

Whitehaven Coal DCF Model

Detailed results and methodology

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Introduction

The purpose of this model is to estimate whether Whitehaven's proposed new coal mines (Narrabri extension, Maules Creek continuation, Vickery, Winchester South, Blackwater South and Blackwater North) add shareholder value based on consensus coal price forecasts, using a discounted cash flow (DCF) approach.

The model has two scenarios:

- Operating:** All existing assets produce until the end of their current approvals or until current reserves deplete, and the ongoing early Vickery mining project ("Vickery Light" below) proceeds, but all other projects are cancelled; or
- Expansion:** All aforementioned projects go ahead.

This document presents the key results of the model as well as the various assumptions and calculation approaches used to project Whitehaven's cash flows.

\$ figures are in AUD and all years refer to Whitehaven fiscal years (1 July - 30 June) unless stated otherwise.

Results

Net present value (\$ billions)						
Scenario	Sensitivity	-2%	-1%	0%	+1%	+2%
Expansion	Coal price ¹	-0.9	2.9	6.5	10.3	14.5
	Production costs ²	10.4	8.5	6.5	4.4	2.2
	WACC ³	8.7	7.5	6.5	5.6	4.9

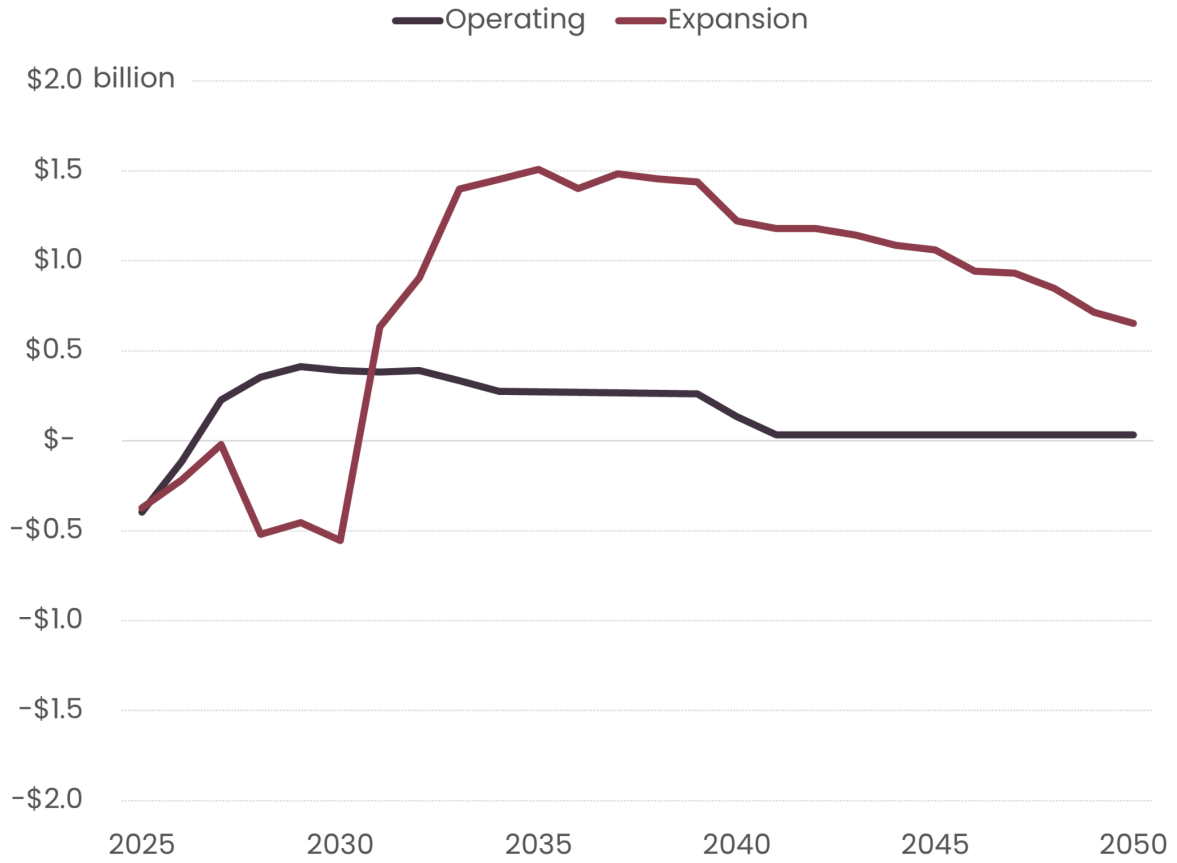
¹ Defined as an annual change to the real long term price equally across all products.

