# AUSTRALIAN RESEARCH INDEPENDENT INVESTMENT RESEARCH

# Bowen Coking Coal Ltd (ASX: BCB)

July 2022



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**Note**: This report is based on information provided by the Issuer as at 27 July 2022

#### **Investment Profile** 0.30 Share Price (\$) as at 27 July 2022 **Issue Capital:** Ordinary Shares (M) 1541.9 Convertible Notes (M equiv. 123.1 shares) Unlisted Options (M) 43.0 Performance Shares 15.7 Fully Diluted (M) 1724.59 Market Capitalisation Ords (M) \$462.9 12 month L/H (\$) 0.042-0.22

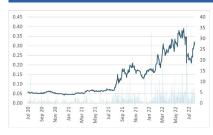
#### **Board and Management**

**Directors & Management:** 

Nick Jorss – Executive Chairman Gerhard Redelinghuys – Managing Director and CEO Neville Sneddon – Non–Executive Director Matt Latimore - Non-Executive Director Duncan Cornish - Company Secretary Daryl Edwards – CFO

Major Shareholders at 4 July 2022	
Directors	23.0%
Crocodile Capital & Associates	8.3%
IIIwelia Pty Lit	6.8%
Others	61.9%

#### **Share Price Performance**



# STARTING PRODUCTION WITH PERFECT TIMING

Bowen Coking Coal Ltd (ASX: BCB) has acquired an impressive portfolio of coal assets in Queensland, Australia, and is now in production on route to reach over 4mtpa of saleable product. While the focus is on steel making coal long term, the current market is presenting the opportunity to capitalise on extraordinary thermal prices.

# **KEY POINTS**

**Policy stuff-ups will create value for Bowen** – The IEA Pathway to a low carbon future forecasts that the world will be making more steel using coking coal in 2050 than it is today and that this is unavoidable. The transition to a low carbon future has to be managed thoughtfully and carefully to avoid shortages of old energy sources until the world has actually transitioned to new sources. There is no evidence that any country is exercising that care, so the next decade is likely to see critical shortages of steel and energy driven by under investment in coal, meaning above expectation prices and super normal profits for companies like Bowen.

**Queensland royalty increase of almost no concern to Bowen investors -** At the time the royalty increases were announced (21 June 2022), the Bowen share price fell from 34.5cps to 21cps. The level of coal prices required to make our valuation model before the change generate a Net Present Value of 34.5cps is around A\$250/t hard coking coal and A\$150/t for thermal coal, and at those coal prices, the impact of the new royalty structure is 0.7cps, so the 13.5cps fall is a gross over-reaction by the market. Changing the royalties is bad policy for the government because it creates increased sovereign risk, which could harm investment in other projects including non-coal projects, but that is of little consequence to Bowen's valuation.

**Switching coal supply away from Russia has produced extraordinary prices** – The European Union has banned the import of Russian coal from 8 August 2022, some of which would be for steel making and some for power generation. The result is the spot price of thermal coal reaching a US\$435/t peak and current sits at US\$409/t for July Futures, vs Bowen production costs of around A\$130/t. We expect continued volatility so prices may fall, but Bowen at 30cps share price is currently pricing in US\$193/t hard coking and US\$116/t thermal, which is below long term consensus forecast prices, and a long way below spot.

#### Future drivers of the Bowen share price:

- The market is recovering from the over-reaction to the Queensland royalty increase.
- Delivery of raw coal production guidance of 1.2Mt by the end of December 2021, ramping up to 4.2Mt in CY2023 and 6.2Mt in CY2024.
- Visibility on earnings with EPS of 9.1cps FY23, 12.1cps FY24 and 10.9cps FY25. The 23% interest owned by the board should ensure dividends will flow as soon as possible.

# VALUATION

In an environment of highly volatile coal prices, valuation is exceptionally difficult. Assuming delivery of a little below the guidance mentioned above, Bowen has an Net Present Value at a discount rate of 8.0% of A\$0.40/sh assuming consensus forecast coal prices, or A\$0.99/sh assuming the forward curve for coal prices in the futures market and A\$1.56/sh assuming spot prices flat forever. Futures prices and spot prices are at 27 July 2022.

Thermal coal prices are higher than coking coal prices, driven by perceptions of an energy shortage especially in Europe, while coking coal spot prices are easing, due to fears of an energy crisis induced recession. Bowen is exposed to both thermal and coking markets, and so is buffered against an energy induced recession which impacts steel demand. Fair value is likely to lie between A\$0.40/sh and A\$0.99/sh.

The risks to the valuation are commodity prices, inflation in operating costs (currently flagged to have stepped up 15% in the half to June 2022 due to diesel prices and COVID absenteeism), and approvals. A major global recession is a risk to commodity prices, but the much lower consensus price forecasts appear to be capturing the impact of that already, and the bias of risk is probably that any slowdown is less than implied in the consensus forecasts.

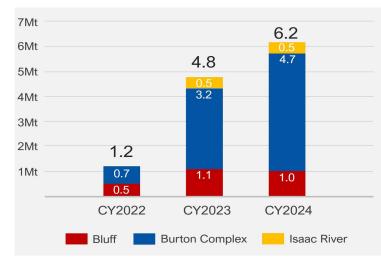


# OVERVIEW – IN RAMPUP, BECOMING CASH GENERATIVE

#### BOWEN IS DE-RISKING NOW PRODUCTION HAS COMMENCED

The Bluff mine shipped its first coal on 4 July 2022, Broadmeadow East mined its first coal on 21 July 2022, and Burton is fully approved and is expected to be in production in calendar 2023 taking total ROM (raw) production to 6.2Mtpa by 2024 (year to December).





Source: BCB presentation 21 July 2022

- The exceptionally high thermal coal prices and expected increases in hard coking coal prices make the present environment an ideal time to start operations. While the company has signalled that it is experiencing the industry wide cost increases, the strong but volatile coal prices are resulting in expanded margins.
- Bowen indicated that operating costs in A\$ per tonne will be 15% above the costs in the 2021 releases on Broadmeadow East and Isaac River (28 July 2021), Bluff (26 October 2021), and Burton/Lenton (4 August 2021). This is consistent with the increases in operating costs per tonne flagged by the gold and base metal open pit miners in Western Australia that have reported so far. The main drivers of the higher costs are higher diesel prices and lower than planned productivity as workers scheduled to be on shift become unavailable due to being COVID positive, which impacts productivity. The lower productivity has been factored into Bowen's current forecasts in Figure 1.
- The IIR financial model production is lower than the guidance in Figure 1 by 13% in CY22, 4% in CY23, and 9% in CY24. CY refers to years ended December, whereas the company's financial year ends at 30 June.

#### Production delivery & visibility on cash flow will refocus the market on valuation

- The company is in production and that production will grow rapidly with the startup of the fully approved and funded Burton mine and processing plant.
- As the market sees evidence of the company's strong cash flow, and as coal prices hold up above the market's current expectation, we would expect the market to pay increasing attention to cash flow valuations and the low Price Earnings Ratios.
- If coal prices to not fall as much as consensus forecasts are expecting, there is potential for consensus upgrades which would increase our valuation.

#### QUEENSLAND ROYALTY INCREASES ALMOST NO CONCERN TO INVESTORS

- The announcement of the new Queensland royalty structure on 21 June 2022 caused the Bowen share price to fall from 34.5cps to 21cps. The announcement included a top rate of 40% which was seized on by the press, and the industry response was to protest strongly.
- In reality this is a rare example of the market getting it very wrong in our opinion. Our valuation model was run at the coal prices required to generate a share price of 34.5cps before the royalty change. Applying the new royalty structure resulted in a change to the valuation of only 0.7cps, ie to 33.8cps, so the Bowen share price was not pricing in high enough coal prices for the royalty to have a material effect, as detailed in Table 1.

Table 1 Estimated impact of the change in Queensland royalty structure 1cps at prices factored into Bowen share price

	Share Price	In	Implied Prices A\$/t		
	A\$/sh	HCC	PCI	Thermal	
BCB Pre Qld Royalty Increase	0.345	251	180	151	
BCB Post Old Royalty Increase	0.338	251	180	151	
Impact of Royalty Change	-0.007				
Current Coal Prices (18/7/22)		368	276	582	

Source: IIR valuation model. Note the model is based on the operating data provided to the ASX during 2021, with costs increased by 15% in line with the advice provided on 11 April and 3 May 2022. HCC=Hard Coking Coal, PCI=Pulverised Coal Injection coal

- The market appears to have misunderstood the royalty change. The previous structure applied a royalty of 7% to A\$100/t, 12.5% on the revenue portion from A\$100-150/t, and 15% above A\$150/t. The new structure leaves rates up to A\$150/t unchanged, charges 15% on the portion from A\$150-175/t, 20% from A\$175-225/t, 30% from A\$225-300/t and 40% on the revenue portion above A\$300/t.
- The Royalty is payable at mine gate, so rail, port and marketing costs are deductions. These are estimated at A\$15/t for Broadmeadow East and Isaac River, A\$19/t for Burton and A\$25/t for Bluff, so the new rates do not apply until coal prices are above A\$190-200/t.
- The net effect is that at a selling price net back to the mine gate of A\$350/t, the additional royalty burden on the project would be A\$10/t, or 2.9% of revenue, and given operating costs of around A\$130/t, the additional royalty would be around 5.5% reduction in margin (see Figures 2 & 3)

#### Figure 2 Royalty per tonne payable under old and new Queensland royalty structures



Source: Queensland Government publication 22 June 2022, FOR = free on rail ie before rail port and marketing costs

#### Figure 3 Royalty per tonne payable under old and new Queensland royalty structures



Source: Queensland Government publication 22 June 2022

#### CLARITY ON DEBT FUNDING STRUCTURE

Bowen announced the funding for Burton on 21 June 2022 including US\$55M from Taurus of which US\$14M was drawn at 30 June 2022, A\$70M from New Hope (fully drawn) and an A\$40M convertible note from Crocodile Capital. Burton is expensive because it involved restarting the Bowen owned Coal Handling and Processing Plant, and the related environmental liability deposit of A\$61M (Bowen share).

The debt is scheduled to be repaid by December 2023 (Taurus) and June 2024 (New Hope), so the initial cash flow will be devoted to paying down A\$160M in debt at an exchange rate of 0.68 (Table 2).

#### Table 2 Debt structure with interest and repayment schedule (the IIR valuation model assumed note conversion June 2024)

	Jun-22	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24
New Hope Loan A\$M									
Movement	70								-70
Balance	70	70	70	70	70	70	70	70	0
Forecast BBSY Rate	2.0%	2.5%	3.0%	3.5%	3.0%	2.5%	2.5%	2.5%	2.5%
Premium	8.0%	8.0%	8.0%	8.0%	8.0%	10.0%	10.0%	10.0%	10.0%
Interest Rate	10.0%	10.5%	11.0%	11.5%	11.0%	12.5%	12.5%	12.5%	12.5%
Interest Payable		-1.8	-1.9	-1.9	-1.9	-2.1	-2.1	-2.1	-2.1
Taurus Loan US\$M									
Movement	15	30	-11	-11	-11	-11	-11		
Balance		30	19	8	-3	-14	-25		
Interest Rate		8%	8%	8%	8%	8%	8%		
Interest Payable		-0.6	-0.4	-0.2	0.1	0.3	0.5		
Up Front Coupon 2%	-0.3								
Bluff Mine Royalty 1%									
Burton Royalty 0.25%									
5 year Convertible Note A\$M									
Movement	40								
Balance	40	40	40	40	40	40	40	40	40
Interest Rate if paid on time	3%	3%	3%	3%	3%	3%	3%	3%	3%
Interest Payable		0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Interest Rate if capitalised	4%	4%	4%	4%	4%	4%	4%	4%	4%
Interest Payable		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Converting to Shares @ A\$/sh	0.325	0.325	0.33	0.33	0.335	0.335	0.34	0.34	0.345
Shares on Conversion M	123	123	121	121	119	119	118	118	116
Summary									
AUDUSD	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Total Movement A\$M	131.4	42.9	-15.7	-15.7	-15.7	-15.7	-15.7	0	-70
Total Fees A\$M	-0.4								
Total Interest A\$M	0	-2.2	-2	-1.8	-1.4	-1.3	-1	-1.7	-1.7
Total Cash Flow	131	40.6	-17.7	-17.5	-17.1	-17	-16.7	-1.7	-71.7

Source: BCB release 21 June 2022

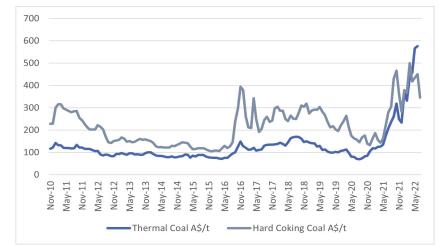
#### Impact on valuation from the convertible note dilution

- The quick answer is that at our base case valuation of A\$0.40/sh, the dilution impact of the conversion of the notes is 1cps taking the valuation to A\$0.39/sh.
- The base case of this report treats the convertible notes as debt at the 30 June 2022 valuation date, because they rank ahead of shares and the company has to pay interest.
- The notes can be converted to shares is at the discretion of the note holder, but as shown in Table 2, the price of conversion rises over time, starting at A\$0.325/sh and rising by A\$0.005/sh every six months. This may not sound like much but as the share price rises, the cost of waiting to convert can become material.
- Depending on the time and therefore the price of conversion, the note holder will receive between 123M and 116M shares, and that difference of 7.13M shares at A\$0.39/sh is worth A\$2.8M. We expect the note holder will want to see Burton start up successfully and see the debt repaid and a solid cash balance before converting, but will do so as soon as the risk of a cash flow crisis reduced to what the holder sees as acceptable levels. We have assumed conversion in June 2024, after repayment of the New Hope debt.
- On conversion the A\$40M that our valuation treats as debt will disappear, which is why the dilution impact on valuation is so low.

