Climate and GHG Impact Analysis of the Maules Creek Coal Mine Continuation Project

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1. Executive Summary

The Maules Creek Continuation Project presents a material and foreseeable climate risk with insufficient mitigation, poor methodological integrity, and questionable public benefit. This assessment will seek to review the climate impacts of the project, relevant regulatory standards that may impact the project, and a review of the potential cost-benefit impact on the state. This has been conducted through a reconstruction of emissions profile of the Project as outlined in the Greenhouse Gas Assessment, as well as an in-depth review of cost benefit assumptions outlined in the proponent's Economic Assessment. The continuation proposal is also placed into the context of several relevant policy recommendations and instruments such as the EPA's 2025 Large Emitters Guide, NSW Net Zero Future Act, or the 2025 NSW Productivity Commission recommendations.

According to the proponent's own estimates, the project will result in 5.7 million tonnes of CO2-e (Scope 1) between 2028 and 2044. Of this, 3.3 million tonnes CO2-e are additional compared to the existing base-case. However, this project relies on fugitive methane estimates using NGER Method 2, which has come under increasing scrutiny from the NSW EPA, CSIRO, and Climate Change Authority due to its sparse sampling, lack of transparency, and high uncertainty potential. By contrast, similar projects such as HVO have been required to undertake domain-based gas profiling, pre-drainage pilot trials, and independent verification. Maules Creek's estimated methane emissions are not only well below peer benchmarks, but are unsupported by any publicly disclosed sampling data or error bounds in their existing Greenhouse Gas Assessment.

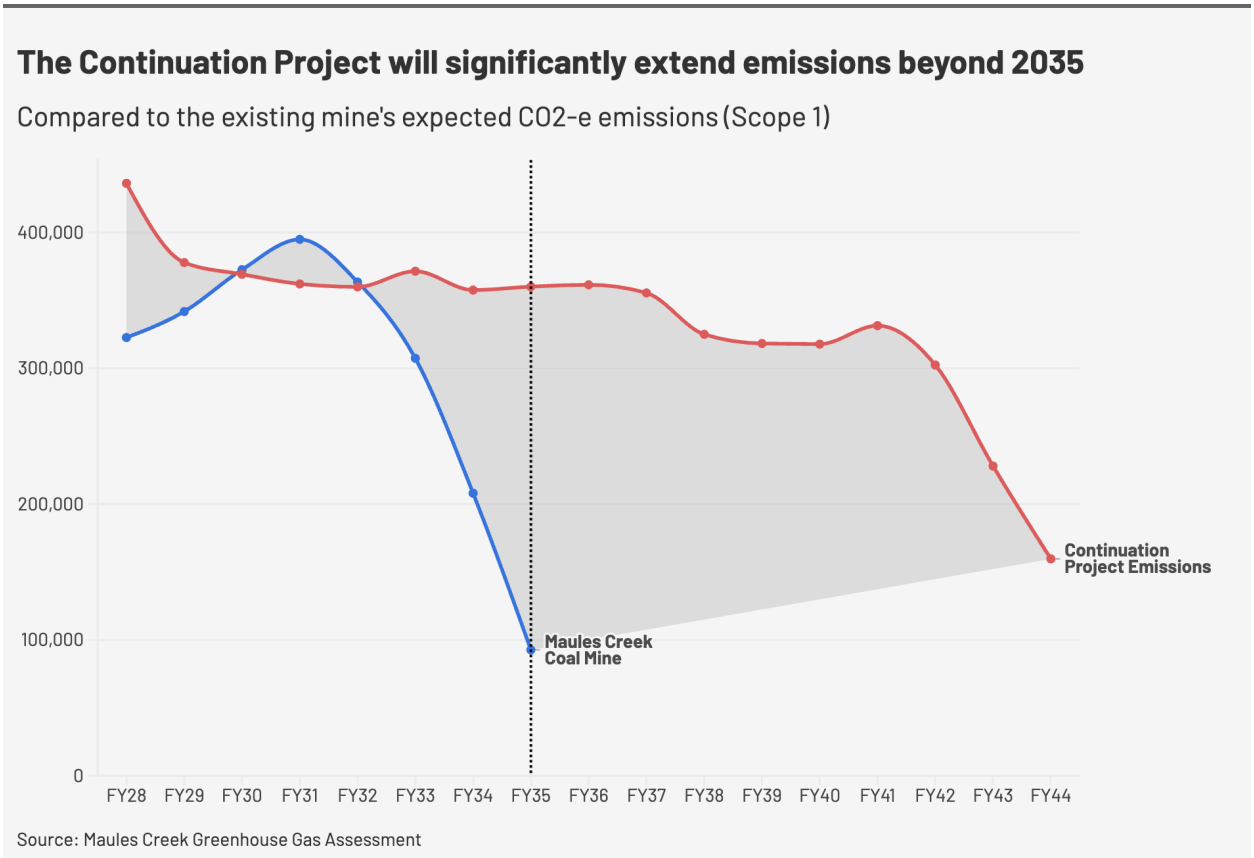
The proposal's economic case is also undermined by inflated thermal coal price assumptions, inconsistent with current forecasts from the Department of Industry and IEA. A corrected scenario applying benchmark pricing suggests the fiscal benefit is significantly overstated and vulnerable to downside risk. Through an integration of the NSW Treasury's carbon pricing framework (TPG24-34), we estimate that this expansion is projected to cost the state approximately $420 million in carbon liabilities (Net Present Value, AU$ 2024). This represents more than half of the proponent's projected royalty returns of the project.

However, through a revision of the potential coal price that would likely be achieved within current market dynamics, we estimate that the project may only provide $668 million in additional royalty income throughout the project's life, a significant decrease compared to the proponent's current estimates. As such, this submission indicates that close to 60% of projected state royalty revenue may be offset by an updated assessment of the project's domestic carbon costs alone. This is before accounting for the 238 million tonnes of additional downstream CO2-e emissions (Scope 3).

2. Reported emissions impact

The Maules Creek Continuation Project is forecast to result in a significant increase in direct (Scope 1) greenhouse gas emissions relative to the current baseline. According to the project's updated greenhouse gas assessment, this includes an additional 146,318 tonnes of CO2-e by 2030, and 591,066 tonnes of CO2-e by 2035.

These greenhouse gas emissions in addition to the 2.4 million tonnes of C02-e emissions already estimated to be emitted by the existing Maules Creek coal mine. The significant increase in emissions that is largely due to both an increase in land clearing and an increase in mining tonnage, highlights that this application will have real emissions impacts in the short term.



Across the full timeframe of the continuation scenario (2028–2044), the project is estimated to release:

- 5.7 million tonnes of CO_2-e in total Scope 1 emissions, of which
- 3.3 million tonnes are additional, compared to the base-case without the expansion.