² Defined as a five-year annual change in real terms followed by a flat trend.

³ Defined as a percentage point change.

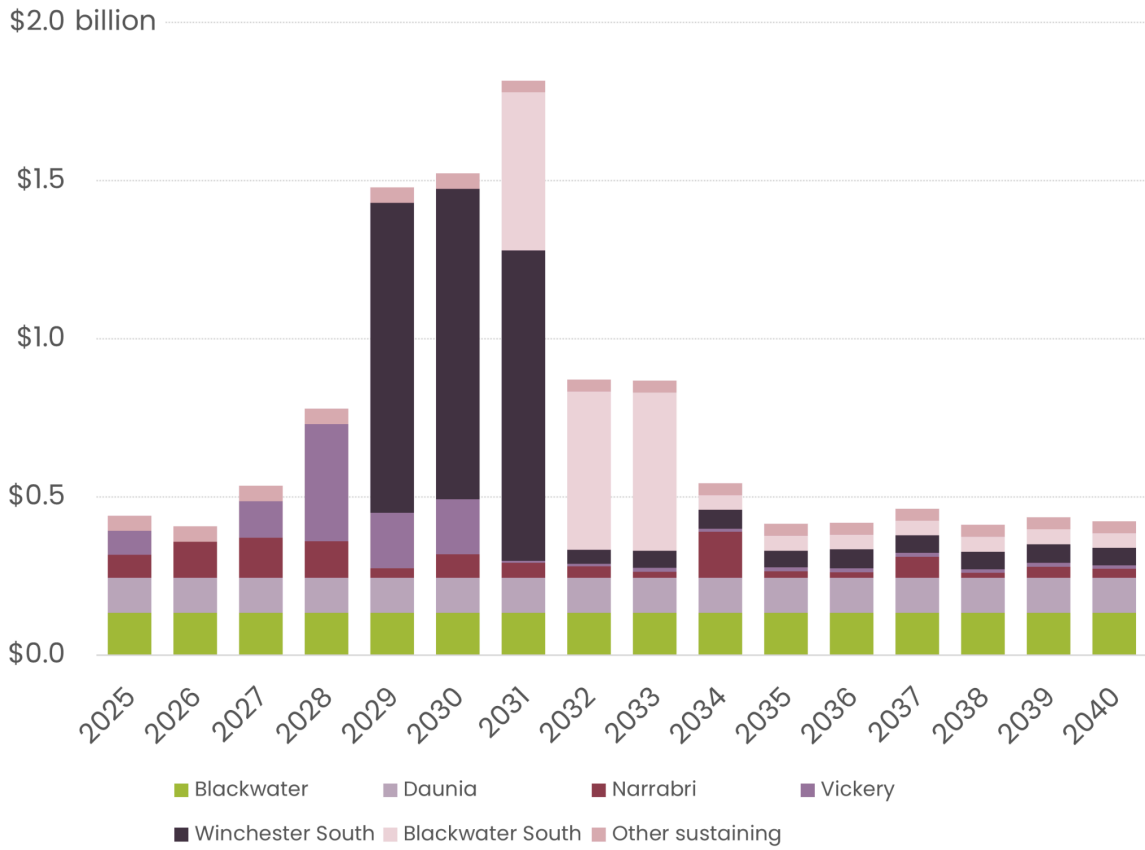
Operating	Coal price	1.2	1.9	2.6	3.2	3.9
	Production costs	4.2	3.4	2.6	1.7	0.8
	WACC	2.9	2.7	2.6	2.4	2.2

Undiscounted free cash flow by scenario



FCF is presented net of BHP trade finance and major project capex.