#### Bowen can meet the repayment schedule if Hard Coking Coal is above A\$250/t

Our financial model indicated that Bowen can repay the Taurus and New Hope debt as long as the Hard Coking Coal price remains above A\$290/t and thermal coal remains above A\$170/t. These price levels are similar to the A\$ prices seen in the 2016-2019 period (see Figure 4), and well below current spot prices around A\$345/t HCC and A\$583/t thermal.





Source: Barchart

#### HIGHTHERMAL PRICES MAY SEE BOWEN SWITCHTO MORETHERMAL

- With thermal prices higher than coking prices, there may be a switch to selling more thermal coal. Broadmeadow East is a likely candidate, because it has coal with sufficiently high volatile content to allow it to be washed to a Newcastle specification which is attracting the very high prices.
- Broadmeadow East has a 68% overall yield from raw coal to saleable product, comprising 40% hard coking and 28% thermal. If more raw coal was washed to the thermal coal specification, the hard coking product might fall to 20-30% but the thermal product might rise to 50-65% giving a total yield of 80-85%. These numbers are IIR estimates and investors will have to wait to see if Bowen does divert into the thermal market and what the impact on yield actually results.
- At the spot prices used in our spot valuation (Table 3) Broadmeadow East would generate A\$100M pa additional revenue and A\$58M pa additional EBITDA if the switch discussed above could be implemented.
- Bowen's decision to divert into the thermal market will probably depend on it landing appropriately priced sales contracts.
- Notwithstanding any early switch into thermal markets, longer term, Bowen will want to build a strong portfolio of coking coal sales contracts, where the long term premium prices are likely to be obtained once price structures normalise.

# VALUATION

#### VALUATION SUMMARY

We have valued the mines and overheads on the basis Net Present Value of their cash flows at our Base Case assumptions, and adjusted for balance sheet cash, debt and tax losses estimated at 30 June 2022.

#### Table 3 Valuation scenarios: Our base case is A\$0.38/share, with potential for upside if prices stay higher for longer

	Consensus July 2022	Forward Curve 27/7/22	Spot 27/7/22
Broadmeadow	205.9	313.3	426.9
Burton Lenton	347.4	1093.7	1836.8
Isaac River	29.2	92.1	106.3
Bluff	141.8	141.6	147.7
Exploration & Hillalong	10.0	10.0	10.0
Corporate Overhead	-50.2	-44.9	-44.9
Tax Benefit	5.8	5.8	5.8
Cash on hand	72.5	72.5	72.5
Debt	-145.7	-145.7	-145.7
Net Working Capital	-6.9	-6.9	-6.9
Valuation A\$M	609.8	1531.6	2408.6
Post Acquisition Shares M	1541.9	1541.9	1541.9
Valuation A\$/sh	0.40	0.99	1.56

Source: IIR estimates. The prices assumed in the Spot valuation are US\$235/t for HCC, US\$397/t thermal AUDUSD 0.68

- The current Bowen share price is trading at A\$0.30/sh and is recovering from the royalty induced weakness, and we would expect it will trend to the A\$0.40/sh consensus based valuation.
- Running our valuation model on the forward curve prices at 27 July 2022 for Hard Coking Coal and Thermal coal generates a valuation of A\$0.99/sh, driven by forecasts of stronger long term prices than was forecast six months ago.
- If the valuation model is run at spot prices of 27 July 2022, we get a valuation of A\$1.56/sh.
  We do not see this as a realistic scenario, but we do believe that the real value of Bowen lies between the consensus case and the spot.

#### SENSITIVITY

#### Table 4 Impact of increases in various coal prices and the currency

Impact on NPV	A\$M	A\$/sh
Hard Coking Coal +A\$10/t	38.1	.025
LVPCI Coal + A\$10/t	15.5	.010
Thermal Coal +A\$10/t	29.2	.019

Source: IIR estimates

- ♦ A change in all coal prices of A\$10/t changes the valuation by A\$82.8M or A\$0.054/sh.
- The impact of a change in the currency has not been included. At low US\$ coal prices the currency sensitivity is lower than at high US\$ coal prices, and with the current volatility in coal prices, the currency sensitivity can change dramatically.

#### SELECTION OF COMMODITY PRICES: BASE CASE

- Our base case valuation uses the consensus commodity forecasts of a large number of commodity experts as collated by Consensus Economics. The consensus forecasts are currently above the futures prices in the next few months, and below the futures prices longer term.
- Our forecasts assume 0.8%pa long term coal price inflation, compared to 1.2% cost inflation. The cost inflation is the difference between the Australian Federal Government 10 year Bond Rate and the 10 year Indexed Bond Rate, and represents the future inflation rate forecast by the Bond Market in aggregate over the next 10 years. The price base from which this level of inflation is 15% above the 2021 estimates provided by the company.

Table 5 Consensus and futures coal prices

US\$/t FOB	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Consensus	at July 20	22								
НСС	250	280	295	278	250	242	232	217	219	219
PCI	188	210	221	208	188	182	174	163	164	164
Thermal	293	293	287	213	207	207	205	148	169	169
Forward Cu	ırve 27 Jul	y 2022								
НСС	232	261	280	270	263	260	258	256	255	254
PCI	156	175	188	181	177	174	175	175	176	177
Thermal	406	372	344	311	293	278	266	264	264	255

Source: Consensus Economics, HCC forward curve from SGX (Singapore), Thermal from ICE (London)

 In Bowen's case, the coal prices from 3-10 years out largely determine the value of the company, while the cash flow in 2023 and 2024 determine the pace of development and level of debt.

#### OTHER MODELLING ASSUMPTIONS

- Our financial model is based on the production profiles and product mix contained in the "Production Targets for Broadmeadow East and Isaac River" dated 28 July 2021, "Transformational Acquisition of the Burton Mine and Lenton Project" dated 4 August 2021 and "Option for Bowen Coking Coal to acquire Bluff PCI Mine" dated 29 October 2021. The production profiles contained in these documents are the work of the Competent Persons who complied these reports for Reserve reporting, and they may not represent the company's actual development plans, but they represent the best guide available.
- Costs in A\$/t have been increased by a 15% one off step in line with the comments in BCB releases on 11 April 2022 and 3 May 2022.
- The discount rate used is 8.0% (see Table 29).
- In the Table 2, the valuations are for the assets in A\$M are at 30 June 2022, and the number of shares used as the divisor is as at 26 July 2022.

# VALUATION OF OTHER PROJECTS A\$6-24M - BASE CASE A\$10M

- The other projects are Cooroorah, Comet Ridge, Lilyvale and Mackenzie, which with part of Hillalong (ie Mt Hillalong) comprise the original Asset Package purchased by the company.
- The price paid by the company for that Asset Package was 141.7M shares and A\$0.35M cash. The issue price of the shares was A\$0.023/sh valuing the entire package at A\$3.6M.
- On 11 October 2017, when trading resumed post completion of the acquisition and related rights issue, Bowen had 469.5M shares on issue at a share price of A\$0.023/sh and A\$4.45M in cash, giving an enterprise value for the Asset Package of A\$6.3M. On this basis, we have set A\$6M as the lower end of our valuation range for these assets.
- Since then, the Cooroorah project Resource has grown to 177Mt, and Isaac River was acquired, so it is difficult to split out the valuations attributed to these assets by the market. However, Cooroorah is clearly more valuable now than at the time of acquisition. Also, coal prices are considerable higher, which would also have the effect of increasing the value of the Asset Package. The total Resource of these assets is 242Mt (Cooroorah 177Mt, Comet Ridge 60Mt and Lilyvale 5Mt). At a conservative A\$0.10/t valuation, we have set the upper end of our valuation range at A\$24M.
- Our base case valuation of Bowen assumes these exploration assets are worth A\$10M, ie toward the lower end of the range. We value Hillalong Open Pit separately, but almost all the planned production in our modelling comes from Hillalong East, which was purchased from Rio Tinto in 2018. The Hillalong in the original package is Mt Hillalong, the down dip extension most likely to be mined by underground methods.

# **COMMODITY REVIEW**

#### COAL PRICES HINGE OF UKRAINE CONFLICT AND GLOBAL GROWTH

- In summary, what is good for thermal coal prices is bad for coking coal prices. An energy shortage induced recession would see higher thermal prices and lower coking coal prices.
- Bowen's Net Present Value sensitivity to an A\$10/t change in all coking coal sales is A\$53M and the sensitivity to an A\$10/t change in thermal prices on the original product mix is A\$29M of Net Present Value ie a 5:3 ratio.
- However, the coking price has been going down by the stairs, while the thermal price has been going up by the lift, and the net impact appears to be an increase in revenue. In other words, thermal coal price rises are more than offsetting the coking coal falls (Table 6).

#### Energy sanctions of Russian coal imports into Europe drive thermal coal prices (up)

- The outstanding feature of current coal markets is that the current thermal coal forward curve is higher than the forward curve for hard coping coal out to 2025. The spot price of thermal coal has only been higher than coking coal once in the last 30 years.
- The driver of this strange event is the Ukraine war and the decision by the EU to ban import of Russian coal into the EU from 8 August 2022. While the world is fearing an EU energy recession, and while it may come from a lack of oil or gas, it may not come from a lack of coal. Russia exports around 40Mtpa of coal to the EU, of which part is coking and part thermal. The incredible thermal prices are strongly incentizising additional production or conversion from coking to thermal, and we expect to see a big lift in exports from the US east coast to Europe, and a corresponding big lift in Russian exports to China and India, as those countries buy up the lower cost Russian material switched from the EU to nonsanctioning countries.
- The current high thermal prices are partly the current panic to secure reliable supply, and partly a lack of rail wagons inside Russia to transport coal from the Urals in western Russia to the ports in the east like Vladivostok due to the Russian military co-opting the rolling stock to supply the Ukraine conflict. While the panic is likely to subside, the rolling stock allocation could remain a problem for the duration of the conflict.

#### Global growth fears drive coking coal prices (down)

- Hard coking coal spot prices have fallen since May 2022, to around US\$220/t, but the forward curve is forecasting a rebound to around US\$290/t by December 2022, before trending down to the long term estimate.
- Other commodity prices like copper are showing big price falls recently, but with no increase in terminal market inventories, so at this stage, the price moves appear to be more in anticipation of a recession, than the actual arrival of recession.
- Headlining the risk is the IMF World Economic Outlook forecast update released on 26 July 2022. It noted the global growth contracted in the June 2022 quarter, and has reduced the global growth forecast for CY2022 by 0.4% to 3.2% and for CY2023 by 0.7% to 2.9%.
- The forecast energy shortage is seen likely to cause a slowdown directly as businesses cannot grow output due to lack of power, and indirectly as high energy prices lift inflation and interest rates have to increase, damaging business and consumer cash flow and flowing through to final demand.
- Even with the easing in coking coal prices since record highs in May 2022, the longer dated futures prices (eg December 2025) are still holding onto significantly higher levels than in 2021 (Table 6).

#### Table 6 Long term futures prices have shifted upwards

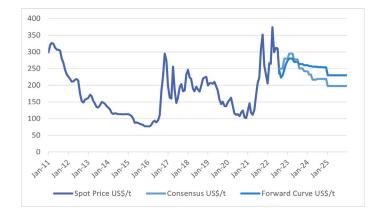
US\$/t FOB Australia	March 2021	November 2021	July 2022	Nov-July Change
Hard Coking Coal	153	165	230	65
Thermal	83	104	255	151

Source: SGX Futures - December 2025 futures contract at the dates specified

 We think a number of factors are at work. In addition to the fears of a recession, there are medium term structural issues becoming evident.

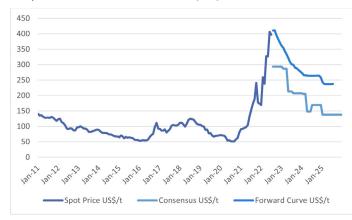
- The transition to a carbon free future is occurring in an unplanned manner, and there is a growing realisation that the lack of capital market support for coal projects means that coal supply could decline faster than the demand declines, if it declines at all. The IEA Steel Pathway to 2050 indicated that steel production in 2030 and 2050 is likely to be unavoidable higher than today, in which case, failure to grow coking coal production capacity will result in shortages.
- The diversion of coking coal into the thermal market chasing the very high prices should also help balance any oversupply of coking coal if in fact it occurs. Figure 4 highlights how the thermal coal price has been the same or higher than that of hard coking coal since December 2021, and even as far back as May 2021, well before the Ukraine conflict.