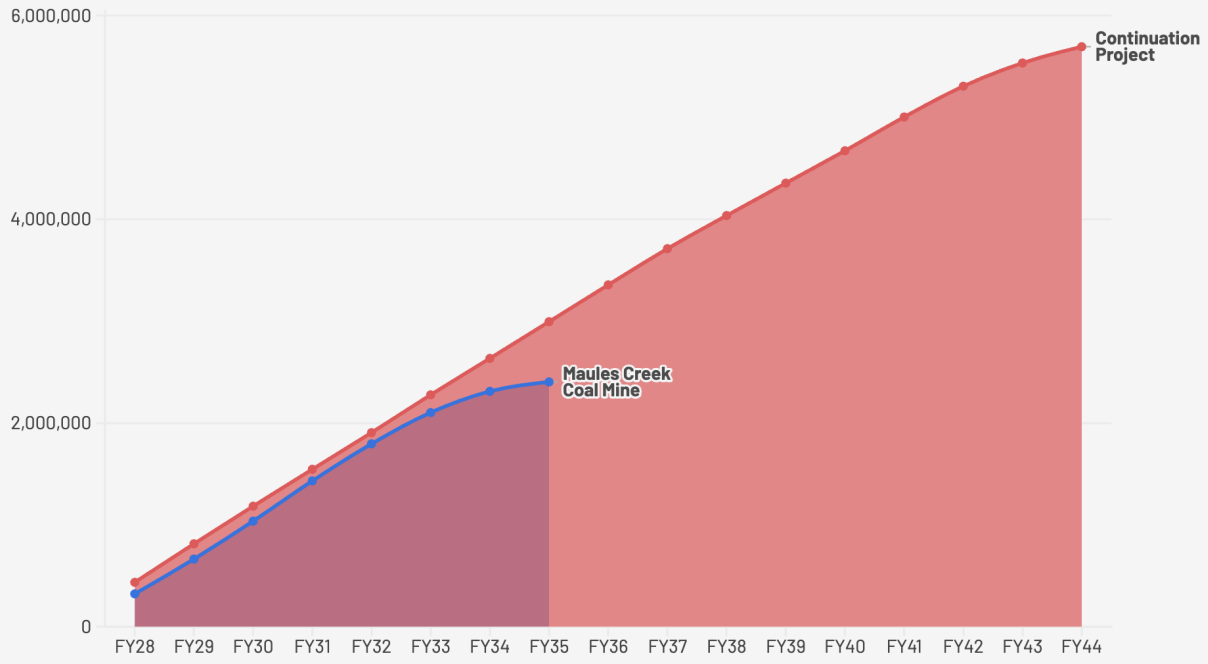
Put differently, a decision not to approve this extension would avoid 3.3 million tonnes of direct carbon emissions, which represents a significant short-term and long-term climate benefit for the state.

Applying the NSW Government's Treasury-endorsed Climate Emissions Framework (TPG24-34), this avoidable carbon burden carries a Net Present Value of approximately $420 million (AUD 2024, at a 5% discount rate). This is a conservative estimate, as it includes only Scope 1 and 2 emissions and does not account for downstream (Scope 3) impacts.

Regardless of the relative estimated intensity of these emissions, this is in itself an important material consideration. The NSW Treasury recently highlighted that since 2019-20, the NSW and Australian Governments have spent an average of $1.6 billion per year on disaster relief alone, up by over 1,000% from the six years prior. In response, the state government has allocated $4.2 billion for disaster recovery over the next four years.

The Continuation Project will emit 3.3 million tonnes of additional CO2-e

Compared to the existing mine's expected CO2-e emissions (Scope 1)



Source: Maules Creek Greenhouse Gas Assessment

Climate Risk and Public Cost Context

The broader materiality of these emissions cannot be understated. The NSW Treasury recently reported that since 2019–20, the average combined annual spending by the NSW and Australian Governments on disaster relief and recovery has reached $1.6 billion per year—a tenfold increase on the six years prior. In anticipation of escalating climate-related risks, the NSW Government has allocated $4.2 billion over four years for climate disaster recovery funding alone.

The Maules Creek expansion, if approved, would exacerbate the very emissions profile contributing to these growing fiscal and human impacts. In this context, it is no longer appropriate to assess marginal emissions increases as immaterial, particularly when avoiding them is within direct regulatory control

3. Fugitive Methane Measurement Limitations

This section has been developed with reference to the most recent EPA and CSIRO assessment report titled *Improving Measurement of Fugitive Methane Emissions* (2025) and the *2023 Review of the National Greenhouse and Energy Reporting Scheme* conducted by the Climate Change Authority (CCA). Both assessments investigated the potential uncertainty of utilising NGERs Method 2 as a bottom-up measurement tool for fugitive methane. The section will also draw on supplementary market analyses from Ember and Reputex Energy. Together, these sources raise serious concerns about the reliability of fugitive methane estimates reported using Method 2 under the NGER Measurement Determination, particularly its applicability for existing, large open-cut coal mines like Maules Creek.

The Maules Creek Continuation Project estimates fugitive methane emissions using Method 2 under the National Greenhouse and Energy Reporting (NGER) framework. While this method is permitted under the NGER Measurement Determination, recent reviews by the NSW EPA, CSIRO, the Climate Change Authority, and Ember have all identified substantial methodological and transparency concerns that undermine its suitability, particularly for large open-cut operations such as Maules Creek Coal Mine.

3.1 Method 2 Sampling and Transparency

Method 2 requires measurement from at least three boreholes per geological domain, intended to reflect gas content in the mined coal seam. However, as identified in recent independent reviews:

- It does not require the public disclosure or independent verification of the actual borehole data, gas content results, or spatial representativeness.
- There is no requirement for continuous or periodic updates over time; once data are submitted, estimates can remain static despite operational changes.

- Temporal variability, including episodic, seasonal, or activity-driven emissions are not properly captured.
- The Climate Change Authority concluded in its 2023 review that Method 2 lacks the accuracy, robustness and auditability of higher-tier methods (Methods 3 and 4), especially where methane emissions are a significant component of a mine's footprint.

In the case of Maules Creek, the proponent identifies that the project's fugitive methane emissions contribute just ~4% of total Scope 1 emissions. They note that this is one of the lowest proportions reported by any surface coal mine in NSW. This figure is not however supported by any disclosure of borehole data or uncertainty ranges in the proponent's GHG Management Plan. Without transparency on gas content, sampling locations, or verification processes, these estimates remain highly uncertain.

3.2 Method 2 Independent Reviews

Recent independent assessments confirm that fugitive methane is systematically underreported across the coal sector under current NGER settings:

- The NSW EPA (2025) estimates an uncertainty margin of ±33.2% for open-cut coal mines. Their recent report also highlights their concern that bottom-up, unverified methods like Method 2 may be systemically underestimating fugitive emissions, especially in mines reporting unusually low methane levels.

- Ember's April 2025 report finds that NSW coal mines using Method 2 are reporting methane emissions up to six times lower than state-based emissions factors would suggest.
    - Their analysis also finds that this methodology shift may benefit operators. Maules Creek alone may have avoided reporting up to 1.8 million tonnes of CO_2-e since 2016 as a result of their shift from Method 1 to Method 2.