Forecast capex by project, Expansion case



Methodology

Production

Mine	Operating scenario	Expansion scenario	Product split
Maules Creek	Five-year historical average (2018-2023) production rate until end of current approvals (2034).	Continuation project goes ahead, extending production until 2045. We ignore the increased production limit of the project application (from 13 to 14 mtpa ROM) as Maules Creek historically has not produced at maximum capacity.	Split using Whitehaven's company-level five-year (2018-2023) historical rates.
Tarrowonga	Five-year historical average (2018-2023) production rate until currently approved mine closure (2030).	No change.	Split using Whitehaven's company-level five-year (2018-2023) historical rates.
Werris Creek	Production as of the current three-year forward program , with closure in FY25.	No change.	Split using Whitehaven's company-level five-year (2018-2023) historical rates.
Narrabri	Production profile from project EIS economics assessment by AnalytEcon. Project closes in 2034.	Production profile from AnalytEcon. Project closes in 2047.	Production profile from AnalytEcon, which splits into thermal (95%) and PCI (5%).
Vickery	For Vickery Light, uses the three-year forward program ramping up to the peak production rate as indicated by Whitehaven in the initial project announcement . Vickery Full does not proceed.	No change to Vickery Light. For Vickery Full, uses the EIS economics assessment by AnalytEcon. Light volumes are subtracted from Full volumes, such that production from both projects eventually totals that of Full.	Production profile from AnalytEcon, which splits into thermal (30%), semi-soft coking coal (44%) and PCI (26%). This data is from 2018; Whitehaven's more recent statements refer to it as "primarily thermal coal".

		Volumes are adjusted down to align with WHC's revised reserves assessment from August 2023.	
Winchester South	Does not proceed.	Uses the EIS economics assessment (revised July 2022 edition) by Deloitte.	Deloitte economics assessment, which splits into thermal (42%) and semi-hard coking coal (58%).
Blackwater	Uses Whitehaven's projected five-year rate until reserves are exhausted in 2041.	Blackwater North project proceeds; uses production profile from BHP's EA amendment documentation .	Split into semi-hard (70%) and semi-soft coking coal (30%) according to Whitehaven's disclosed split .
Daunia	Uses Whitehaven's projected five-year rate until reserves are exhausted in 2040.	No change.	Split into hard coking coal (70%) and PCI (30%) according to Whitehaven's disclosed split .
Blackwater South	Does not proceed.	Uses the rough production schedule from the November 2021 initial advice statement for 90 years.	Assumes the same split as Blackwater.

Prices

Median of price forecasts from KPMG's [Coal price and FX market forecasts](#) (March/April 2024 edition). These are based on a panel of forecasters from banks, brokers, research houses etc. References below to "KPMG's forecast" refer to the median of these external forecasts gathered by KPMG. The term "industry forecast price" in the analysis also refers to this median.

KPMG provides explicit forecasts to 2028 and a long-term price thereafter. We extend the long-term price out until the end of our modelling period (2121). Our sensitivity analysis applies only to this long-term price.

Thermal coal

Applies a discount to KPMG's 'Newcastle thermal coal' price forecast based on the five-year average discount of Whitehaven thermal coal to the Newcastle coal benchmark (-2%).

Metallurgical coal

For Maules Creek, Tarrawonga and Werris Creek, we do not have enough information to split production into distinct products (e.g. PCI, semi-soft coal etc). As such we've had to estimate a price for Whitehaven's portfolio mix of metallurgical coal. Whitehaven publishes its realised metallurgical coal prices against the JSM index, which is a semi-soft coal index. We use KPMG's semi-soft coal price forecast and apply a discount based on Whitehaven's five-year average discount to JSM (-7%).

For hard coking coal (Daunia), we use KPMG's forecast without adjustment.

For PCI (Narrabri, Vickery, Daunia), we use KPMG's forecast without adjustment.