Figure 5 Hard Coking Coal historical prices, July 2022 consensus forecasts and 26/7/2022 forward curve (ie futures prices)



Source: St Louis Federal Reserve, Barchart, Freight Investor Services

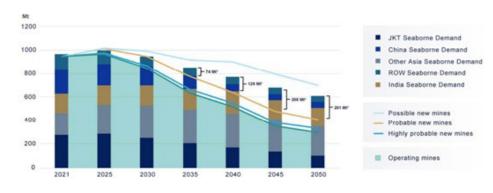




Source: St Louis Federal Reserve, Mundi, Barchart

# WHITEHAVEN COMMENTARY ON LONG TERM THERMAL COAL MARKET OUTLOOK

Figure 7 Emerging supply gap in thermal seaborne coal



Source: Forecasts by Wood Mackenzie July 2021, from Whitehaven Coal presentation 26 August 2021

- In the forecasts, Global seaborne supply meets demand only once the mines classified as "Highly Probable plus Probable plus Possible" have been built and bought on line. Bringing these mines on will require new investment. Failure to invest will cause shortages.
- Even in an environment of declining demand, shortages are possible, and in the absence of support from capital markets, shortages become likely.
- The above analysis appears to assume that the current market is in balance, and that shortages will emerge between now and 2025. However the current prices tell us that the shortages are here now.
- Whitehaven believes that there will be a trend over the longer term towards high Specific Energy coals (ie Australian, not Indonesian) as the surviving power stations are the more efficient, lower CO<sub>2</sub> emitting HELE coal power plants.

# HISTORY OF BOWEN COAL

- On 24 April 2017, Cabral Resources announced the acquisition of 100% of Bowen Coking Coal Pty Ltd from Cape Coal. Upon completion of the transaction, Cabral was renamed Bowen Coking Coal Limited.
- At the time, Bowen held joint venture interests in coking coal exploration and development projects in the northern and central Bowen Basin in Queensland including
  - 15% joint venture interest in the Lilyvale Project,
  - 5% joint venture interest in the Mackenzie Project,
  - an Option Agreement with Australian Pacific Coal Limited (ASX: AQC) to acquire the Mt Hillalong and Cooroorah Projects, and
  - an Option Agreement to acquire Comet Ridge Project from Acacia Coal Limited (ASX:AJC).
- On 2 May 2017, Bowen exercised its option to purchase Comet Ridge for A\$0.35M and 17,391,304 shares, escrowed to 28 September 2018. At the time of the transaction, the total value of the purchase was A\$0.75M.
- On 1 September 2017, Bowen exercised its option with AQC to purchase Mt Hillalong (EPC 1824) and Cooroorah (MDL 453), which required the issue of 54,347,826 in Bowen shares to an AQC subsidiary. The value of those shares at the time of issue was A\$1.25M.
- With the acquisition of Bowen approved by Cabral shareholders, Cape Coal executives Gerhard Redelinghuys and James Agenbag joined the Cabral/Bowen board on 27 September 2017.
- On 28 September 2017, the acquisition of Bowen was completed with the issue of 96 million shares (escrowed to 28 September 2019), and the issue of shares pursuant to the various asset acquisitions.
- On 4 December 2017. Bowen acquired Isaac River Coking Coal project from Vale controlled Aquilla Coal Pty Ltd for A\$0.2M.
- On 15 February 2018, Bowen paid Cape Coal 30 million shares for the right to buy Hillalong East (EPC 2141) and Carborough (EPC 1860) from Rio Tinto Exploration. Hillalong East is adjacent to and up dip from Bowen's Mt Hillalong Project. The acquisition from Rio Tinto required the payment to Rio of A\$0.1M cash, which was completed on 11 May 2018, with future payments of A\$1M in cash or shares at Bowen's election on grant of a mining lease, and payment of a 1.25% royalty on gross FOB sales. Rio had the right to buy back 51% at fair market value on completion of a Feasibility Study. On 4 September 2019, the buy back option was terminated for A\$0.1M, the royalty increased to 1.5%, and Rio was granted the right to receive 25% of any consideration received by Bowen upon the disposal or transfer of Carborough (EPC 1860) capped at A\$1M.
- On 21 May 2018, Comet Ridge (MLA 700005) was to be sold to Adamelia Group controlled Springsure Creek Coal Pty Ltd, but this agreement was terminated on 16 October 2018 due to failure to agree key commercial terms. The proposed acquisition price was A\$0.1M and a 1.25% net revenue royalty (ie free on rail) on the first 2.8Mt of saleable coal production. If no royalty is received within four years, Bowen was to have the option to buy back Comet Ridge for the exploration expenditure incurred, and Springsure was to grant Bowen 350Ktpa of priority access to its loading infrastructure. Bowen was to retain a right to buy all Comet Ridge output for blending or trading purposes. This transaction did not occur.

- Between February 2019 and September 2019, Bowen's share price rose from A\$0.02/sh to A\$0.088/sh. The period started with the Cooroorah Resource upgrade to 158Mt on 12 February 2019, but was dominated with news from Isaac River (67% Resource increase 23 August 2019).
- On 7 October 2019, Bowen announced that Sumitomo Corporation subsidiary SACP Exploration would farm into the combined Hillalong project. Phase 1 would cost A\$2.5M and earn 10%, and Phase 2 would cost A\$5M and earn an additional 10%. This agreement was signed on 18 November 2019. Phase 1 was completed on 4 May 2020, and Sumitomo moved to 10% interest.
- On 21 November 2019, a marketing agreement with M Resources was announced and was finalised on 23 March 2020. The transaction provides a financing facility of A\$15M (interest rate 9%pa) for the development of Isaac River or any other Bowen projects. M Resources' Matt Latimore joined the Board of Bowen on 17 June 2020, following Bowen shareholder approval of the marketing agreement.
- On 24 June 2020, Bowen announced the acquisition of Broadmeadow East (ML 70257) for A\$1M plus a royalty of A\$1/t capped at A\$1.5M from Peabody (Burton Coal) Pty Ltd. The acquisition was completed on 30 September 2020.
- On 30 July 2021, Bowen was named as the preferred bidder for the Bluff Operation.
- On 4 August 2021, a binding term sheet for the acquisition of the Burton Mine and Lenton Project was announced. Bowen is to acquire a 90% interest in the assets from the New Hope Group for A\$20M upfront (of which A\$10M can be in Bowen shares at Bowen's election), plus milestone payments of up to A\$7.5M and a coal price sensitive royalty structure that will cost between A\$16M and A\$70M depending on the price of Premium Low Volatile Hard Coking Coal.
- On 1 September 2021, an in principle agreement was announced with coal producer Fitzroy that allows the transfer of 1Mtpa of Dalrymple Bay Coal Terminal port access to Bowen, and giving Bowen's Broadmeadow East project access to 1Mtpa of Carborough Downs coal processing, rail and port capacity in 2022, and first right of refusal on 1Mtpa of the same capacity from 2023 onwards. The agreement also allows Bowen to extend Broadmeadow East to the south into Fitzroy's adjacent tenement. The effect of this if completed will be to allow Broadmeadow East to start production in six months (ie March 2022) with minimal pre-production capital spending.
- Bluff was acquired in an option deal that was announced on 26 October 2021 and completed on 9 November 2021. Bowen paid a net A\$4.75M in shares and is responsible for security bonds for rail and port capacity and an environmental bond, all totalling A\$9.4M. The vendor has a royalty which steps up at higher coal prices.

# **FINANCIALS**

Table 7 Profit and Loss

A\$M	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Revenue	624	853	958	623	547	494
Operating Costs	-395	-529	-652	-481	-440	-386
Corporate OH	-9	-9	-9	-10	-10	-10
EBITDA	-404	-539	-661	-491	-450	-396
D&A	-12	-23	-33	-24	-27	-27
EBIT	209	291	264	108	70	72
Interest Costs	-12	-4	3	5	5	5
PBT	197	288	267	113	75	77
Tax Expense	-53	-86	-80	-34	-23	-23
NPAT	144	201	187	7+9	53	54
Shares on Issue	1542	1661	1720	1720	1720	1720
EPS A\$/sh	0.091	0.121	0.109	0.046	0.031	0.031

Source: IIR estimates

#### Table 8 Sources of Earnings Before Interest and Tax

EBIT	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Burton/Lenton	19	144	151	63	72	66
Broadmeadow East	123	89	59	40	9	0
Isaac River	0	10	14	7	-2	16
Bluff	76	57	49	7	0	0
Corporate	-9	-9	-9	-10	-10	-10
Total	209	291	264	108	70	72

Source: IIR estimates

The product mix includes Hard Coking Coal selling at around a 15% discount to the Premium Hard Coking Coal Benchmark. We believe PCI will be priced at the LVPCI Benchmark, and Thermal Coal is likely to be priced at the Newcastle (NEWC or AP4) Benchmark.

Table 9 Coal products and Benchmark selling prices (Bowen's HCC is likely to sell at am 18.5% discount

Volumes	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27
Coal Sales (Kt)					
HCC	650	1234	1591	1498	1617
SHCC	0	173	239	212	152
LVPCI	946	1081	1154	230	101
Thermal	407	830	1416	1275	1149
Total	2003	3317	4400	3215	3020
Benchmark Coal	Prices (Consensus)	US\$/t			
HCC	276	235	208	189	180
SHCC	221	188	167	151	144
LVPCI	207	177	156	142	135
SSCC	193	165	146	132	126
Thermal	272	192	153	126	112
AUDUSD	0.72	0.74	0.74	0.75	0.74

Source: IIR estimates

The product mix in the table above is the 2021 plan. However, Broadmeadow East may shift product from coking to thermal, with the benefit of a higher yield ie adding more saleable coal overall.

#### Table 10 Cash Flow

A\$M	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Receipts From Customers	552	822	946	660	559	507
Payments to Suppliers	-370	-520	-655	-499	-445	-392
Cash Flow from Operations	182	302	291	160	115	119
Interest Received	1	1	2	4	4	4
Financing Costs	-12	-7	-2	-2	-2	-2
Taxes Paid	0	-52	-84	-79	-33	-23
Net Cash from Operations	171	246	209	85	85	96
PP&E	-37	-63	-13	0	0	0
Acquisitions	-8	0	0	0	0	0
Investing Activity	-46	-64	-14	0	0	0
Issue of Equity	0	40	9	0	0	0
Net Borrowings	-19	-140	0	0	0	0
Financing Activity	-19	-100	9	0	0	0
Net Increase in Cash	107	84	206	85	85	96
YE Cash on Hand	180	263	469	554	639	735

Source: IIR estimates

- The equity issued in FY24 is the conversion of the A\$40M convertible notes which we assume occurs 30 June 2024, post the repayment of most of the debt.
- The debt in FY22 includes the debt and convertible notes raised as announced on 21 June 2022. At June 2022, we assume only US\$15M of the US\$55M Taurus loan is drawn down.

#### Table 11 Capital expenditures

A\$M	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Burton/Lenton	33	48	13	0	0	0
Broadmeadow East	2	0	0	0	0	0
Isaac River	2	14	0	0	0	0
Bluff	0	0	0	0	0	0
Total	37	63	13	0	0	0

Source: IIR estimates

Table 12 Run of Mine coal production by operation

'000 tonnes	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Coal Processed (ROM k	ct)					
Broadmeadow	1050	1200	1200	1200	360	0
Burton Lenton	1000	2400	4000	3100	3760	4060
Burton CHPP	2050	3600	5200	4300	4120	4060
Isaac River	0	375	515	548	723	675
Bluff	1100	1138	1188	44	0	0
Total	3150	5113	6903	4891	4843	4735

Source: IIR estimates

#### Table 13 Balance Sheet

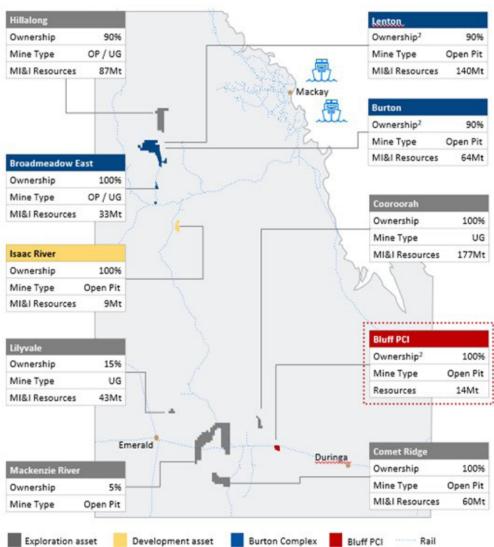
A\$M	Jun-23	Jun-24	Jun-25	Jun-26	Jun-27	Jun-28
Cash	180	263	469	554	639	735
Receivables	68	93	105	68	60	55
Inventories	33	44	54	40	37	33
Total Current Assets	281	400	628	663	737	823
PP&E	86	121	85	63	28	-7
Rehab Receivable	70	70	70	70	70	70
Expln & Mine Devt	13	14	15	15	15	15
Deferred Tax Asset	8	8	8	8	8	8
Total Non Current Assets	178	214	189	157	122	87
Total Assets	458	614	818	820	859	910
Trade Payables	72	85	97	66	59	50
Borrowings	127	0	0	0	0	0
Current Tax Liabilities	52	85	80	34	24	25
Total Liabilities	251	169	177	100	83	87
Net Assets	208	445	641	720	776	823
Issued Capital	132	172	181	181	181	181
Reserves	1	1	1	1	1	1
Retained Profits	74	272	458	538	594	640
Shareholder Equity	208	445	641	720	776	823

Source: IIR estimates

- The June 2022 cash balance of A\$72.5M was reported by Bowen in a presentation on 21 July 2022 and is a function of the funding put in place in the prior six months.
- The Rehabilitation Receivable is the cash bond lodged with the Queensland Government in respect of rehabilitation liabilities.