This divergence raises critical questions about comparability, accuracy, and regulatory credibility. Ember's findings also show that while Queensland's reported fugitive emissions remain consistent with default state emissions factors, NSW's shift toward company-led reporting has resulted in a 65–70% reduction in reported fugitive emissions intensity across the sector.

3.3 Independent Verification and Mitigation

The Maules Creek Continuation Project further asserts that methane pre-drainage is not considered feasible, citing an average coal seam gas content of 0.001 t CO_2-e per tonne of ROM coal. However:

- This figure is derived from Method 2 estimates and has not been supported by published data.

- No independent technical review or external assessment of pre-drainage feasibility has been offered.
- Best practice now requires site-specific consideration of methane abatement technologies, including pre-drainage, even where average gas content is low.

The EPA and Ember both call for this standard. Without rigorous, transparent evidence to support dismissal of pre-drainage, the claim is procedurally and scientifically inadequate.

Recommendations

The use of Method 2 at Maules Creek is not commensurate with the scale, duration, or public impact of the project's emissions profile. The absence of borehole data disclosure, temporal or spatial sampling detail, third-party verification and independent consideration of pre-drainage options makes the current methane estimate procedurally and scientifically vulnerable.

We recommend that consideration of the project be contingent on:

1. A revised methane assessment using continuous or higher-tier measurement;
2. Public disclosure of gas sampling data and methodology;
3. Independent verification of fugitive emissions estimates;
4. Evaluation of methane mitigation feasibility by a qualified third party.

Without these minimum conditions, the methane reporting underpinning the Maules Creek Continuation Project cannot be relied upon for environmental impact or Safeguard compliance assessments.

5. Benchmarking Against HVO and Hail Creek

The Maules Creek Continuation Project's fugitive methane reporting falls short of emerging expectations, particularly when compared to the Hunter Valley Operations (HVO) Continuation Project. This case demonstrates the growing regulatory emphasis on data transparency, site-specific sampling, and independent validation of emissions estimates.

The Hunter Valley Operations (HVO) Continuation Project faced sustained scrutiny in 2024–2025 due to its estimated Scope 1 and 2 emissions of nearly 29.6 Mt CO_2-e. In the process of their application and ongoing assessment, HVO identified three gas domains across its operational area. Within each Domain, up to five characteristic gas content zones have been identified, and included in their fugitive methane assessment.

The Independent Expert Advisory Panel for Mining (IEAPM) advised that any approval of the project should be contingent upon a comprehensive methane mitigation strategy, including:

- Desktop modelling of potentially drainable seams;
- Detailed gas reservoir assessments;
- Pilot pre-drainage trials within high-risk domains;

- Integration of GHG conversion research into operational planning;
- A binding three-year emissions technology action plan, updated on a rolling basis;
- Independent peer-reviewed reporting on gas drainage and methane conversion efforts.

These recommendations reflected a clear shift in regulatory expectations for surface mines, requiring not just emissions disclosure, but proactive methane management through trialling, monitoring, and transparent reporting.

5.1 Maules Creek Transparency Gaps

In contrast, Maules Creek's Continuation Project has failed to indicate the gas modelling they have conducted, even though a reconstruction of their estimated fugitive emissions indicates up to 4 potential emissions factors have been used. However, the Greenhouse Gas Assessment has not disclosed gas content values, sampling methodology, or uncertainty margins. No domain-based gas profiling has been made public, and there is no evidence of independent audit or third-party verification of estimates.

This raises concerns about regulatory inconsistency and suggests that Maules Creek's emissions estimates may not be aligned with best practice or current expectations for transparency and verification.

This inconsistency should be addressed. As with HVO, Maules Creek should be required to:

- Undertake domain-based methane sampling;
- Disclose estimation methodologies;
- Provide uncertainty bounds;
- Submit to third-party validation.
- Conduct an independent, peer-reviewed pre-approval estimate of gas levels and mitigation opportunities

Absent these steps, the fugitive methane estimate provided by Maules Creek remains scientifically uncertain and procedurally incomplete. Regulatory approval should not be granted without equivalent scrutiny and data integrity to that now required of comparable projects.

6. Compliance with Policy, Regulatory & International Legal Frameworks

A number of recent regulatory instruments, guidelines, and legal developments set clear expectations for the treatment of greenhouse gas (GHG) emissions from large-scale fossil fuel projects. Taken together, they highlight a growing need for transparent, credible, and enforceable climate impact management.

NSW EPA Guide for Large Emitters (February 2025)

The EPA's *Guide for Large Emitters* outlines best-practice requirements for major emitters of greenhouse gases in New South Wales. Key expectations include:

- **Five-Year Emissions Reduction Plan**: Featuring binding targets, annual tracking, and independent third-party verification

- **Transparent Methodology Disclosure**: Public reporting of calculation approaches and emission factors, including the need to "describe the underlying assumptions and data used to develop the emissions estimates".

While Whitehaven have indicated "five prospective abatement opportunities" these have not yet been modelled and "marginal abatement cost evaluation" has not been conducted at this time. It is therefore unclear if mitigation is planned or deemed feasible onsite according to the operator. There is as such, no evidence of a structured five-year mitigation plan, no clear benchmarking against NSW emissions reduction goals, and no independent verification of emissions baselines or mitigation capacity.

NSW Net Zero Future Act (2023)

The state's Net Zero legislation sets interim and long-term emissions targets, including:

- **50% emissions reduction by 2030**, and
- **70% by 2035**, on a pathway to net zero by 2050.

The Maules Creek Continuation Project features a significant emissions spike between 2028-2030, primarily from increased mining volumes and land clearing, which directly contradicts the intention of interim goals. No mitigation or phasing strategy is offered to reduce this spike.

NSW Productivity Commission Report (May 2025)

In its **May 2025 report** (*Achieving Net Zero: Decarbonising Mining, Industry and Waste*), the NSW Productivity Commission directly addressed the role of coal mining in the state's emissions trajectory.

The report outlined that, under current policy settings, NSW will not meet its emissions targets unless further coal mine approvals are curtailed or subject to stringent abatement. The Commission explicitly recommended either a "*clear deadline for decommissioning thermal coal mining for export" or* :

> *"Another option is to consider preventing new mine approvals or ensuring stringent abatement requirements as set out in the draft Climate Change Assessment Requirements and Guide (EPA, 2024). If such a decision were taken, development consents would provide a predictable pathway for reducing fugitive emissions from coal operations."*

This is particularly relevant to the Maules Creek Continuation Project, which represents an export-focused extension of largely thermal coal through to 2044. It is not critical for domestic coal supply needs. Approving it under existing conditions would undermine NSW's decarbonisation goals as outlined by the Commission, and contradict the very policy recommendations designed to ensure alignment with Net Zero. These findings should be given weight in any assessment of the project's public value and climate compatibility.

International Court of Justice (ICJ) Advisory Opinion (July 2025)

On 23 July 2025, the International Court of Justice (ICJ) issued a unanimous advisory opinion addressing States' legal obligations with respect to climate change. In this landmark decision, the Court found that the "failure of a State to take appropriate action to protect the climate system from greenhouse gas emissions including through fossil fuel production, fossil fuel consumption, the granting of fossil fuel exploration licenses, or the provision of fossil fuel subsidies may constitute an internationally wrongful act which is attributable to that state."