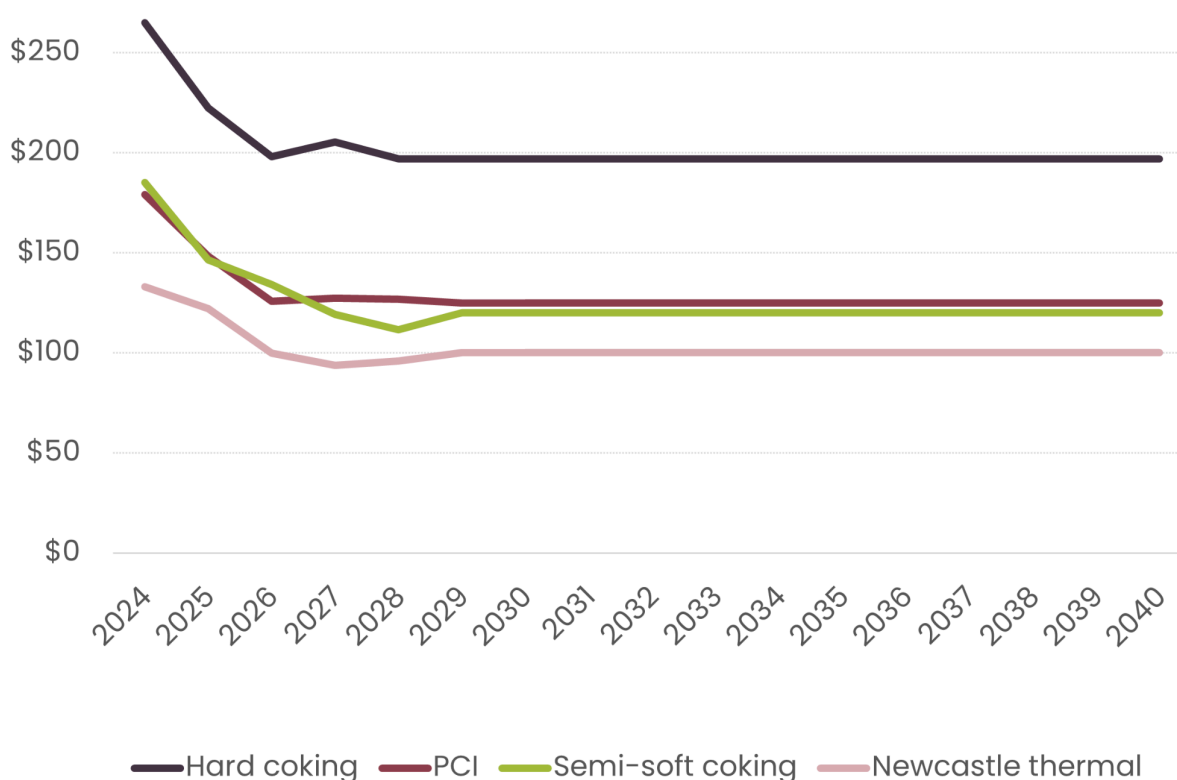
For semi-soft coking coal (Vickery, Blackwater), we use KPMG's forecast without adjustment.

For semi-hard coking coal (Winchester South, Blackwater), there is no explicit KPMG forecast. We apply a discount to the hard coking coal forecast, based on the midpoint of a range (80-90% of the HCC price) provided by Whitehaven in their June 2023 [coal quality workshop](#).

Prices are summarised below.

Coal price assumptions

\$300 per tonne (2024 real)



Operating costs (production costs, taxes, royalties, carbon)

Production costs

Production costs are generally based on WHC's aggregate reported unit costs. As of this report's publication, Whitehaven had [disclosed](#) that it was "tracking at the top end" of its 2024 guidance of \$103 -

113 per tonne, which we have interpreted as $\frac{3}{4}$ of the way to the top, or \$111.5/t. The unit cost is a pre-royalty, pre-tax measure. For Blackwater and Daunia we have used [Whitehaven's](#) explicit FOB cash cost forecast. We recognise that the aggregate may not be accurate for all mines given differences in geology, mining type, age and so on. However, the only site-specific projections available are from EIS assessments, which exclude labour costs from the total.

In the model's default setting, unit costs are assumed to remain flat in real terms. We note that Whitehaven's historical cost increases *above industry inflation* are, in CAGR terms, 3% (1 year), 7% (3 year), 4% (5 year) and 2% (10 year), so the default assumption is highly conservative. The model includes a sensitivity analysis for this variable.

Taxes

Whitehaven's corporate income tax is extremely challenging to forecast, given that the company has historically paid very little of it; over the 9 years to FY2022, the company paid a grand total of \$14m in cash corporate income tax on a total operating cash flow of \$5.7bn (an effective cash tax rate of 0.2%). This changed in FY2023, when the company paid \$676m in corporate income tax on net operating cash flows of \$3.6bn, for an effective cash tax rate of 18.9%.