# PROJECTS

Figure 8 Bowen tenement portfolio



Source: BCB release Acquisition of option to purchase Bluff 26 October 2020

Bowen has a large portfolio of projects in likely order of commencement of production:

- Broadmeadow East 100%
- Bluff 100%
- Burton Downs/Lenton 90%
- Isaac River 100%
- ♦ Hillalong (90% with Sumitomo earning in to take Bowen to 80%)
- Cooroorah 100%
- Comet Ridge 100%
- Lilyvale 15% (with Stanmore Coal)
- McKenzie 5% (With Stanmore Coal)

#### **Resources and Reserves**

Table 14 Resources and Reserves Summary – All projects

Resources		Proj	ect		Bowen Share
Mine	Measured	Indicated	Inferred	Total	Total
Burton	36	18	11	64	58
Lenton	60	50	30	140	126
Subtotal	96	68	41	204	184
Broadmeadow East	7	4	23	34	34
Hillalong		47	40	87	70
Total (Burton CHPP)	103	119	104	325	287
Bluff	0	11.2	2.3	13.5	13.5
Isaac River	22.0	2.5	0.4	8.7	8.7
Cooroorah		96	81	177	177
Comet Ridge	8	9	43	60	60
Lilyvale			33	33	5
Total All Projects	132	238	264	617	551
Reserves	Proven	Probable		Total	Total
Burton	14.0	2.0		16.0	14.4
Lenton	11.0	3.0		14.0	12.6
Total	25.0	5.0		30.0	27.0
Mine Plan				Total	Total
Broadmeadow East				5.0	5.0
Isaac River				2.7	2.7
Bluff				5.5	5.5
Total				13.2	13.2

Source: BCB releases: Burton/Lenton on 4 August 2021, Isaac River and Broadmeadow East on 28 July 2021, Cooroorah on 12 February 2019, Comet Ridge and Lilyvale from Prospectus issued on 3 August 2017, Bluff on 26 October 2021.

- Burton, Lenton, Broadmeadow East, and Hillalong have been grouped together because they are feed sources for the Burton Coal Handling and Processing Plant and will use the related infrastructure as a channel to market.
- The others will seek to negotiate processing deals with existing Coal Handling and Preparation Plants. Bowen has an arrangement with Fitzroy's Carborough Downs CHPP for 1Mtpa subject to available capacity, and this is currently intended as a channel to market for Broadmeadow East until the Burton plant is back in operation. Once Broadmeadow starts going to Burton, the Fitzroy 1mtpa, if still available, could be used for Isaac River.
- Bluff was being processed through the Cook Colliery CHPP when operated by Carabella in 2020, and Bowen has an agreement to do the same.

#### **Required development approvals**

- Broadmeadow East fully approved.
- Bluff is approved for mining up to 1.8Mtpa. Transfer of ownership will have to be approved. The company is finalising access to rail and port capacity, and will need a permit for road transport to Cook for 1.2Mtpa.
- Burton fully approved
- Isaac River requires a Mining Lease and associated EA.
- Lenton fully approved except for EPBC approval, which is a Federal approval, related mainly to water and matters of environmental significance.

# **Coal product specifications**

**Table 15 Coal product specification** 

	Broadn	neadow	Isaac R.	Burton	Bluff	Hillalong	Cooroorah
Coal Product	Low Yield	High Yield		Lenton			
	НСС	HCC	HCC	нсс	LVPCI	HCC	нсс
Ash	7.5%	9.2%	8-10%	7.8-9.0%	10.0%	8.5%	3.4%
CSN	7.50	4.50	4-7.50	5-7.5		7-7.5	8
Fluidity ddpm	50	35	75	20-300		361	5
RV max	1.13	1.13		1.1-1.22		0.99	1.57
Volatile Matter	24.2%	23.1%		22-25%		28.8%	18.5%
Fixed Carbon				64.5-67.5%			76.7%
Total Sulphur				0.37-0.42%		0.4%	0.43%
Phosphorus	0.07%	0.09%	0.09%	0.04%		0.04%	0.02%
Energy kcal/kg adb							
Yield	37.0%	58.0%	45-60%	30-36%		66.0%	40-45%
Coal Product	Thermal	Thermal	PCI	Thermal	LVPCI	Thermal	PCI
Ash	17%	17%	10.5%	15.5-17.5%	8-9%	16.5%	9.7%
Volatile Matter	21.2%	21.2%		18.5-22.5%	13-14%	24.3%	17.1%
Fixed Carbon				59.8-62.3%	75%		72%
Total Sulphur	0.39%	0.37%		0.38-0.4%	<0.65%	0.31%	0.38%
Energy kcal/kg adb	6703	6600		6175-6210	7800	6730	7600
Ash Fusion Temp C	1358	1362					
Yield	40%	28%	10-35%	17-46%	84%	21%	45-50%

Source: BCB releases. Broadmeadow East 12 September 2021 Tables 4 and 5, Isaac River 12 September 2019, Burton Lenton 4 August 2021 p27, Bluff 26 October 2021 Table 8.1, Hillalong 28 August 2020 p2, Cooroorah 3 April 2019 p4. HCC= Hard Coking Coal

- Our modelling assumes Hard Coking Coal price discounts for Burton/Lenton, Broadmeadow, Isaac River and Hillalong of 15% to the benchmark Premium Hard Coking Coal.
- Selling prices for Thermal Coal are a no discount to the Newcastle Index, with higher ٠ calorific value being offset by higher than specification ash. PCI is priced at benchmark, which we assume to be around 70% of the Premium Hard Coking Coal price.

#### Table 16 Operating summary

	Broadmeadow	Isaac River	Burton	Lenton	Bluff
Life of Mine yrs	5-7	4-5	10-11	9-11	4-6
Production ROM Mtpa	.0.8-1.1	0.405	2.0	1.8	1.1
Strip Ratio (incl Auger) BCM:t	7.0	8.6	6.7	7.5	5.5
Coal Yield	69%	81%	53%	76%	84%
Prodn Saleable Coal Mtpa	0.55-0.83	0.32-0.49	1.1	1.4	0.9
Cost A\$/t FOB excl royalties	100-110	113-122	100-114		120-137
Initial Capex A\$M	10	14-17	39.0	27.5	9.4

Sources: BCB releases for Broadmeadow East and Isaac River on 28 July 2021, Burton Lenton on 4 August 2021, and Bluff 26 October 2021

Our valuation model assumes costs towards the top end of the cost range excluding Bluff, ۲ where we assume a 3.5 year life and a cost of A\$120/t FOB before royalties increased by the 15% cost uplift flagged by the company. At the current consensus prices, the NPV falls if we use the 5 year higher cost mine plan.

#### Table 17 Summary of near to production assets

Project	Burton	Lenton	Broad- meadow	Isaac River	Bluff	Hillalong
Bowen Interest	90.0%	90.0%	100.0%	100.0%	100.0%	90% to 80%
Other Owners	Formosa Plastic	Formosa Plastic				Sumitomo earning anothe 10% for A\$5M
Obligations	Royalty on BCB's 90% share of A\$0.55/t capped at \$16M, A\$1.65/t in each quarter (see Lenton)	where HCC over US\$160/t capped at \$24M, and A\$3.30/t for prices over US\$190/t capped at A\$30M.	Land compensation A\$0.5M, Royalty A\$1/t capped at A\$1.5M	Land Compensation, haul road maintenance	1Royalty A\$2/t <u\$120 cap<br="" t="">at A\$10, A\$5/t &gt;US\$150, A\$5/t &gt;U\$200/t</u\$120>	1.5% revenue royalty + A\$1M on granted mining lease to Rio Tinto Exploration
Location	120Km WSW of MacKay Qld. 5-7Km south of Burton Plant	120Km WSW of MacKay Qld. 7-8Km west of Burton Wash Plant	25Km NE of Moranbah and 20Km south of Burton Wash Plant,	27Km east of Moranbah south of the Goonyella rail corridor, no access to Burton CHPP	20Km east of the town of Blackwater. Processing at Cook CHPP	5km east of Glenden
Tenements	ML 70109, 70260	ML 70337, ML700053, ML700054,	ML 70257	MDL 444, EPC830	ML 80194	EPC 1824, EPC 2141
Status	Approved	Federal needed	Approved	State, Federal	Approved	Planning
Seams	Leichardt and Vermont	Burton Rider, Leichardt and Vermont	Leichardt	Leichardt and Vermont	Pollux	Elphinstone and Hynds
Coking Yield 9.8% ash	39%	30%	40-45% at CSN 4	49%		
Low Volatile PCI 10.5% ash				32%	84%	
Thermal Yield 14% ash	26%	45%	20% with 29MJ/kg			
Thermal Coal Energy kcal/kg	6175-6210	6175-6210	6500			
Coal Processing	Burton Coal Handling Plant 5.5Mtpa ROM capacity	Burton Coal Handling Plant 5.5Mtpa ROM capacity	Tolling at Isaac Plains or Carborough Downs initially, then Burton	Carborough Downs Wash Plant	Cook Colliery Wash Plant	Potentially Burton Plant
Loadout	Trucked 36Km on haul road to Mallawa Loadout	Trucked 36Km on haul road to Mallawa Loadout	Trucked 36Km on haul road to Mallawa Loadout	Carborough Downs	Cook Colliery	
Rail Corridor	Goonyella Line 150Km	Goonyella Line 150Km	Goonyella Line 150Km	Goonyella Line 150Km	Blackwater Line 260Km	
Port	Dalrymple Bay	Dalrymple Bay	Dalrymple Bay	Dalrymple Bay	Gladstone	
Mine Type	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit	Open Pit
As at:	2-Aug-21	2-Aug-21	24-Jun-20	23-Aug-19	29 Oct 2021	9-Jun-20
Resource Mt	64	140	33	8.7	13.5	43
Reserve Mt	16	14			5.5	
Life Strip Ratio	10-12 years 6.7	9-11 years 7.5	5-7 years 7.0	4-5 years 8.6	3.5-5 years 11.3-12.9	
BCM:t						
ROM Mtpa	2.0	1.8	0.8-1.1	0.4-0.6	1.1	
Yield Product Mtpa	53% 1.1	76% 1.4	69% 0.55-0.83	81% 0.32-0.6	81-84% 0.9	
OpEx A\$/t FOB	1.1	1.4	113-122	120-137	138-158	
Capex A\$M	39.05	6-8	14-17	7.8	5	
ource: BCB releases					-	

#### **BROADMEADOW EAST PROJECT**

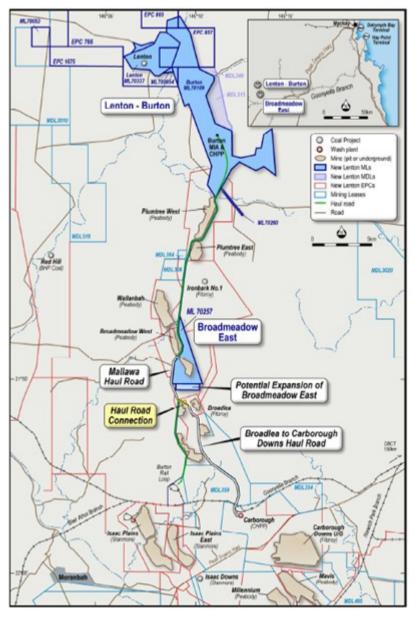
#### **Current Status**

 Broadmeadow East is currently stripping overburden and is expected to ramp up to full production rapidly, with initial processing through the Carborough Downs plant of Fitzroy.

#### Location

Broadmeadow East is covered by ML 70257 and is located about 25km northeast of the township of Moranbah, within the Central Bowen Basin in Queensland. It is around 15Km by existing haul road north of the Carborough Downs Coal Handling and Processing Plant, where its production will go initially, and around 20Km south of Bowen's Burton Coal Handling and Processing Plant, which will be the longer term processing solution. Coal from Burton is trucked 36Km south past Broadmeadow East to the Burton rail loop marked in Fig 12.