The Court emphasised that the internationally wrongful act is not the GHG emissions themselves, but rather the failure to exercise due diligence in fulfilling obligations to prevent climate harm, particularly where significant emissions from fossil fuel activities are foreseeable.

The Maules Creek Continuation Project is forecast to result in an additional 238 million tonnes of CO_2-e Scope 3 emissions between 2034 and 2044. This would be equivalent to more than two years of total annual emissions for New South Wales. When combined with previously approved baseline operations, the total downstream emissions from the Maules Creek Coal Mine from 2028 to 2044 will reach over 420 million tonnes of CO_2-e, or nearly four years of annual NSW carbon emissions.

6.1 Comparative Scope 3 Emissions Analysis

In July 2025, the NSW Court of Appeal overturned the Independent Planning Commission's (IPC) approval of MACH Energy's Mount Pleasant coal mine expansion, finding that the Commission had failed to "meaningfully assess or disclose" the project's Scope 3 (downstream) emissions. The estimated Scope 3 emissions profile of 876 million tonnes of CO_2-e over 22 years was not properly accounted for in the IPC's decision, rendering the consent invalid due to a procedural error.

This landmark ruling confirms that for coal export projects, full quantification and consideration of downstream emissions are a necessary component of lawful environmental impact assessment. It sets a clear legal expectation for both proponents and decision-makers that Scope 3 emissions must be transparently disclosed and substantively assessed.

Maules Creek Scope 3 Emissions in Comparative Context

Compared to Mount Pleasant, the Maules Creek Continuation Project presents a smaller, yet highly material Scope 3 climate impact. The proponent has included Scope 3 estimates in the Environmental Impact Statement (EIS), but the scale of the emissions warrants close scrutiny.

Project	**Scope 3 Emissions**	**Timeframe**	**Notes**
Mount Pleasant (MACH Energy)	876 Mt CO_2-e	2014–2036	Scope 3 omitted in EIS; IPC approval overturned by Court of Appeal
Maules Creek (Baseline)	183.3 Mt CO_2-e	2028–2035	Previously approved; included in EIS
Maules Creek (Continuation)	238.4 Mt CO_2-e	2034–2044	Fully quantified in EIS; represents 2.1 years of NSW's annual emissions
Maules Creek (Total)	421.7 Mt CO_2-e	2028–2044	Equivalent to nearly four years of NSW's total emissions (111 Mt/year FY22)

Although Maules Creek's continuation emissions are smaller than Mount Pleasant's in absolute terms, they still represent a substantial climate burden. The additional 238.4 Mt CO_2-e from the continuation scenario alone is the equivalent of over two years' worth of emissions for the entire state of NSW.

When the continuation is combined with the baseline scenario (2028–2035), the total Scope 3 emissions reach 421.7 Mt CO_2-e, or nearly four years of NSW emissions. These figures underline the material significance of the project's downstream impacts—even where disclosure has been made—and support the case for robust, transparent assessment consistent with the Mount Pleasant precedent.

7. Critique of Proposed GHG Mitigation Approach

While Whitehaven have highlighted several mitigation approaches across their broader mining profile, the Maules Creek Continuation Project fails to demonstrate any credible emissions reduction strategy over the life of the mine. As highlighted in the mine's Economic assessment (attachment K), the proponent states explicitly that there is "no additional reasonable and feasible emission abatement being implemented over the life of the Project." This lack of forward-looking mitigation action is particularly concerning given the increasing regulatory, legal and climate-related risks associated with high-emitting industrial projects.

Whitehaven also notes that the Safeguard Mechanism is expected to have no material influence on the project's emissions trajectory. Specifically, they project that Scope 1 emissions under the continuation scenario will reach 5.7 Mt CO_2-e, or approximately 3.3 Mt CO_2-e more than the baseline scenario, without any apparent plan to mitigate this increase (Attachment K, p. 28).

71. **Fugitive emissions mitigation**

The proponent states in their Greenhouse Gas Assessment that "the application of methane pre-drainage at the MCCM is not considered to be feasible", on the basis that the coal seams contain an average of 0.001 t CO_2-e per tonne of ROM coal. This is indeed a low estimate by NSW industry standards.

However, this conclusion is based solely on Whitehaven's own highly uncertain fugitive emissions estimate, derived using Method 2 of the NGER framework, which does not require comprehensive or continuous measurement. Critically, no borehole data, sampling frequency, or emissions measurement evidence has been provided to support the claim of low gas content, and the supplementary finding that mitigation would not be viable.

Moreover, the technical feasibility of methane pre-drainage is not solely determined by the average emissions factor. It certainly plays an important indicative role, but the real viability of mitigation in a given mining pit is also dependent on site-specific geological, operational and engineering conditions, which must be investigated through detailed, localised studies. The absence of such analysis raises questions about the credibility of the "not feasible" or "viable" determinations.

In line with emerging best practice across the NSW coal sector, extension applications should include an independent technical review of pre-drainage and other methane abatement options. The absence of such a review, represents a significant oversight and a departure from evolving regulatory expectations.

7.2 Additional areas of concern

- **Diesel and Electricity Use:**

  The proponent references generic efficiency improvements for fuel and electricity use but provides no quantified targets, implementation timelines, or measurable outcomes. There is no evidence that these changes exceed business-as-usual operational upgrades, and certainly don't align with best practice electrification in a surface mine setting, as exemplified by Fortescue, which has ordered 360 autonomous battery-electric trucks, 55 electric excavators and 60 battery-powered dozers from Germany's Liebherr-International AG, to replace two-thirds of its mining fleet.

- **Land Clearing and Scope 1 Spike in 2028**:

  The project anticipates a large emissions spike of over 50,000 tonnes of CO_2-e in 2028, which includes 320.0 ha of land clearing. This pulsed approach is inconsistent with better practice, which involves phased clearing to spread and minimise emissions and biodiversity loss over time.

7.3 Recommended Regulatory Requirements

To address these gaps and align the project with contemporary regulatory expectations, the following actions are recommended as minimum conditions for any future approval or review:

1. Independent assessment of mitigation opportunities, especially regarding fugitive methane emissions
2. Measurement-based methane monitoring to support long term verification, including the potential use of aerial or satellite-based verification;
3. A phased land clearing schedule to smooth emissions impacts and align with biodiversity management;
4. A detailed and auditable Five-Year Emissions Reduction Plan, subject to third-party review, public disclosure, and periodic update.

Without these safeguards, the Maules Creek Continuation Project risks locking in elevated emissions with no meaningful oversight or reduction pathway. This appears to be at odds with NSW's legislated Net Zero targets and emerging international legal norms concerning climate harm.

8. Cost-Benefit Analysis

As the Maules Creek Continuation Project advances through the approvals process, the economic justification for its expansion has become a central argument in favour of its development. Whitehaven's proposal rests on the premise that the royalties paid to the NSW Government represent a significant public benefit, which would likely outweigh the environmental and climate impacts of the mine's continued operation, especially considering the low estimated fugitive methane emissions.