Given that Whitehaven's deferred tax assets have trended sharply downwards over the last ten years, we have assumed that earnings are taxed at the corporate income tax rate of 30%.

Royalties

For QLD mines (Narrabri, Winchester South, Blackwater, Daunia) we apply the progressive royalty rates [set out](#) by the QLD government, which are based on the AUD-denominated coal price. We apply these on a per-product basis, such that there are four different effective royalty rates: Thermal, hard coking coal, semi-soft coking coal and PCI. (Whitehaven's QLD mines are not expected to produce any semi-hard coking coal.)

All NSW mines (Maules Creek, Tarrawonga, Werris Creek, Vickery) are open-cut mines, and so pay a flat [10.8%](#) royalty on all revenue.

Carbon

For operating mines that fall under the Safeguard Mechanism (SGM; Maules Creek, Narrabri, Blackwater, Daunia), we estimate facility-specific baseline emissions intensities based on the previous five years of data, as per the government's methodology.

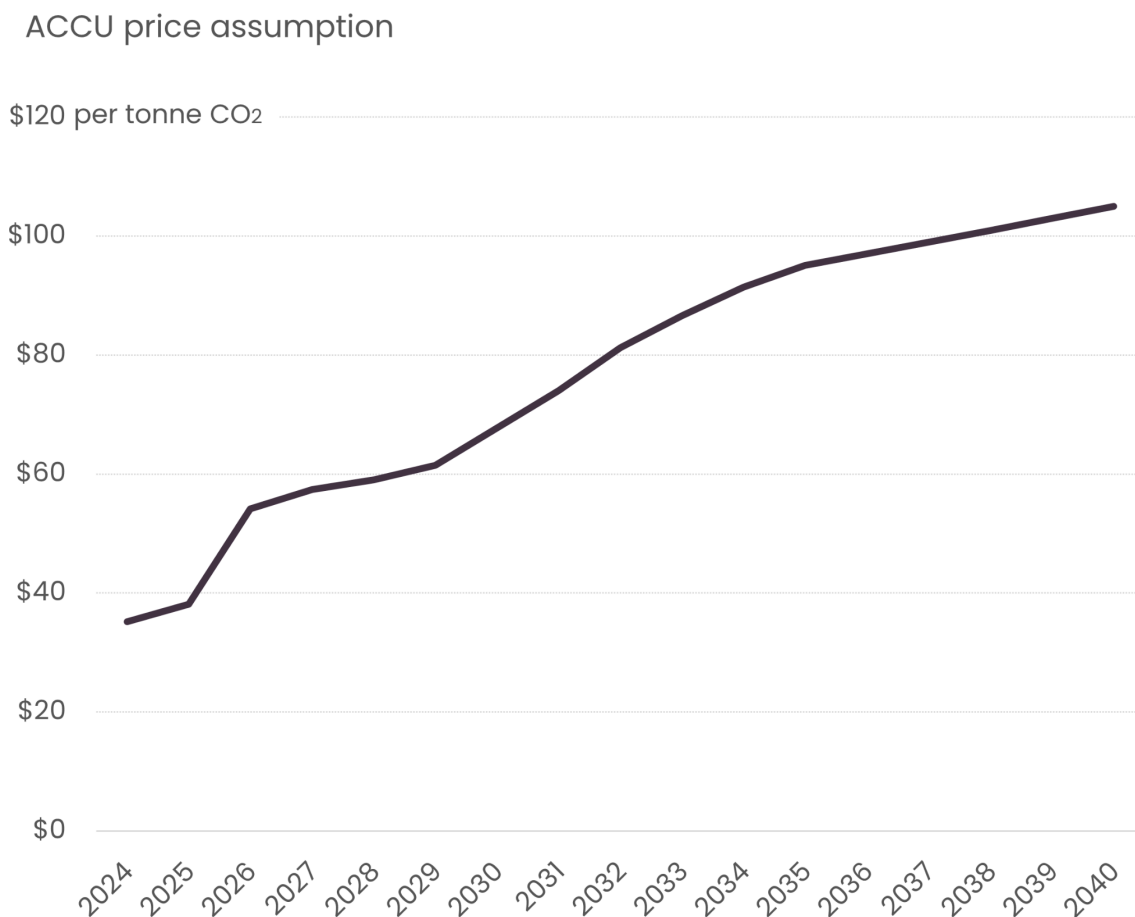
Operating facilities move to a 50:50 mix of facility-specific baselines and an industry average baseline intensity of 0.0653 by FY2030 according to the schedule set out in the SGM legislation.