Figure 9 Broadmeadow East and connecting haul roads to Burton and Carborough Downs infrastructure



Source: BCB release 1 September 2021

#### Acquisition detail

- Cash consideration of A\$1M paid 30 September 2020;
- Royalty payable of \$1/t on all coal produced and sold from ML 70257, to a maximum of 1.5Mt, ie A\$1.5M;
- Assumption of environmental rehabilitation obligations; and
- \$500,000 cash consideration for land access compensation.

As part of the original transaction, the Company had secured access to the New Lenton Joint Venture CHPP and associated Train Load Out. Bowen now own those assets. This has been augmented by a Heads of Agreement with Fitzroy to use 1Mtpa of Carborough Downs processing and loadout capacity, subject to the formal completion of that agreement. Since then, Bowen has acquired the Burton/Lenton processing plant.

#### FITZROY INFRASTRUCTURE AGREEMENT (1 SEPTEMBER 2021)

#### **Conditions Precedent:**

- Bowen completes the acquisition of New Hope's stake in the New Lenton Joint Venture.
- The Parties obtain approval from the New Lenton Joint Venture.
- The parties entering into formal transaction documents, including tolling and access agreements.

#### Fitzroy will provide Bowen:

- Access to its infrastructure at the neighbouring Broadlea Mine.
- Access to the Broadlea haul road and Broadlea bridge to cross the Goonyella rail line.
- Short term access to the Carborough Downs CHPP of between 0.75Mt and 1Mt in 2022, including Port and Rail Access and CHPP Services.
- Subject to availability, a first right to a further 1Mtpa access to CHPP services from 2023 onwards.
- The permanent transfer of 1Mtpa Port capacity at DBCT.
- Access to an area abutting the open pit of the Broadmeadow East project which could potentially provide an extension to the Broadmeadow East open pit, subject to a royalty.

#### Bowen will provide to Fitzroy:

- Access of up to 1Mtpa on the Mallawa Haul Road.
- Access to surplus capacity at the Kerlong accommodation village, Burton office and storage area.
- Subject to availability, access to water from the Teviot dam or water stored in old voids.
- Access to telecommunication infrastructure.
- A right to mine under the Mallawa Haul Road without causing any subsidence. Bowen will be remunerated with a royalty for every tonne mined from that area to match the royalty agreement on the Broadmeadow East extension.

#### Geology

- The Project area lies within the Permo-Triassic Bowen Basin. Coal seams occur within the Rangal Coal Measures and underlying Fort Cooper Coal Measures which are Late Permian in age.
- At Broadmeadow East, the only economic seams occur in the Rangal Coal Measures which overlie the Fort Cooper Coal Measures. The Rangal Coal Measures are approximately 90m thick and contain five seams in descending order: the Burton Rider seam, the Leichhardt seam, the Upper Vermont seam, the Middle Vermont seam and the Lower Vermont seam. Only the Leichhardt seam is currently determined to be commercially viable in the Broadmeadow East area. The seams all crop in an elongated strip, broadly striking north northwest
- The coal resources of the Project are found within the Leichhardt seam of the Rangal Coal Measures ("RCM"). The seam subcrops in the central part of the Mining Lease and generally dips at 8-10 degrees to the east. It is very consistent in thickness (3.5m to 4.2m) with limited structural features. Base of weathering is generally between 13m and 21m with some areas as shallow as 10m, which typically favours low strip ratio, open cut mining.
- LIMN simulation shows an average of 40-45% yield for the primary coking product for a nominal 9.8% ash and with a Crucible Swelling Number ("CSN") of 4, and up to 20% yield for the secondary thermal product for a nominal 14% ash product with a specific energy of 29 MJ/kg on an air dried basis.

Independent Investment Research

#### Table 18 Broadmeadow East Resources

Depth	Seam	Measured	Indicated	Inferred	Total
<100m	Leichardt	6.4	1.9	3.0	11.3
>100m	Leichardt	0.1	2.2	20.0	22.3
	Total	6.5	4.1	23.0	33.6

Source: BCB release 28 July 2021

Table 19 Broadmeadow East financial model (100% BCB)

Broadmeadow East	LOM	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
Physicals						
Overburden K BCM	31560	1000	5780	7560	7560	7560
OP Production ROM Kt	4530	0	990	1080	1080	1080
Auger Mining ROM Kt	480	0	60	120	120	120
Coal Mined ROM Kt	5010	0	1050	1200	1200	1200
Coal Processed ROM Kt	5010	0	1050	1200	1200	1200
Product Mt	3462	0	733	831	817	832
HCC	2045	0	434	487	481	495
Thermal	1417	0	299	344	336	337
Costs						
Cash Cost A\$/t product	121.3		107.5	119.2	123.6	125.2
Total Cash Cost A\$M	420.1	5.6	78.8	99.0	101.1	104.2
Revenue						
Sales Clean Mt	3462	0	733	831	817	832
НСС	2045	0	434	487	481	495
Thermal	1417	0	299	344	336	337
Benchmark Prices US\$/t						
HCC			276	235	208	189
Thermal			272	192	153	126
Realised Prices US\$/t						
HCC			236	201	177	161
Thermal			272	192	153	126
AUDUSD			0.72	0.74	0.74	0.74
Revenue A\$M						
HCC	525		141	133	115	106
Thermal	342		111	90	69	57
Total	868		252	223	184	163
Royalty A\$M	131		39	34	28	25
Financials A\$M						
Revenue	867.5		251.9	222.6	183.8	163.3
Cost	-543.3	-5.6	-126.9	-131.4	-122.6	-120.9
EBITDA	324.2	-5.6	125.1	91.2	61.2	42.3
D&A	-8.0	0.0	-1.7	-1.9	-1.9	-1.9
EBIT	316.2	-5.6	123.4	89.3	59.3	40.4
Tax	-94.9	1.7	-37.0	-26.8	-17.8	-12.1
NPAT	221.3	-3.9	86.4	62.5	41.5	28.3
Capex A\$M	8.0	5.0	3.0	0.0	0.0	0.0
Free Cash Flow After Tax	221.3	-14.2	86.2	65.7	44.7	31.5
Post Tax NPV		205.9	134.1	76.9	37.0	7.4

Source: BCB release 28 July 2021, IIR estimates

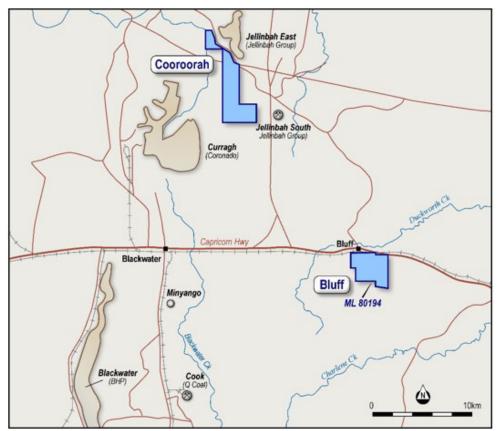
#### **BLUFF**

#### **Current status**

 Bluff is in production with 35Kt shipped prior to 30 June 2022 (BCB release 4 July 2022). The revenue from this shipment has been capitalised, reducing the capital cost of the project.

#### Location

#### Figure 10 Bluff location in central Queensland



Source: BCB presentation on acquisition of option to purchase Bluff 26 October 2021

 Bluff is located 20Km east of the town of Blackwater, on the existing rail line 260Km to the Port of Gladstone.

#### **Acquisition detail**

- On 23 May 2021. Bowen was chosen as the Preferred Bidder for the Bluff asset, and entered into a term sheet with Carabella Resources Pty Ltd (receivers and managers appointed/Controller appointed/In liquidation) pursuant to which it has paid a \$250,000 deposit.
- On 26 October 2021, Bowen announced that it had acquired an option to purchase Bluff for A\$5M, less the deposit of \$0.25M. Bowen exercised the option in early November 2021, paying the A\$4.75M by issuing 27.9M Bowen shares.
- As part of the acquisition, Bowen must pay a royalty which varies with the coking coal price:
  - A\$2/t on all sales if the Premium Hard Coking Coal price is greater than US\$120/t capped at A\$10M, plus
  - A\$5/t on all coal sales if the Premium Hard Coking Coal price is greater than US\$150/t, plus
  - A\$5/t on all coal sales if the Premium Hard Coking Coal price is greater than US\$200/t
- As part of the Taurus funding, Taurus received a 1% gross royalty on Bluff revenue.

#### **Project history**

- The Bluff PCI Mine assets include a granted mining lease (ML80194) and approved Environmental Authority to mine up to 1.8Mtpa of high quality Ultra Low Volatile PCI coal, by open pit from the Aries, Castor, Pollux and Orion seams of the Rangal Coal Measures
- Coal production commenced in Q1 2019 and 1.4Mt was mined up to closure in November 2020.
- Mine output was hauled by road trucks to the nearby Cook Colliery, where it was washed and loaded under a toll washing agreement. Product coal was railed to the RG Tanna coal terminal at the Port of Gladstone, from where it was exported to Asia, to Japanese and Korean steelmakers. Bowen has an agreement to process coal through Cook Colliery.
- Shortly after operations commenced, metallurgical coal prices fell and the previous owners went into voluntary administration in November 2020.
- The Mine acquisition also includes ownership of 1931 ha of grazing land (426 ha within the Mining Lease) on two adjacent Grazing Homestead Perpetual leases.

#### Operating cost depends on mine life

#### Table 20 Bluff can operate for 3-4years at A\$120/t FOB cost or 5-6 years at A\$137/t FOB cost (does not include 15% cost increase)

	Low cost short Life at US\$115/t	High cost Iong life at US\$115/t	High cost Iong life at US\$150/t
Waste MBCM	36.7	70.2	70.2 (p16)
LOM ROM Mt Mtpa	3.8	5.5	5.5 (p16)
Recovery	87%	87%	87%(p16)
LOM Product Mt	3.2	4.6	4.6 (p16)
Assumptions			
Scenario Price US\$/t (release p11)	115	115	150
AUDUSD (release p11)	0.75	0.75	0.75
Sale Price A\$/t	153	153	200
Vendor Royalty Tranche 1 A\$/t (release p2)	2	2	2
Vendor Royalty Tranche 2 A\$/t (release p2)	0	0	5
State Royalty %	12.5%	12.5%	12.5%
Operating Costs A\$/t saleable FOB (release p17)	120	137	137
Sustaining A\$/t Release p16)	1	1	1
LOM P&L A\$M			
Revenue	483	706	921
State Royalty	-60	-88	-115
Vendor Royalty	-6	-9	-32
Costs to FOB	-378	-631	-631
EBITDA	38	-22	143
Sustaining Capex	-3	-5	-5
Acquisition Payment	-5	-5	-5
Pre Tax Cash Flow	30	-32	133

Source: BCB release 30 July 2021, where a page reference to the release is indicated, and the rest of the table is estimated by IIR

- The Bluff mine plan provided by Bowen in the Option announcement on 26 October 2021 provided a detailed mine plan to produce 4.5Mt over 5 years at a cost of A\$137/t. This is one of two scenarios assessed by Bowen, and maximises value at high prices (ie current prices).
- We have used the pieces of detail in the announcement to estimate the lower cost shorter life scenario. Specifically, we have had to estimate the ROM coal production and waste movement, using the unit operating costs provided on page 17 to reconcile back to the cost if A\$120/t FOB excluding royalties provided by Bowen. This lower cost scenario provides a positive cash flow under our Base Case price assumption.
- If the PCI coal price remains high enough to justify the longer mine life, then the company can choose to push back additional overburden and extend the mine life. On our assumptions, the extra 1.45Mt of saleable coal comes at a marginal cost of A\$174/t (or US\$130/t FOB excluding royalties at an AUDUSD rate of 0.75).

- The limit on production rate is the 1.2Mtpa ROM limit of trucking on the road to Cook Colliery coal handling and process plant. The mine has approval to produce up to 1.8Mtpa ROM.
- Note this analysis does not include the 15% cost increase nor the Taurus 1% royalty.