However, this claim warrants deeper scrutiny. In particular, recent policy developments which include the NSW Government's Investment Framework on Carbon Emissions (TPG24-34) and updated pricing guidance from the Department of Industry, Science and Resources (DISR). These include updated carbon pricing methodologies, more conservative coal market forecasts, and a requirement to explicitly factor climate costs into cost–benefit analysis.

This section will aim to conduct this comparison, in the hope that it would provide a comprehensive evaluation of this project's potential royalty returns in comparison to its potential carbon costs on the state. As such, it presents a revised fiscal profile of the Maules Creek Continuation Project, integrating updated assumptions on thermal coal prices and carbon costs, and applying a consistent methodology across both. The results suggest that the project's claimed public value may be significantly overstated, and that a more conservative analysis would lead to different conclusions.

8.1 Potential for undervaluation of carbon cost

The Economic Assessment provided for the Maules Creek Continuation Project (Attachment K) was developed under the NSW Government's 2015 Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals and supported by the 2018 Technical Notes. While this framework remains valid in some regulatory contexts, it predates recent government efforts to incorporate climate-related risks more explicitly into economic and investment decision-making.

As a result, the proponent's estimate of the project's climate cost is based on a linear extension of 2023 Australian Carbon Credit Unit (ACCU) prices, assuming a flat price of $60 per tonne of CO_2-e by 2030.

This approach yields a total estimated cost of $126 million NPV for the project's Scope 1 and 2 emissions. This is well below contemporary government-aligned estimates.

8.2 New Carbon Costing Guidance

In 2024, the NSW Government released the Business Case Guidelines (TPG24-29) and the Carbon Emissions in the Investment Framework (TPG24-34), which set out a new approach to estimating and reporting carbon costs in public decision-making. These guidelines are primarily designed for government agencies, but they offer a transparent benchmark for assessing public interest outcomes—particularly where private sector activities have significant, long-term climate impacts.

Under TPG24-34, a shadow price is applied to emissions across the life of a project. The indicative carbon price trajectory includes $137/t CO_2-e in FY38, rising to $334/t CO_2-e in FY35 and $350 in FY40. These figures are aligned with Paris-aligned shadow pricing designed to reflect the true economic cost of carbon under global climate policy pathways.

8.3 Comparative Cost Estimates and Sensitivity

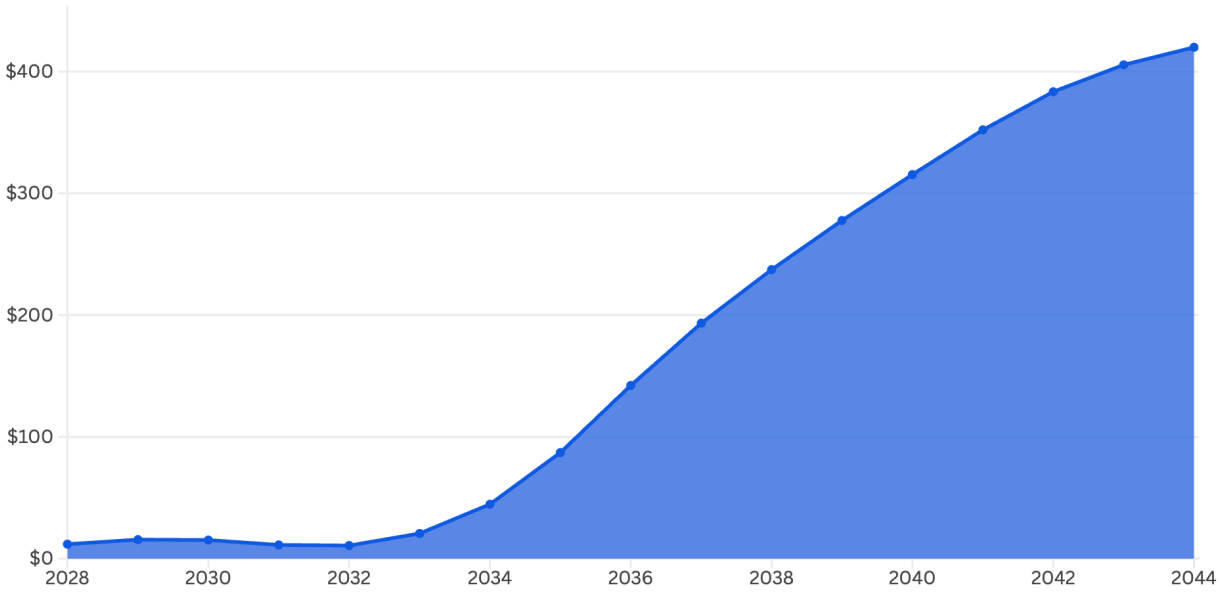
If applied to the Maules Creek Continuation Project, which is projected to emit approximately 299,000 tonnes of CO_2-e annually (Scope 1 and 2), this pricing schedule would result in an undiscounted annual climate cost of $30–$90 million, depending on the valuation year.

Using a central discount rate of **7%**, which is above NSW Treasury guidance, but aligned with Whitehaven's broader Cost-Benefit Analysis, this would translate to a Net Present Value (NPV) climate cost of approximately $420 million (AUD 2024)—over three times higher than the current estimate presented by the proponent.

This revised cost would represent more than 51% of the projected royalty revenue from the project (estimated at $818 million NPV). When considered alongside other economic risks, such as lower-than-expected coal prices, this significantly narrows the net public benefit margin. Later in this assessment, we will also show that this potential carbon cost may in fact reflect an even greater share of potential royalty returns, by considering a revised revenue model based on updated coal price indicators.

The carbon cost of the Project could exceed $420 mln

Cumulative cost in Net Present Value AU$2024



Analysis utilising the NSW Government Investment Framework requirements on carbon emissions

8.4 Recommendations

While private proponents are not formally required to adopt the TPG24-34 framework, there is a growing expectation that major projects with long-term emissions footprints should at minimum demonstrate how their economic case aligns with NSW Government fiscal and climate risk practices.

Given the scale of projected emissions and the public interest implications, we recommend that:

- The proponent be requested to reassess its carbon cost estimates using the latest NSW Treasury carbon pricing framework (TPG24-34);
- A revised Cost–Benefit Analysis be prepared applying a 5% central discount rate, with sensitivity analysis at 3% and 7%, as per TPG23-08;
- The Independent Planning Commission and Department of Planning undertake a comparative review of the project's economic justification using the updated guidance;
- Any future decision-making process gives due consideration to the carbon cost-to-revenue ratio, as a key factor in weighing the project's public value.

This more contemporary and risk-aligned approach would ensure that the project is evaluated on the basis of the best available information and consistent with the state's evolving climate and economic assessment standards.

9. **Inflated Forward Price Estimates for thermal coal exports**

Whitehaven has realised a significant price premium on its thermal coal exports since the energy crisis of 2022, but this has weakened significantly in 2025. Throughout FY2024, Whitehaven achieved a realised thermal price of US$140/t, closely following the average gC NEWC for FY24 of US$136/t. This remained relatively strong late into 2024. In the September 2024 quarter they achieved a realised price of US$139/t, and this dropped only slightly to US$137/t in the December 2024 quarter.

