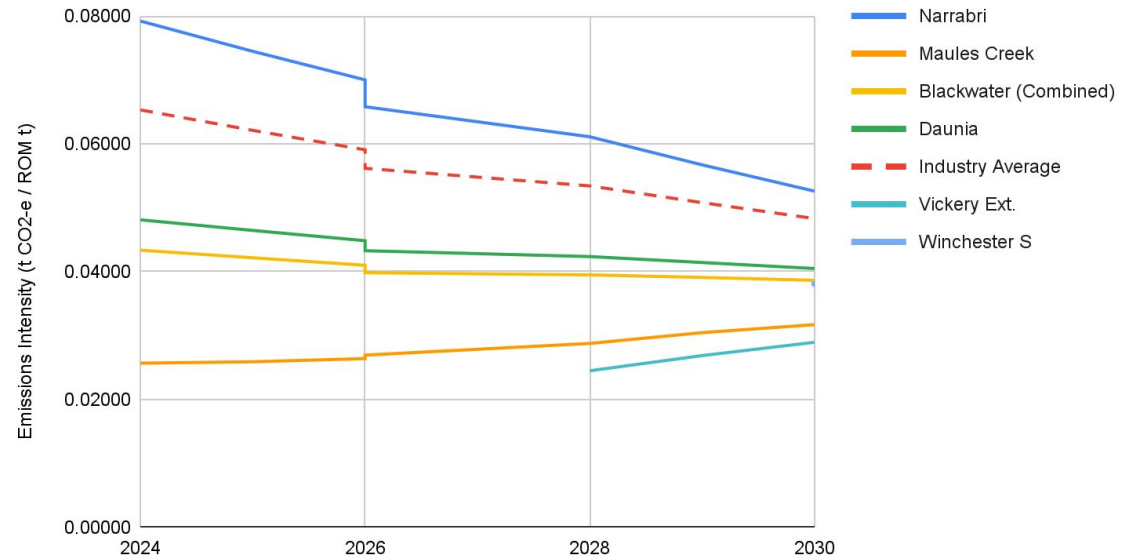
Whitehaven's SGM Pathways

These reflect the required emissions intensity changes per facility, after taking into account 5 year baselines, projected BAU emissions intensities & estimated production fluctuations.

Note: Vickery Extension estimated to begin reporting to the SGM in 2028. Winchester South estimated for production to begin in 2030.