#### Geology

### Table 21 Bluff Resources in 2013– Mineable Reserves were 11Mt, from which 1.4Mt has been mined

Depth	Measured Mt	Indicated Mt	Inferred Mt	Total Mt
<100m	0	2.64	0.12	2.76
100-150m	0	2.96	0.32	3.28
150-200m	0	3.29	0.65	3.94
200-250m	0	2.43	1.24	3.67
Total	0	11.3	2.3	13.6

Source: BCB release 26 October 2021

#### Table 22 Bluff financial model (100% BCB) - Includes the 15% operating cost increase and the 1% Taurus royalty

Bluff	LOM	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
Physicals						
Overburden K BCM	33550	3150	12300	10200	7900	0
Coal Mined ROM Kt	3569	44	1100	1138	1188	100
Coal Processed ROM Kt	3569	44	1100	1138	1188	100
Yield	83%	87%	86%	84%	83%	83%
LVPCI Product Mt	3008	38	946	955	986	83
Operating Cost						
Cash Cost A\$/t Product	135.6	137.0	148.8	139.7	128.2	83.3
Total Cash Cost A\$M	407.4	-19.8	140.8	133.4	126.3	6.9
Revenue						
Sales LVPCI Mt	3008	38	946	955	986	83
Benchmark Prices US\$/t		207	177	156	142	135
AUDUSD		0.72	0.74	0.74	0.75	0.74
Realised Prices US\$/t		363	207	176	156	148
Revenue A\$M	741.6	19.2	269.9	229.0	207.2	16.4
Royalties A\$M	119.5	4.9	44.9	36.5	32.5	2.5
Financials						
Revenue	722.4	0.0	269.9	229.0	207.2	16.4
Cost	-513.1	-0.2	-187.5	-165.4	-151.2	-8.8
EBITDA	209.3	-0.2	82.3	63.6	56.0	7.6
D&A	-21.0	-0.3	-6.6	-6.7	-6.9	-0.6
EBIT	188.4	-0.5	75.7	56.9	49.1	7.1
Тах	-56.5	0.1	-22.7	-17.1	-14.7	-2.1
NPAT	131.9	-0.3	53.0	39.9	34.4	4.9
Sustaining Capex A\$M	3.0	0	0.9	1.0	1.0	0.1
Pre Prodn Capex A\$M	13.2	13.2	0.0	0.0	0.0	0.0
Rehab Bond \$M	9.8	9.8	0.0	0.0	0.0	0.0
Free Cash Pre tax	193.1	-23.3	84.4	65.8	58.3	7.8
Pre Tax NPV		192.2	120.8	62.8	7.7	0
Free Cash Flow After Tax	136.6	-23.1	61.7	4837	43.6	5.7
Post Tax NPV		141.8	89.7	46.8	5.6	0.0

Source: BCB release 26 October 2021, IIR estimates

The revenue and costs relating to the shipment in late June 2022 are likely to be capitalised, as shown.

.....

#### Notes from previous owner

- An assessment of historical data available for Carabella's EPC 2121 (Bluff) indicated that there was an extension of the Jellinbah fault system through the tenement, which created the prospect of bringing seams close to the surface. Carabella identified the Bluff deposit using geophysical surveys and scout drilling in the area during the first half of 2012.
- Just prior to being taken over, Carabella Resources Limited reported Reserves for Bluff of 11Mt mineable and 9.0Mt marketable (release 31 January 2014), implying a recovery of 82%, which is consistent with the 85% indicated in the Concept Study of 16 May 2013 and the 84% in Bowen's release of 26 October 2021.
- There was an exploration target in 2013 of an additional 5-33Mt of underground potential.

#### BURTON MINE AND LENTON PROJECT

#### Summary

- The Burton Mine and wash plant is fully approved and will be ready for restart in early 2023. Lenton has Queensland State approvals in place and will need Federal approval to export. The position taken by the Albanese Labor Government on coal mining in the Climate Policy before the Senate does not include a ban on coal mining, which is positive.
- The Burton Coal Handling and Preparation Plant (CHPP) comprises two modules with a combined capacity of 5.5Mtpa, with a replacement value of A\$300M. This plant and related train loading infrastructure will form the core production assets for Bowen in the short to medium term, providing infrastructure and channel to market for coal from Burton, Lenton, Broadmeadow East, Hillalong and possibly Carborough.
- The initial capital to restart mining operations from one of the two CHPP modules is A\$39.0M, with the cost of refurbishing the second module of A\$18M plus additional security deposits and infrastructure of A\$9.5M totalling A\$66.5M for a complete restart (BCB release 4 August 2021 p6)
- The company's indicative timetable has the first coal from Burton from January 2023, and Lenton around October 2024. In the financial model used in this report, we assume Burton construction starts in mid 2023 and first production in Mid 2024. We have delayed the project start to allow cash build from Broadmeadow East, Bluff and Isaac River.

#### Location (refer Figure 12)

- The CHPP is located approximately 20km north of Broadmeadow East. The Coal Handling and Preparation Plant is currently on care and maintenance, however the re-commissioning process is well understood. The Train Load Out is 36Km by truck south of the CHPP, and links into the Goonyella to Hay Point railway line, about 200 km by rail from the Dalrymple Bay Coal Terminal.
- Both the Burton CHPP and Train Load Out are owned by the New Lenton Joint Venture (Previously New Hope Corporation Ltd, now Bowen 90% & Formosa Plastics Corporation 10%). These assets have been acquired from Peabody along with adjoining mining leases and associated infrastructure as part of the proposed development of their New Lenton Project.
- Peabody retains access rights to the CHPP and Train Load Out.

#### Acquisition detail

- On 4 August 2021, Bowen announced the agreement to purchase the New Hope Group's 90% interest in the New Lenton Joint Venture, which owns 100% of the Burton and Lenton operations for A\$20M (50% payable in shares), up to A\$7.5M in milestone payments, and royalties comprising:
  - A\$0.55/t capped at \$16M,
  - A\$1.65/t in each quarter where HCC over US\$160/t capped at \$24M, and
  - A\$3.30/t for prices over US\$190/t capped at A\$30M
- As part of the Taurus loan, Taurus received a royalty of 0.25% of gross revenue on sales from the Burton mine (but not New Lenton).
- Previously, the New Lenton Joint Venture (then 90% New Hope Group, 10% Formosa Plastics) had purchased the Burton operation from Peabody for A\$14.4M on 27 November 2017. The Joint Venture had owned Lenton for some time.

Burton/Lenton 100%	LOM	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
Physicals						
overburden K BCM	238800	0	8200	19800	24200	25400
OP Production ROM Kt	32900	0	1000	2400	4000	3100
High Wall Mining ROM Kt	840	0	0	0	0	0
Coal Mined ROM Kt	33740	0	1000	2400	4000	3100
Coal Processed ROM Kt	33740	0	1000	2400	4000	3100
Yield						
HCC			24%	35%	31%	34%
Thermal			12%	23%	30%	34%
Product Clean Mt	20827	0	360	1370	2433	2096
HCC	10953	0	240	830	1233	1054
Thermal	9874	0	120	540	1200	1043
Operating Costs	0071	0	120	010	1200	1010
Total Cash Cost A\$/t clean	127.7	107.0	192.2	96.2	109.2	124.5
Total Cash Cost A\$M	2659.5	0.0	69.2	131.8	265.6	260.9
Revenue	2000.0	0.0	00.2	101.0	200.0	200.0
Sales Clean Mt	20827.3	0.0	360.0	1370.0	2433.3	2096.3
HCC	10953.2	0.0	240.0	830.0	1233.3	1053.8
Thermal	9874.1	0.0	120.0	540.0	1200.0	1042.5
Benchmark Prices US\$/t	3074.1	0.0	120.0	540.0	1200.0	1042.0
HCC		246	276	235	208	189
Thermal		113	272	192	153	126
Realised Prices US\$/t						
HCC		225	228	195	170	153
Thermal		272	215	192	151	126
AUDUSD		0.72	0.74	0.74	0.75	0.74
Revenue A\$M						
HCC	2315	0.0	74.3	218.1	281.0	216.5
Thermal	1507	0.0	35	139.6	243.0	176.7
Other (CHPP Profit on Broadmeadow)	30	0.0	4.8	7.3	7.5	7.7
Total	3851	0.0	114.1	365.0	531.5	401.0
Royalties A\$M	609	0.0	18.4	61.3	92.1	67.2
Financials						
Revenue	3851	0.0	114.1	365.0	531.5	401.0
Cost	-3116.7	0.0	-89.4	-190.8	-338.8	-309.0
EBITDA	734.2	0.0	24.7	174.2	192.8	92.0
D&A	-216.3	0.0	-3.7	-14.2	-25.3	-21.8
EBIT	517.9	0.0	21.0	159.9	167.5	70.2
Tax	-155.4	0.0	-6.3	-48.0	-50.2	-21.1
NPAT	362.5	0.0	14.7	112.0	117.2	49.1
Capex A%M	120.0	0.0	39.1	58.4	22.5	0.0
Free Cash Flow After Tax	527.2	0.0	-18.6	72.6	128.1	77.2
Post Tax NPV (100%)		386.0	428.6	387.6	287.4	230.7
Post Tax NPV BCB share		347.4	385.8	348.9	258.6	207.7

Source: BCB release 4 August 2021, IIR estimates

# **ISAAC RIVER PROJECT**

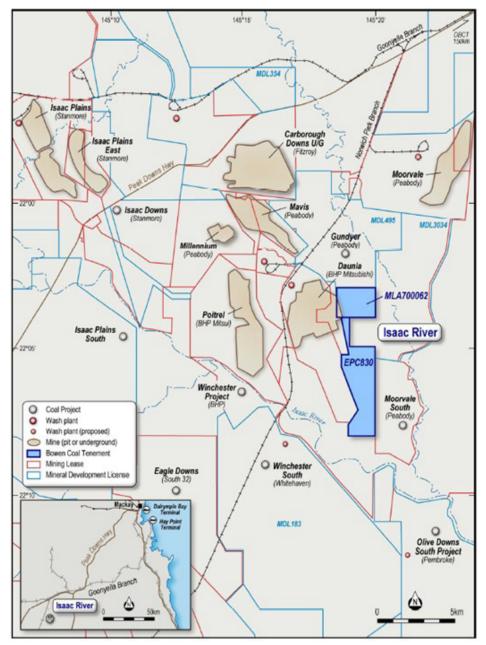
#### **Current Status**

Isaac River requires State and Federal Government approvals.

#### Location

- Located immediately east of BHP Mitsubishi Alliance Daunia Mine and immediately south of Peabody's Moorvale West and Gundyer Projects.
- The most likely processing solution would be the Red Mountain Coal Handling and Preparation Plant serving Poitrel and Millennium, at a haul distance of 10.45Km. Daunia is closer but has no spare capacity. Carborough Downs (Fitzroy) has a processing arrangement with Bowen but is a longer haul and that haul will have to cross the Peak Downs Highway.

#### Figure 11 Isaac River location and neighbours



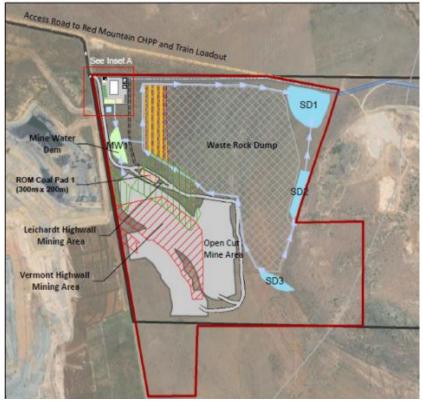
Source: BCB release 28 July 2021

#### Mine Plan

In 2020, a two stage mine plan was envisaged, with Stage 1 of the project is focused on mining the Leichhardt seam (Rangal Coal Measures) at between 25 and 142m deep, 2.5 to 5.5m thick with potential for Semi Soft Coking Coal and Semi Hard Coking Coal and secondary thermal coal or a single PCI (Pulverised Coal Injection) product. Stage 2 was targeting the lower seams.

- The latest mine plan released 28 July 2021 mines 2.65Mt including 2.03Mt from the Leichardt and 0.63Mt from the Vermont, starting in the south-east corner of the proposed pit in Figure 15 and moving north-west in the Leichardt, then mining the Vermont.
- There will remain a gap between the Daunia pit visible in Figure 15 to the west and Isaac River which would be economic coal that be mined if an agreement could be reached between Bowen and the BHP Mitsubishi Joint Venture. We understand that BHP may be selling Daunia, and possibly the rest of its interest in the Joint Venture, so any agreement may have be with new owners.
- It is also not out of the question that the owners of Daunia may end up purchasing Isaac River as a way of extending Daunia's life.
- On 8 November 2021, Stanmore Resources (ASX:SMR) announced it was purchasing assets from BHP Mitsui including the Red Mountain processing plant. Given the connections between Bowen and Stanmore, there should be a processing deal for Isaac River in due course.