However, this price strength has shifted considerably in 2025. In their March 2025 quarterly report, Whitehaven reported that their NSW thermal coal sales realised an average price of US$113/t. In their June 2025 quarterly earnings report, Whitehaven's NSW thermal coal sales realised an average price of US$105/t, and an average price of US$125/t in FY25, which was 103% of gC NEWC.

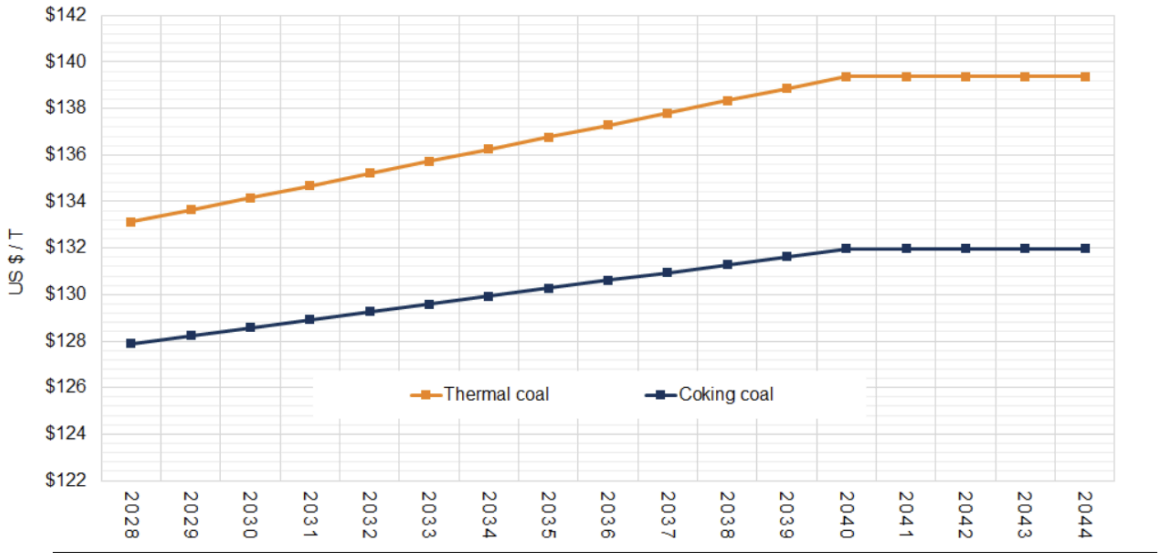
In their most recent quarterly report, Whitehaven noted that they believe that the current depressed prices would elevate into the future due to "long-term demand for seaborne high CV thermal coal". They also indicated that quarterly realised prices across their NSW mines largely matched the gc NEWC Index over the last year (103%) as well as each of the last six quarters (r: 99%-108%). This long term confidence is reflected in their Economic Assessment, which estimates a thermal coal price for Maules Creek Continuation project ~$133 USD/t in FY2028.

Significant Price Shifts in 2025

While it is understandable that Whitehaven's Economic Assessment has relied more heavily on 2024 price indicators, their long term price confidence is not broadly supported in the current market. Recent price forecasts from the International Energy Agency and Australia's Chief Economist indicate that forward thermal coal prices have already declined significantly in 2025, and are expected to remain deflated in the foreseeable future. These publications also note that due to structural energy transitions occurring across China, Japan and South Korea, seaborne thermal coal prices may remain depressed and Taiwan, which make up Whitehaven's primary customer base for high CV thermal coal.

In the Economic Assessment, they estimate realised thermal coal prices to start at ~$133 USD/t in FY2028 and continuously increase by an average annual rate of 0.37% (CAGR) between 2028 and 2040, before leveling out at ~$139.3 USD/t between 2040 and 2044. This is highlighted in *Figure 2-4: Projected product coal prices*.

Figure 2-4. Projected product coal prices (FY 2028 – FY 2044)



Notes: Years refer to financial years.
Source: Whitehaven.

However, in the most recent Resources and energy quarterly (June 2025) the Department of Industry, Science and Resources and the office of the Chief Economist estimated that realised thermal coal prices would contract from $140 USD/t in 2024 to $108 USD/t in 2027, decreasing significantly in 2025, and then remaining relatively flat in 2026 and 2027. This builds on their March (2025) projection, which forecast thermal coal prices falling to $112 in FY28, $110 in FY29 and $102 by FY30.

Similarly, in the IEA's Coal Mid year update for July 2025, they estimate forward spot prices to remain subdued, hovering around ~$100 USD/t between now and July 2027. This highlights a significant departure from Whitehaven's estimated product coal price point in FY28, which would need to rise by 28% in FY28 from both of these estimates to meet Whitehaven's expected starting point.

In their latest forecast of global coal trade, the IEA noted that both import demand and prices would likely weaken due to structural shifts among major importers. They have forecast that in FY26, global coal trade will "decrease for a second consecutive year" with the "main driver of the expected downturn is an ongoing reduction in China's import demand". They also note that "going forward thermal "coal demand continues to decline structurally across Europe and in Japan, Korea and Chinese Taipei, leading to a sustained reduction in import requirements."

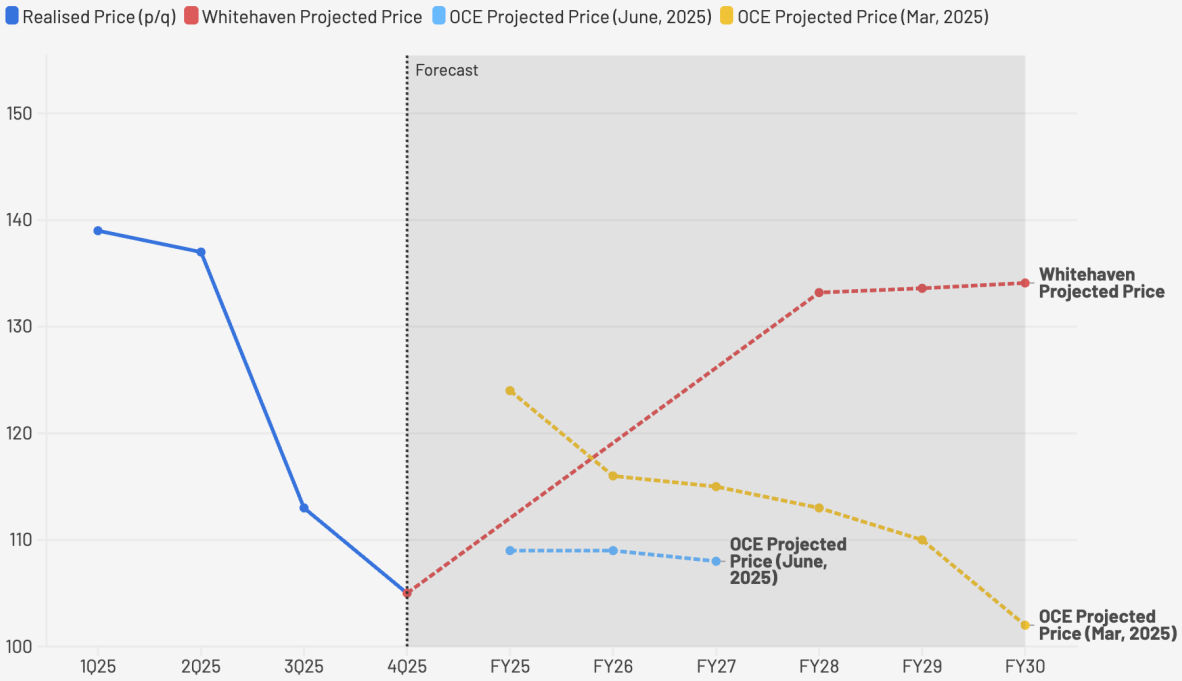
This is echoed in the forward forecasts from the Resources and energy quarterly (June 2025). The latest assessment highlights that South Korean and Taiwanese thermal coal imports had