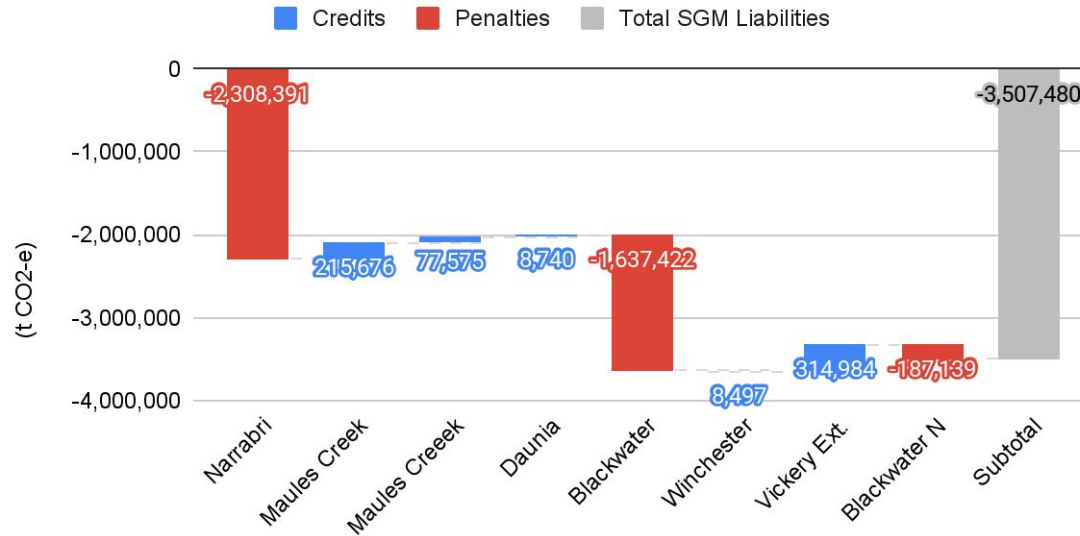
Whitehaven Coal Mine Portfolio to 2030

Estimated site specific emissions decline rates



Potential Cumulative GHG Emissions liability

Between FY24 and FY30



Without significant change, we should expect Safeguard liabilities

This projects the cumulative emissions gap per facility vs the site specific SGM targets

Production at Winchester South, Narrabri and Blackwater N/S are key variables, as well as fugitive emissions re-assessments for Blackwater, expected next year.

This emissions liability is the basis for estimated SGM costs with an estimated ACCU/SMC value of \$A35-100

SGM Variables

Potential SGM Pricing Scenarios

The ACCU spot price is a major driver in this estimate; the FY24-25 annualised average was \$35.

Assuming stable prices and planned production, cumulative Safeguard Mechanism liability could reach ~\$125 m, with a substantial portion attributable to Narrabri Coal Mine.

Estimated GHG Emissions liability (\$35t ACCU)



SGM Variables

Whitehaven's potential liabilities

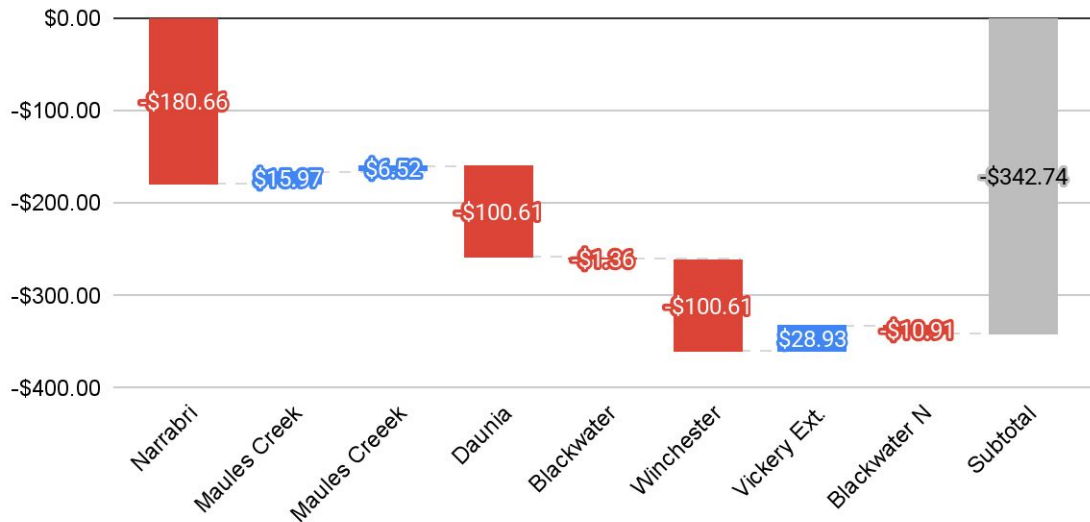
However, SMC prices have been suggested to increase to \$100 by 2030.

Assuming a linear price growth rate between 2025 and 2030, cumulative liability costs could rise to \$343m across the portfolio.