#### Figure 12 Proposed Stage 1 open pit



Source: BCB presentation 24 June 2020



#### Table 24 Isaac River financial model (100% BCB)

Isaac River	LOM	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
Physicals						
Overburden K BCM	22860	0	0	5250	5793	5420
OP Production ROM Kt	1810	0	0	375	515	498
High Wall Mining ROM Kt	1625	0	0	0	0	50
Coal Mined ROM Kt	3435	0	0	375	515	548
Coal Processed ROM Kt	3435	0	0	375	515	548
Yield						
HCC				0%	0%	10%
SHCC				46%	46%	39%
LVPCI				34%	33%	27%
Product Clean Mt	2451	0	0	299	407	413
HCC	685	0	0	0	0	54
SHCC	1044	0	0	173	239	212
LVPCI	721	0	0	126	168	147
Operating Costs						
Total Cash Cost A\$/t clean	154.8	117.0	117.0	173.5	155.2	156.9
Total Cash Cost A\$M	1167.4	0.0	0.0	51.8	63.2	64.9
Revenue						
Sales Clean Mt	2450.7	0.0	0.0	298.6	407.0	413.5
HCC	685.3	0.0	0.0	0.0	0.0	54.5
SHCC	1044.3	0.0	0.0	172.7	238.7	212.3
LVPCI	721.2	0.0	0.0	125.9	168.3	146.7
Benchmark Prices US\$/t						
HCC		268	276	235	208	189
SHCC		214	221	188	167	151
LVPCI		201	207	177	156	142
Realised Prices US\$/t						
HCC		228	234	200	177	153
SHCC		214	221	184	167	152
LVPCI		201	207	173	156	143
AUDUSD		0.72	0.72	0.74	0.74	0.75
Revenue A\$M						
HCC	212	0.0	0.0	0.0	0.0	11.2
SHCC	392	0.0	0.0	43.2	53.5	43.1
LVPCI	256	0.0	0.0	29.6	35.4	27.9
Total	860	0.0	0.0	72.8	88.9	82.3
Royalty A\$M	136	0.0	0.0	11.1	13.5	12.5
Financials A\$M						
Revenue	620.3	0.0	0.0	72.8	88.9	82.3
Cost	-95.2	0.0	0.0	-60.9	-73.0	-73.2
EBITDA	86.8	0.0	0.0	11.8	15.9	9.1
D&A	-11.8	0.0	0.0	-1.4	-2.0	-2.0
EBIT	62.9	0.0	0.0	10.4	13.9	7.1
Tax	-18.9	0.0	0.0	-3.1	-4.2	-2.1
NPAT	44.0	0.0	0.0	7.3	9.7	5.0
Capex A\$M	12.0	0.0	2.0	10.0	0.0	0.0
Free Cash Flow After Tax	43.7	0.0	-2.0	-5.7	12.4	7.7
HOU DUSH HOW AILEF IDA	40.7	0.0	-2.0	-J./	33.3	27.9

Source: BCB release 28 July 2021, IIR estimates

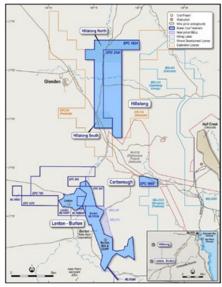
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# HILLALONG PROJECT (BCB FARMING DOWNTO 80%)

#### Location

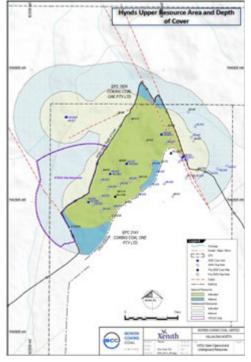
The Hillalong Coking Coal Project (EPC 1824 & EPC2141) is located in the northern Bowen Basin approximately 105 km west-southwest of Mackay, and within 15Km trucking distance to the Burton Coal Handling and Preparation Plant.

Figure 13 Hillalong tenements



Source: BCB presentation 23 August 2021

#### Figure 14 Hillalong North



Source: BCB presentation 24 June 2020

#### **History**

- Farm-In Agreement on the Hillalong Coking Coal Project ("Hillalong"), with SCAP Hillalong Pty Ltd, a wholly owned subsidiary of the Japanese Conglomerate, Sumitomo Corporation. was executed on 7 October 2019 following the previous signing of a Term Sheet.
- A summary of the key terms and conditions of the Farm-In Agreement are as follows:
- Sumitomo to fund \$2.5m of pre-defined exploration expenditure, being the entire phase 1 exploration program for both Hillalong North and Hillalong South, to earn an initial 10% interest in Hillalong (completed);
- Sumitomo has the right to then earn an additional 10% interest, post a further \$5m funding of agreed exploration and study activities at Hillalong (committed); and

**QINDEPENDENT** 29

- Bowen and Sumitomo will form an unincorporated Joint Venture managed by Bowen, post Sumitomo earning either the initial 10% or 20% interest.
- On 11 December 2020, Sumitomo committed to funding of Phase 2, and will spend A\$2.5 million to earn a further 5% interest ie to a total of 15%). The work program includes:
  - Four drill sites targeting the Rangal seams in the southern project area;
  - Seven drill sites targeting the Moranbah seams on the southern nose of the Hillalong anticline;
  - 37 kms of seismic survey covering the northern and southern project areas.

#### Geology

- The tenement comprises 31 sub-blocks (approximately 99km<sup>2</sup>) located to the west of the Mount Hillalong Anticline and is approximately 16 km northwest of the Hail Creek mine, owned by Glencore, Marubeni and Sumitomo. The tenement contains the Moranbah, Rangal and Fort Cooper Coal Measures commencing at surface.
- Two economic coal seams, Elphinstone and Hynds (Leichardt and Vermont equivalents) within the Rangal Coal Measures are currently being mined at nearby mines. Historical exploration by Rio Tinto proved the existence of these seams within the boundaries of the tenement with indicative coking coal qualities aligned with neighbouring mines.
- The reported Hillalong North Resource above 150m of 19.5Mt is open to the east and south-west. The seams in those area dip at 7-10 degrees to the north-northwest.
- Coal seams in the Hillalong South Deposit generally dip to the west at dips of 10-45 degrees. The 2019 drilling encountered a number of intersections between 116m and 167m depth, with seam widths around 5.6m (release 31 August 2021 p2). The implication is that there is potential for open pit coal in the South, at strip ratios of 10-14:1, vs sub 10:1 for the rest of Bowens portfolio.

Depth	Seam	Measured	Indicated	Inferred	Total
Hillalong North					
<150m	Elphinstone		4.0	4.5	8.5
	Hynds Upper		9.1	1.9	11.0
	Subtotal		13.1	6.4	19.5
>150m	Hynds Upper		7.7	15.9	23.7
	Subtotal		7.7	15.9	23.7
	Total		20.8	22.3	43.2
Hillalong South					
OP and UG	Elphinstone		14.3	11.0	25.3
	Hynds Upper		6.5	4.0	10.5
	Hynds Middle		5.0	3.0	8.0
	Total		25.8	18.0	43.8
	Combined		46.6	40.3	87.0

#### Table 25 Hillalong Resources (100% Of project basis)

Source: BCB releases 5 March 2021, 31 August 2021

#### **Table 26 Product Specifications**

Hard Coking	Ash %	Yield %	CSN	Volatiles %	Phos %	Sulphur %	Fluidity ddpm	Rv/Max
Elphinstone	10.5%	84%	7.0	28.8%	0.003%	0.4%	348	0.95%
Hynds Upper	8.5%	66%	7.5	28.2%	0.043%	0.4%	361	0.99%
Thermal	Ash %	Yield %	CV Kcal/kg	Volatiles %	HGI	Sulphur %		
Hynds Upper	16.5%	21%	6730	24.3%	49	0.31%		

Source: BCB releases 5 March 2021

Some of the deposit has been heat effected by volcanics. Heating changes the coal driving off volatiles, typically lowering coal quality and commercial saleability. Sometimes the heat effect can be positive. The table below shows the very positive product specifications at around 80% yield for coal that is not heat effected. In a release of 24 August 2020, Bowen indicated that the heat effected coal tested to date could produce a 12.3% ash 7032kcal/kg coal that could be sold as a PCI product. Further assessment is required, but the company appears to be confident there is a solid case for a commercial operation.

- In our financial model, we assume 15Mt (78% of the 19Mt Indicated Resource above 150m) of the for the North Mine at a Stripping Ratio of 7:1 (BCM:tonne). The strip ratio is close to the average of the depth to top of first seam divided by the first seam thickness, adjusted for relative density of waste vs coal for the reported drilling.
- For the South Mine we assume 10Mt (29% of the total Indicated Resource) at a stripping ratio of 10:1, based on the shallower intersections reported in drilling to date.
- On consensus coal prices and our cost estimates, Hillalong has a negative NPV and has not been included in our NPV based valuations. The project is an option on higher prices or the generation of a mine plan with lower opex.

Hillalong	LOM	Jun-30	Jun-31	Jun-32	Jun-33	Jun-34
Physicals						
Overburden K BCM	127500	12920	21420	38250	38250	9435
OP Production ROM Kt	15000	1520	2520	4500	4500	1110
Auger Mining ROM Kt	0	0	0	0	0	0
Coal Mined ROM Kt	15000	1520	2520	4500	4500	1110
Coal Processed ROM Kt	15000	1520	2520	4500	4500	1110
Yield						
HCC		57.10%	57.10%	57.10%	57.10%	57.10%
Thermal		27.40%	27.40%	27.40%	27.40%	27.40%
Product Clean Mt	12675	1284.4	2129.4	3802.5	3802.5	937.95
НСС	8565	867.92	1438.92	2569.5	2569.5	633.81
Thermal	4110	416.48	690.48	1233	1233	304.14
Operating Costs						
Total Cash Cost A\$/t clean		173.9	179.0	183.1	187.9	190.9
Total Cash Cost A\$M	2316.7	223.4	381.2	696.2	714.3	179.0
Revenue						
Sales Clean Mt	12675.0	1284.4	2129.4	3802.5	3802.5	938.0
HCC	8565.0	867.9	1438.9	2569.5	2569.5	633.8
Thermal	4110.0	416.5	690.5	1233.0	1233.0	304.1
Benchmark Prices US\$/t						
НСС		181.4	183.0	184.3	186.3	188.6
Thermal		92.2	86.5	83.9	84.8	85.9
Realised Prices US\$/t						
HCC		154.2	155.8	156.6	158.4	159.6
Thermal		92.2	85.4	83.9	84.8	85.5
AUDUSD		0.7	0.7	0.7	0.7	0.7
Revenue A\$M						
HCC	1829.8	182.3	305.5	548.3	554.5	137.8
Thermal	481.7	52.3	80.3	140.9	142.5	35.4
Total	2311.5	234.6	385.8	689.2	697.0	173.2
Royalty A\$M	369.3	37.4	61.7	110.2	111.4	27.7
Financials A\$M						
Revenue	2311.5	234.6	385.8	689.2	697.0	173.2
Cost	-2686.1	-260.8	-442.8	-806.4	-825.8	-206.7
EBITDA	-374.6	-26.2	-57.0	-117.2	-128.8	-33.5
D&A	-15.0	-1.5	-2.5	-4.5	-4.5	-1.1
EBIT	-389.6	-27.7	-59.5	-121.7	-133.3	-34.6
Тах	116.9	8.3	17.9	36.5	40.0	10.4
NPAT	-272.7	-19.4	-41.7	-85.2	-93.3	-24.3
Сарех	15.0	0.0	15.0	0.0	0.0	0.0
Free Cash Flow After Tax	-272.7	-17.9	-54.2	-80.7	-88.8	-23.1
Post Tax NPV		-189.9	-161.6	-100.8	-22.3	0.0

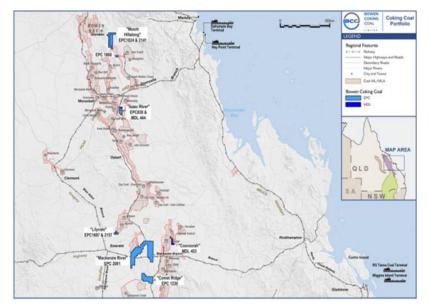
#### Table 27 Hillalong financial model including North and South Mines (BCB farming down to 80%)

Source: IIR estimates

Independent Investment Research

#### **OTHER PROJECTS**

Figure 15 Other projects are located in the Emerald region



Source: BCB presentation 13 March 2019

This report comments separately in Isaac River and Hillalong.

#### COOROORAH PROJECT (MDL 453 100% BCB)

#### **Summary**

- Cooroorah is potentially an underground mine with coal seam depths being between 240m and 540m below surface. These depths are greater than typical in Queensland, but these depths have been mined in the Wollongong region of New South Wales. The average seam thicknesses range from 2m in the Castor seam to 4m in the Mammoth seam.
- Metallurgical testing has indicated average yields of 73% to 90% achieving a washed product ash of 8-9%. There is potential for the Mammoth seam to produce a 3.5% ash, 8–9 CSN coking coal with secondary 10% ash 7560K/kcal/kg PCI for a combined lab yield of more than 90% (ad), which could sell at a premium to the current benchmark price.
- The Resources demonstrated so far include 60Mt in the Mammoth seam. There is no reserve nor mine plan at this stage. Assuming a 66% conversion of Mammoth to Reserves, there could be sufficient coal for a 4Mtpa longwall operation for 10 years.
- By their nature, development of an underground coal mine is both expensive and time consuming, making this a project to be developed once Bowen has a cash flow and a sufficiently strong balance sheet. As an example, Whitehaven's Narrabri Underground Mine started construction in 2008, commenced coal production in 2010, and reached full production at around 6Mtpa in 2012, four years after start of construction. The total capital cost was A\$335M.