seen annual import declines of 14% and 12% respectively in the March quarter. They also note that “Japanese thermal demand is forecast to decline due to expanded nuclear capacity and the increased share of power generation from renewables”.

Importantly, they forecast that Japanese thermal coal demand could decline by 19 mt per annum, at an average annual rate of ~5.2% between FY24 to FY27. This is a critical market for Whitehaven, and made up half of all coal revenue in FY24. Similarly, South Korean demand is projected to decline by 7mt over the same period, at an average annual rate of ~2.5%. This is a smaller export market for Whitehaven, making up 7% of coal revenues in FY24. This may also be offset by slight increases in demand in Taiwan, which is expected to increase demand by 7mt by 2027. However, global seaborne coal prices are likely to be severely depressed in the medium term, as the Office of the Chief Economist also projects a 96 mt decline in thermal coal demand from China, which is projected to decrease their demand at an average annual rate of ~8.2% between FY24 and FY27.

Whitehaven's projected thermal coal price may be significantly inflated

Compared to updated market conditions and forecasts



Source: Maules Creek Quarterly Reports, Maules Creek Economic Assessment Reports • Office of the Chief Economist Energy and Resources Quarterly Projections in Mar & June 2025

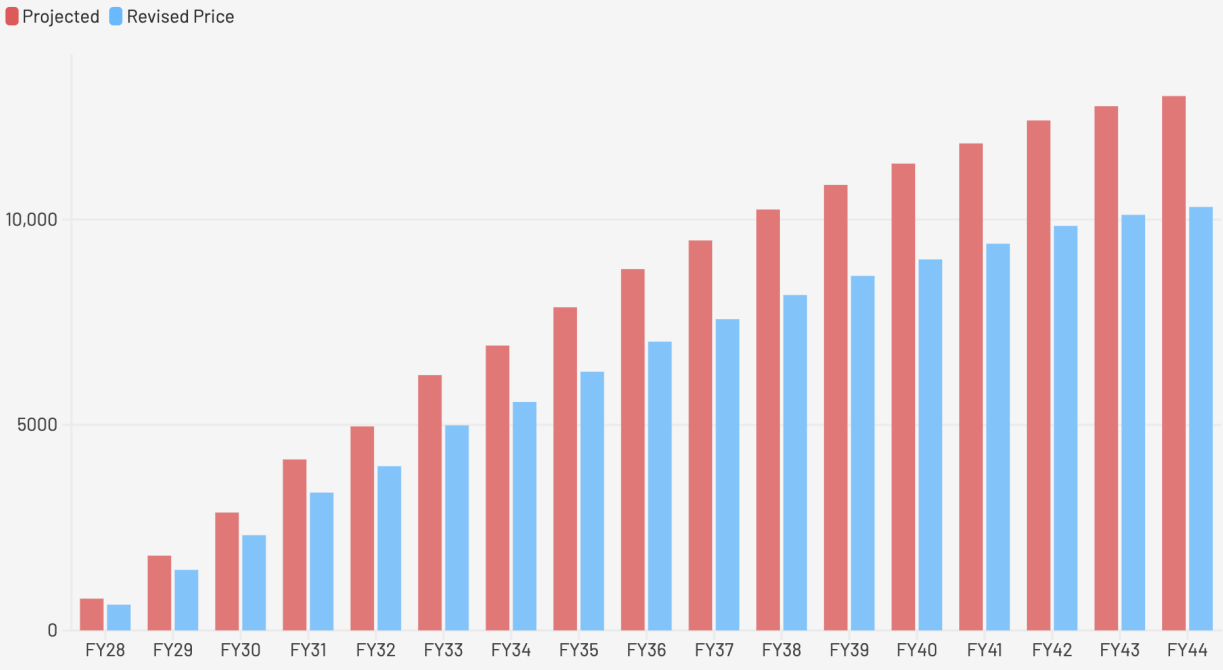
9.1 Reconstructed Price and potential impact on revenues

Whitehaven's economic case for the Maules Creek Continuation Project is built on clearly stated and optimistic coal price projections. As shown in Figure 2-4 of the Economic Assessment, the proponent estimates that thermal coal prices will begin at approximately USD $133/tonne in FY2028, rising at a compound annual growth rate (CAGR) of 0.37%through to USD $139.30/tonne by FY2040, and remaining stable at that level through 2044.

While this assumption is transparently presented, it exceeds current long-term forecasts. To test the robustness of these revenue estimates, I conducted a revised scenario using the Department of Industry, Science and Resources (DISR, 2025) benchmark of AUD $108/tonne (real, 2024 dollars) — a more conservative and policy-aligned long-run estimate for Australian thermal coal.

Maules Creek's estimated Revenues could be $3bln less than if the thermal coal price doesn't reverse

Projected thermal coal revenues (NPV AU$2024) vs a revised price of $108 USD/t



Source: Maules Creek Economic Assessment Reports, Independent Analysis

Using this flat price assumption across the life of the project (2034–2044), and applying a 7% discount rate (as used by Whitehaven), we recalculated project revenues and royalty returns in NPV (AUD 2024) terms.

Our findings show:

- A 19% reduction in total project revenues, equating to a loss of nearly AUD $3 billion NPV.
- A proportional decline in state royalty income, weakening the justification for the project's economic contribution.

9.2 Sensitivity Assessment Revision

Whitehaven's own Cost–Benefit Analysis includes a 20% downside sensitivity test, designed to show the impact of market volatility. However, our pricing scenario effectively triggers this stress-test, based on credible government benchmarks rather than hypothetical assumptions. It follows that Whitehaven's sensitivity analysis should be re-run using the $108/t benchmark, and the implications for project viability reassessed.

This revised pricing exercise highlights the project's economic fragility under more realistic conditions. It also strengthens the case that climate and fiscal risks must be jointly assessed, particularly as thermal coal markets face long-term decline under international decarbonisation pathways.