Estimated ACCU/SMC ceiling price of \$75 (+ 2.75% inflation and 2% growth/pa)

Cumulative Safeguard Liability could rise to \$343m by 2030

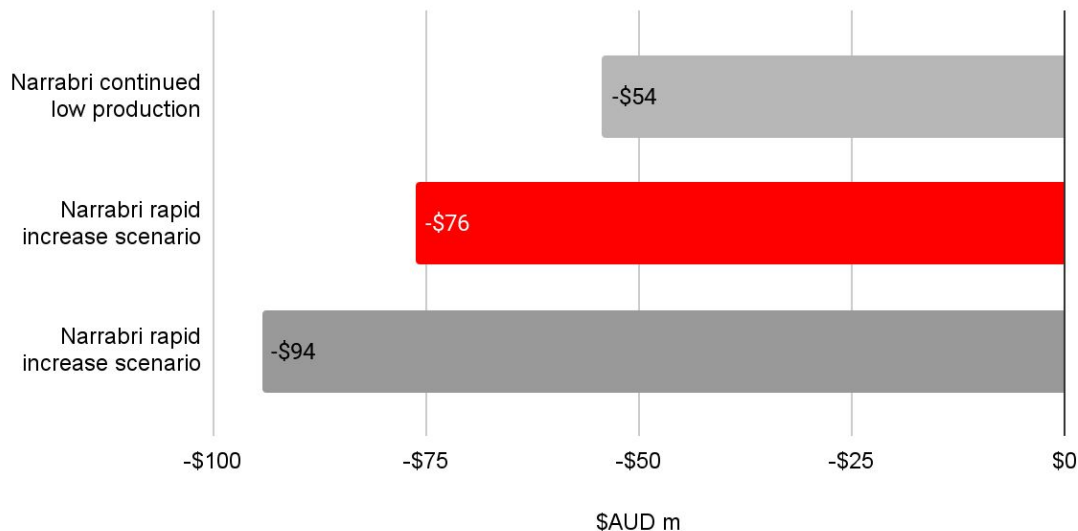
In a scenario of increasing ACCU price growth to 2030 (\$AUD nominal value)



SENSITIVITY ANALYSIS

Estimated GHG Emissions liability (\$35t ACCU)

2030 Liability (\$AUDm nominal)

**A key variable is the Narrabri Stage 3 production ramp up**

Narrabri continues to produce about 4.8mtpa, but has plans to expand to >10mtpa

Depending on when this shift happens, could greatly impact the total liability estimate

FY25 Annual report suggests this will not ramp up over the calendar year.

SGM Variables

Blackwater's fugitive methane estimate & production are key additional variables

A required change in emissions measurement at Blackwater coal mine could have significant implications for future emissions reporting and associated liability risk

Similar shifts led to significant decreases in reported emissions at Maules Creek and Daunia

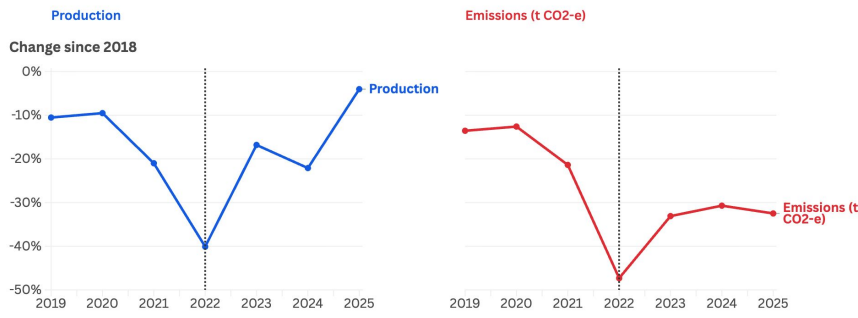
Maules Creek measurement variables

A shift in measurement approaches in 2021 led to significant decline in reported emissions



Daunia measurement variables

A shift in measurement approaches led to less significant decline in reported emissions