For new mines (Vickery, Winchester South, Blackwater South), the baseline is the [government's](#) established "international best practice" of 0.00592 tCO₂e/t ROM coal.

Projected emissions data for Vickery and Winchester South comes from their respective EIS documentation. We note that these numbers are likely very optimistic given Whitehaven's [record of underestimating emissions](#) in EIS documentation, particularly at Narrabri. For this reason, we have used the five-year average rate for Narrabri rather than WHC's EIS estimates.

All baselines decline by 4.9 percentage points per year to FY2030 as set out in the [SGM legislation](#). The post-FY2030 decline rate is set at 3.285 percentage points per year as per the legislation, though we recognise that this is subject to change in the government’s planned review of the scheme in FY2027.

Any emissions in excess of each mine’s baseline are priced at the Australian Carbon Credit Unit (ACCU) price for that year. We have used [RepuTex’s forecast](#) from November 2023 or the government’s cost containment price, whichever is lower. The prices used are shown in the figure below.



Capex

Narrabri extension

Based on the [project EIS economics assessment](#) by AnalytEcon, which models pre-ops and sustaining capex both for the ongoing mine and the extension. Since the source data is stated in 2020 dollars, we inflate it to 2024 dollars using inflation rates for inputs to the Australian coal mining industry from the [Australian Bureau of Statistics](#).

Vickery

Vickery Light development costs (\$150m) are spread evenly over FY2024 and 2025. Vickery Full costs are based on the Vickery [EIS economics assessment](#) by AnalytEcon, which models pre-ops and sustaining capex. This data, which is from 2018, has been adjusted to 2024 dollars as described above. Whitehaven has [stated](#) \$120m of the Vickery Light development costs are “brought forward” from the Vickery Full development while \$30m would be “regret capital”, so \$120m is removed from Vickery Full capex in the Expansion scenario.

Blackwater and Daunia

Uses Whitehaven's [projected rates](#), which include a five-year projected average and a long-term rate.

Winchester South

Development capex for Winchester South is \$2,942m based on the [EIS Economics Assessment](#) by Deloitte, which we split out evenly over four years post-FID. Decommissioning costs are \$389 million according to the same source. We also add sustaining capex using the same 'intensity' as for operating mines (see below).

Blackwater South

[BHP estimated](#) in 2021 a total "capital cost ... expected to exceed \$1 billion". It's unclear whether this was in NPV or undiscounted terms. We have used \$1.5 billion as a simplified assumption, considering the significant cost inflation in the years since.

Mines without explicit capex forecasts

Whitehaven reported \$502m of sustaining capex in the five years to FY2023, implying an average rate of \$5.8 per tonne of saleable coal production. We multiply this rate by projected future production from operating mines for an estimate of sustaining capex requirements.

Financing and WACC

Excluding BHP trade finance, we estimate Whitehaven's current debt-to-capital ratio at around 20%. Incremental cost of debt is based on the current interest rate of WHC's active term loan of 11% (pre-tax). Cost of equity is estimated by Bloomberg as 8.2%.

We assume the ongoing process of divesting 20% of Blackwater is completed, and add [estimated proceeds](#) of US\$500m in FY25.

BHP trade finance is calculated as per WHC's [disclosed method](#), meaning it has a fixed component and a price-contingent component.

Equity stakes

Mine	Whitehaven equity assumption
Maules Creek	75%
Narrabri	77.5%
Tarrawonga	100%
Werris Creek	100%
Vickery	100%
Winchester South	100%
Blackwater	80% ⁴
Daunia	100%

⁴ Applied from the start of FY25 as a simplified assumption.

Blackwater South	100%
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Final investment decision timings

Mine	Assumed FID year (Expansion case)
Narrabri stage 3	2025
Vickery Full	2027
Winchester South	2029
Blackwater South	2031