10. Potential Impacts on Royalties

The chart below visualises the impact of applying a more conservative coal price assumption on projected royalty income to the NSW Government. Using the same methodology described above (NPV in AUD 2024, 7% discount rate), we reconstructed Whitehaven's expected royalty returns for both the existing Maules Creek mine and the proposed continuation project.

The revised scenario, using a flat $108/t coal price in line with DISR's benchmark forecast, shows that project-specific royalty revenue from the continuation would decline from $817.88 million to just $668.46 million — a reduction of nearly $150 million in NPV terms.

This represents a material 18% decline in expected public benefit from this specific expansion, calling into question the reliability of Whitehaven's forward revenue projections. While total royalties across the whole project (including baseline operations) would also decline, the sharp drop in continuation-related income is particularly relevant given the nature of this approval process.

Potential Project Royalties could be 18% lower at revised thermal coal prices

Comparing royalty estimate (NPV $ ml) under a scenario where thermal coal prices remain at currently realised values

The graph above demonstrates that the economic justification for the Maules Creek expansion is highly sensitive to price assumptions and should not be accepted at face value without more rigorous stress-testing. Given that NSW Treasury guidance now requires greater scrutiny of fossil fuel-related CBA claims, it is reasonable to expect that updated pricing and revenue sensitivity analysis be formally conducted before any approval is granted.

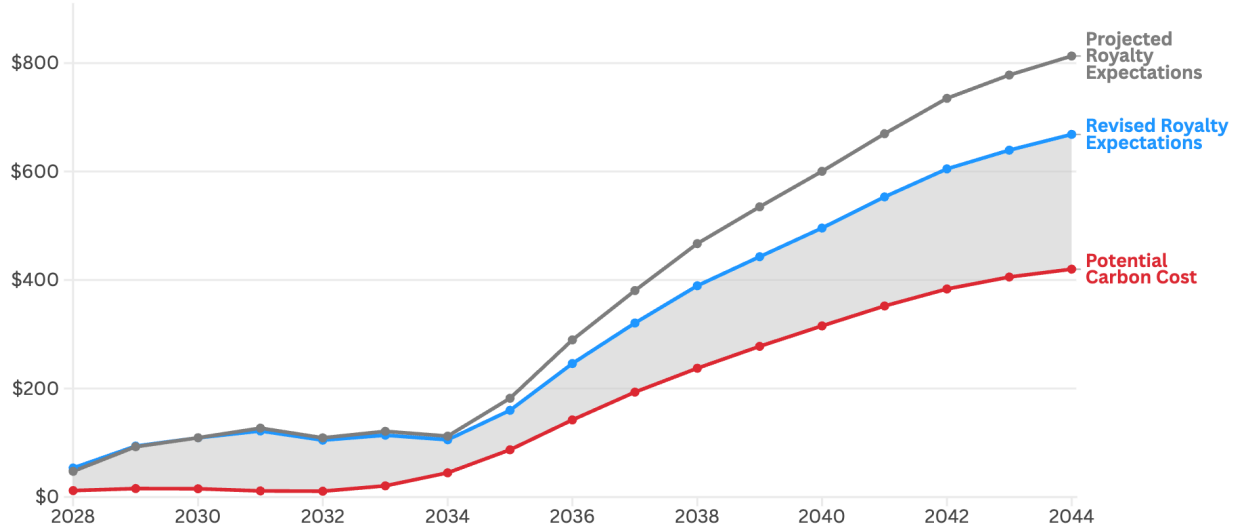
10.1 Carbon Costs could significantly undermine royalty returns

To strengthen the assessment of the Maules Creek Continuation Project's net public value, we undertook a direct comparison between the project's revised expected royalty income and its estimated domestic carbon cost. This comparison draws on the NSW Government's most recent guidance on public investment evaluation, including Treasury Policy Paper TPG24-34, which outlines how the cost of greenhouse gas emissions should be integrated into cost–benefit analysis (CBA) for major projects.

The purpose of this analysis is to evaluate whether the project's forecast public benefits remain robust under more conservative and policy-aligned assumptions, particularly in light of expected coal price softening and the increasing financial relevance of carbon liabilities.

Revised royalty expectations and carbon costing could significantly impact value proposition

Net Present Value $AUD 2024 (mln) of the Project's specific additionalities



Analysis utilising the NSW Government Investment Framework requirements on carbon emissions & OCE thermal price forecasts

Methodology and Comparative Approach

To assess the net public benefit more accurately, we modelled the following two components:

- Projected royalty revenue to the NSW Government under the continuation scenario, based on revised coal prices;
- Estimated carbon cost to NSW from the project's Scope 1 and 2 emissions, calculated using NSW Treasury's indicative carbon pricing.

For consistency, we adopted a 7% real discount rate (AUD 2024 NPV) across both revenue and emissions cost streams. This mirrors the approach used in Whitehaven's own Cost–Benefit Analysis (CBA) and allows for a direct comparison.

However, it is important to note that 7% is at the upper limit of NSW Treasury's guidance for valuing long-lived environmental and social externalities. This further highlights the conservative nature of this assessment and potentially understates the true burden of the project's emissions.

Findings

- Based on the DISR long-run benchmark of AUD $108/tonne for thermal coal, the project's royalty returns to NSW are revised down to AUD $668.46 million NPV (2024)—a significant drop from the proponent's original estimate of $817.88 million,

representing a decline of over $149 million.

- The carbon cost of the project's Scope 1 and 2 emissions—applied using the NSW Government's TPG24-34 framework—is estimated at approximately AUD $420 million NPV (2024).

- This means that over 60% of the revised royalty revenue would be offset by the project's carbon cost alone, even before considering its substantial Scope 3 emissions footprint of 238.4 Mt CO_2-e.

The accompanying graph illustrates how the application of more realistic coal price and carbon cost assumptions substantially reshapes the project's fiscal outlook. Under these revised conditions, the net fiscal benefit narrows to a modest margin—raising legitimate questions about whether the project's continuation delivers sufficient public return, especially when weighed against its climate impacts and the long-term economic risks of carbon-intensive infrastructure.

10.2 Caution and Next Steps

This analysis does not seek to undermine or discredit the existing financial analysis undertaken by Whitehaven in regards to this Project. Rather, it highlights how the project's fiscal rationale is highly sensitive to input assumptions and may benefit from further assessment against government-endorsed carbon pricing and updated coal market forecasts.

To improve the rigour and transparency of the project's economic justification, we recommend:

1. That the proponent be required to re-run its sensitivity analysis using the DISR coal price forecast and the NSW Government's carbon pricing framework (TPG24-34);

2. That the NSW Government and Independent Planning Commission undertake independent validation of the economic assumptions underpinning the CBA, particularly around royalty forecasts and emissions intensity;

3. That future assessments of this and similar projects adopt a lower discount rate for carbon liabilities to better reflect intergenerational impacts and risk-adjusted fiscal exposure;

4. And that approval decisions explicitly consider the ratio of climate cost to fiscal benefit when determining whether a project provides a net public return.

Given the scale of emissions involved and the limited fiscal margin once carbon costs are considered, we believe a full and transparent re-evaluation of the project's economic case is warranted. This may better compare climate objectives, and public investment standards.

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