GHG Liabilities

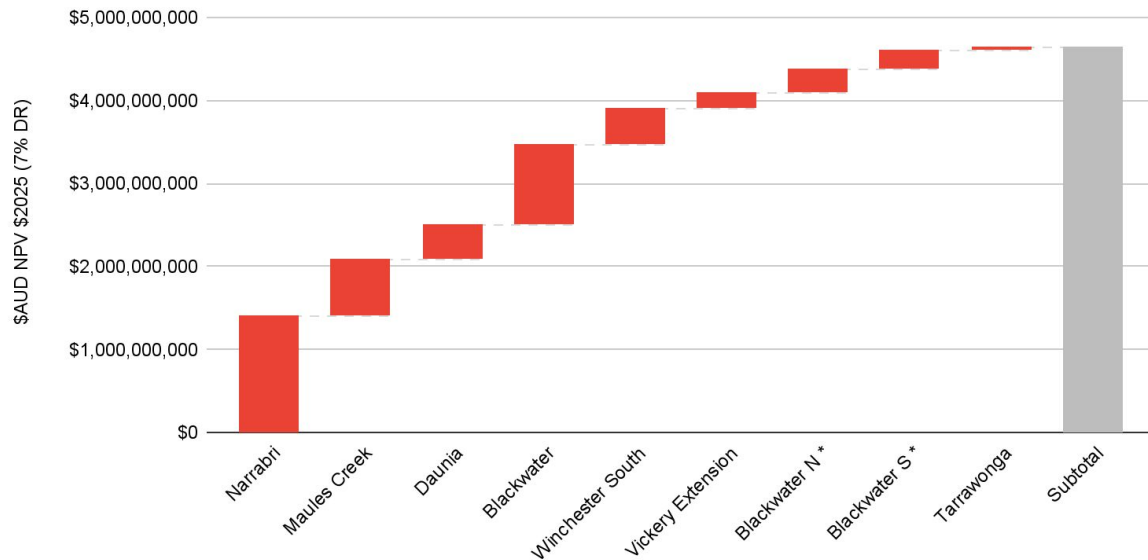
Whitehaven's total climate cost

In December, 2024 the NSW government incorporated a Shadow carbon price (TPG24-34) for all government projects to assess the social cost of carbon.

Applying this shadow price with a 7% discount rate, we estimate the climate cost of Whitehaven's Scope 1 emissions at \$AUD 4.7 bln (NPV \$2025)

Climate Cost of Whitehaven's Scope 1 emissions by 2035

NSW CBA Shadow Price (TPG24-34)



Recommendations

The projected SGM liabilities and Climate cost estimates materially transform the Cost Benefit Analysis for onsite mitigation at Whitehaven coal mines

01

**Reassess Cost Benefit
Assessment of mitigation**

Whitehaven should publicly reassess the cost benefits analysis of mitigation against the projected SGM liabilities and climate cost, and implement changes accordingly

02

Methane Mitigation at Narrabri

Whitehaven has assessed the CAPEX costs of RTO's at Narrabri at A\$190m, and deemed it overly expensive. This should be reassessed, as well as the broader need to mitigate methane at Narrabri

03

**Drainage and utilisation at
all QLD open cut mines**

Daunia currently estimates considerable fugitive methane emissions. Considering Blackwater mine expansions & Winchester South, considerable effort should be undertaken to address fugitive methane across all of these mines, especially through LEIP support. This could also provide localised generation opportunities

Recommendations

The projected SGM liabilities and Climate cost estimates materially transform the Cost Benefit Analysis for onsite mitigation at Whitehaven coal mines

04

Electrify pre-2030

Diesel emissions will continue to grow considerably to 2030 without investment in electrification of truck and haul fleets. Considering the proximity of Gunnedah and Bowen basin mines, there is significant multiplier benefits for charging infrastructure.

05

Formally rule out expansion plans at Blackwater N /S

Whitehaven should publicly rule out or clearly adjust expansion plans at Blackwater N and S to account for likely carbon asset liability, especially considering increasing costs of ACCUs/SMCs/Shadow carbon pricing

06

Expand Solar generation and Battery storage opportunities across NSW & QLD mines

Whitehaven's expanding portfolio offers considerable opportunities for onsite solar generation across its Surface mines. When paired with future electrified vehicles, this could offer both climate and cost saving opportunities.