#### Geology

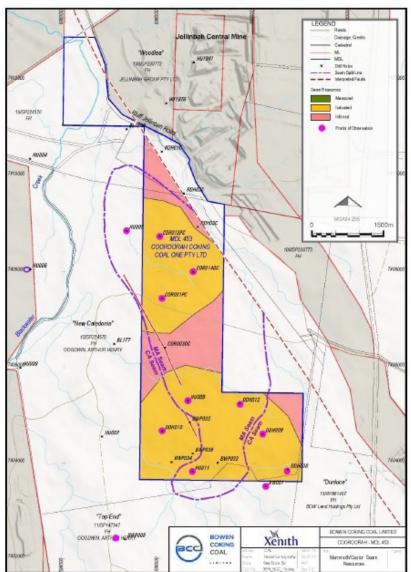
- Cooroorah is situated immediately adjacent to and south of the Jellenbah Coal Mine. It contains sediments from the late Permian Rangal Coal Measures and the Burngrove Formation and Early Triassic Rewan Formation.
- The main exploration target is the coal seams at depth. The main structural element is the Jellenbah Fault which runs northwest to southeast through the MDL and can give a maximum displacement of 600m. The dip of the strata is 3-5% on the southwest portion of the MDL. Dips become much steeper to 15% to the northeast on the northeastern side of the Jellenbah Fault.

#### Table 28 Cooroorah Resources

Seam	Measured	Indicated	Inferred	Total
Aries		4		4
Castor		15	4	19
Mammoth		38	22	60
Pollux		15	11	26
Pisces Upper		24	40	64
Pisces Upper/Lower			4	4
Total		96	81	177

Source: BCB release 3 April 2019

Figure 16 Cooroorah location immediately south of Jellenbah Open Pit Mine



Source: BCB release 12 February 2019

#### LILYVALE (EPC 2157 EPC 1687 15% BCB)

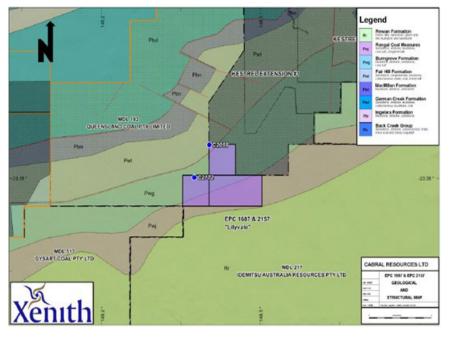
#### Summary

- Bowen owns a 15% interest in the Lilyvale tenements which currently have 33Mt of German Greek seam coal at a depth of between 335m and 425m (2017 prospectus expert report Table 1). This asset probably is better consolidated with surrounding assets to generate a Reserve sufficient to support an underground mine development.
- As majority owner, Stanmore is in the driver's seat, but Bowen's interest does provide significant intelligence on the prospectivity of the neighbourhood in the event any of the surrounding tenement owners decide to sell.

#### Geology

- The Lilyvale Project is situated to the east of the structural zone known as the Comet Platform. The project area contains Late Permian Rangal Coal Measures and the Burngrove Formation, At depth the Fairhill and German Creek Formations have been intersected by drilling, the main target being German Creek.
- Structurally there are no major geological structures identified. Sediments generally dip at low angles of 3-8 degrees to the east-southeast.
- Intersections of the German Creek Formation have included seams 2.4m thick, low in phosphorous and sulphur and yields around 85%. The coal has moderate CSN and fluidity and has potential to produce a blended coking coal.

Figure 17 Lilyvale geology and immediate neighbours



Source Prospectus September 2017

#### COMET RIDGE (EPC 1230 100% BCB)

#### Summary

In 2018, Bowen attempted to sell this tenement for A\$0.1M cash and a 1.25% net revenue royalty on the first 2.8Mt of saleable production, effectively capped at \$3M. The deal fell through, but it probably remains the clearest expression of Bowen's strategic thinking on this asset. At the time of the sale proposal, Bowen noted that neighbour Springsure Creek was better placed to develop Comet Ridge.

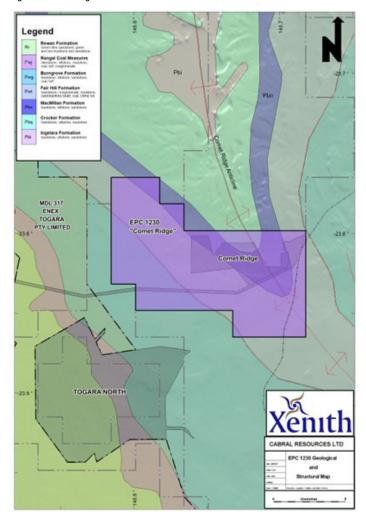
#### Geology

- EPC 1230 is located at the southern end of the Comet Ridge Anticline on the stable basement block known as the Comet Platform. Comet Ridge contains sediments from the Fair Hill and Burngrove Formations which are interpreted to be part of the Blackwater Group.
- Sediments deposited during the Permian and Early Triassic Periods have been weekly deformed and folded resulting in the Comet Ridge Anticline axis striking northwest to Southeast and plunging gently to the south. The limbs of the Anticline dip shallowly to



the east and west at an average 2-4 degrees. Other than the Anticline, there are no major identified structural features.

**Figure 18 Comet Ridge Tenement** 



Source: Prospectus September 2017

# WEIGHTED AVERAGE COST OF CAPITAL

Table 29 Calculation of Weighted Average Cost of Capital

	BCB	SMR	WHC	Source
Cost of Equity				
Estimated Beta	0.85	0.38	0.42	https://au.finance.yahoo.com/quote/Various
Risk Free Rate (Rf)	3.60%	3.60%	3.60%	https://www.rba.gov.au/statistics/tables/
Market RIsk Premium	5.00%	5.00%	5.00%	http://www.market-risk-premia.com/au.html
Market Return (Rm)	8.78%	8.78%	8.78%	
Cost of Equity (Ke)	8.00%	5.57%	5.78%	Ke = Rf + Beta(Rm - Rf)
Cost of Debt				
Cost of Debt (Kd)	12%	10%	10%	New Hope 8-10% + 3mth BBSY ie 2.5%
Gearing D/(D+E)	60.0%	60.0%	60.0%	
Gearing E/(D+E)	40%	40%	40%	
Tax Rate	30%	30%	30%	
Weighted Ave Cost of Capital	8.03%	6.43%	6.51%	W = (Ke * (E/V)) + (Kd * (1-t)*(D/V))

Sources: As noted in table

Actual calculated beta of 0.85 is substantially lower than that of Stanmore or Whitehaven, which is consistent with Bowen being in start up, while the others are established operations. The low Beta of the others suggests that once Bowen is an established producer, there is potential for a lower Beta, possibly a lower cost of debt and a lower weighted cost of capital.

**SINDEPENDENT** 35

# CAPITAL STRUCTURE

#### Table 33 Capital structure at 18 November 2021

	Million
Issued shares M	1542.8
Convertible Notes (A\$40M converting at A\$0.325/sh rising 0.5cps every six months) M equivalent shares	123.1
Options M	43.0
Performance Rights M	15.7
Fully Diluted M	1724.6

Source: BCB releases Issue 5 July 2022

- Board members own over 23% of the company and so have an alignment of interests with other shareholders.
- If Crocodile Capital and Associates is the owner of the A\$40M convertable notes. If the notes were converted to shares, then they would own 15.1% of Bowen's ordinary shares

#### Table 31 Major shareholders and total shares on issue at 20 September

	Individual Holdings M	Combined Holdings M	Share%
Latimore Family ATF	154.3		
M Resources Pty Ltd	15.0		
Metres P/L	55.0		
Matthew Latimore	2.3	226.6	14.7%
Crocodile Capital & Assoc		128.1	8.8%
IIIwelia Pty Ltd		104.5	6.8%
Nick Jorss		66.0	4.3%
Cape Coal Pty Ltd	54.8		
Gerhard Redelinghuys	7.4	62.2	4.0%
Subtotal		587.5	38.1%
Other Shareholders		955.3	61.9%
Issued Shares		1542.8	100.0%

Sources: BCB change in directors interests and substantial shareholders releases 2, 3 and 7 June 2022

# **BOARD AND MANAGEMENT**

#### Nick Jorss – Executive Chairman

- Nick Jorss was the founding Managing Director and a substantial shareholder of Stanmore Coal Ltd (via St Lucia). Nick served on Stanmore's Board from its formation in June 2008 through 26 November 2016. He has over 20 years' experience in investment banking, civil engineering, corporate finance and project management.
- Nick was instrumental in the success of Stanmore Coal Ltd. As the Founding Managing Director, Nick led Stanmore's growth from a coal exploration company to a profitable, mid-tier producer. In his prior roles in investment banking (as a director of Pacific Road Corporate Finance) he has been involved in leading advisory mandates with corporate, government and private equity clients across industry sectors ranging from resources to infrastructure.
- Prior to this Nick was an engineer with Baulderstone Hornibrook where he delivered significant infrastructure and resources projects over a period of approximately eight years.
- Nick is a founding shareholder and Director of St Lucia Resources, Kurilpa Uranium and Wingate Capital. He was previously a Director of Vantage Private Equity Growth, Vantage Asset Management and WICET Holdings Pty Ltd. During the past three years Nick has not served as a Director of any other ASX listed companies.
- Nick joined the Bowen Board on 13 December 2018.

#### **Gerhard Redelinghuys – Managing Director and CEO**

Mr Redelinghuys is the Managing Director of Cape Coal and has 24 years experience in financial and project development within the mining sector. After studying finance at the University of Pretoria in South Africa, Gerhard joined Price Waterhouse Coopers, before commencing his employment with EXXARO Resources Ltd (former ISCOR and KUMBA) Resources) in 1995. Since 1995 he has held various senior management positions in both open cut and underground mining operations in South Africa.

- He has held directorships in Australia, including the position of Managing Director of Exxaro Australia Pty Ltd. In addition to his business analysis experience, Gerhard has extensive experience in mining project acquisitions and deal making on an international level. Gerhard was the owner's representative on a multi-billion underground coal project in Queensland. In 2013, Gerhard became a graduate member of the Australian Institute of Company Directors.
- Gerhard joined the Bowen Board on 26 September 2017.

#### Neville Sneddon – Non-Executive Director

- A mining engineer with over 40 years' experience in most facets of the Queensland and NSW resource sectors, and as the recently retired Chairman of Stanmore Coal Ltd, Neville brings substantial Board and industry knowledge to BCB. He has developed and operated both underground and open cut mines working for Coal & Allied in the Hunter Valley and from 1997 worked in a senior role in the NSW Mines Inspectorate, covering operations in all forms of mining in the state.
- Moving to Queensland in 1999, Neville accepted the position of Chief Operating Officer with Shell Coal which was acquired by Anglo American's Australian coal operations the following year. Leaving as CEO in 2007, he held several Board positions with mining and infrastructure companies including Chairman of the operating company at Dalrymple Bay Coal Terminal near Mackay and Director of Port Waratah Coal Services, a major coal export facility at Newcastle.
- Neville has also been a member of the Boards of the Queensland, NSW and National Mining Councils. His expertise has been sought by several government committees such as the NSW Mine Subsidence Board, NSW Mines Rescue Board, Queensland Ministerial Coal Mine Safety Advisory Committee and the joint federal/ state advisory committee which is developing nationally consistent mining safety legislation. During the past three years, Neville served as the Non-Executive Chairman/Director of Stanmore Coal Limited from 5 October 2009 to 31 March 2018. Neville is not a Director of any other listed companies.
- Neville joined the Bowen Board on 13 December 2018.

#### Matthew Latimore – Non-Executive Director

- Mr Latimore is the founding Managing Director of M Resources, which specialises in marketing coking coal, including hard coking coal, semi hard coking coal, semi soft coking coal and PCI coals for steel manufacturing.
- Prior to establishing M Resources, Matt held the position of General Manager Sales and Marketing, for Wesfarmers Curragh mine and was responsible for global sales of Curragh metallurgical coal products to international steel mills and thermal coal to domestic and international power utilities, rail and port and quality and finance functions. Matt was a Director of Curragh Coal Sales.
- Prior to joining Wesfarmers in early 2001, Matt held various positions with Mitsui & Co (Australia) Pty Ltd.
- Matt joined the Bowen Board on 17 June 2020.

#### **Duncan Cornish – Company Secretary**

- Mr Cornish was the founding CFO and Company Secretary for both Stanmore Coal Ltd (ASX:SMR) and Cokal (ASX:CKA) and is a Chartered Accountant with significant experience as a public company CFO and Company Secretary, focused on finance, administration and governance roles.
- He has more than 20 years' experience in the accountancy profession both in England and Australia, mainly with the accountancy firms Ernst & Young and PricewaterhouseCoopers. He has extensive experience in all aspects of company financial reporting, corporate regulatory and governance areas, business acquisition and disposal due diligence, capital raising, company initial public offerings and company secretarial responsibilities, and has served as CFO and/or Company Secretary of several Australian and Canadian public companies.

#### **Daryl Edwards – Chief Financial Officer**

- Mr. Edwards is a Chartered Accountant with over 22 years' experience in the mining and manufacturing industries.
- He has held various executive positions including CEO of a private Australian coal explorer, Pioneer Coal, and CFO and Head of Corporate Development for Universal Coal plc (ASX:UNV) for over 7 years, where he managed the commercialisation of the 4Mpta Kangala Colliery and the 3.3Mtpa New Clydesdale Colliery.
- Previously, Daryl was CFO at Asenjo Energy, a Botswana-based coal exploration and development company, held privately by Aquila Resources, Sentula Mining and Jonah Capital.
- He joined the company on 2 February 2021.

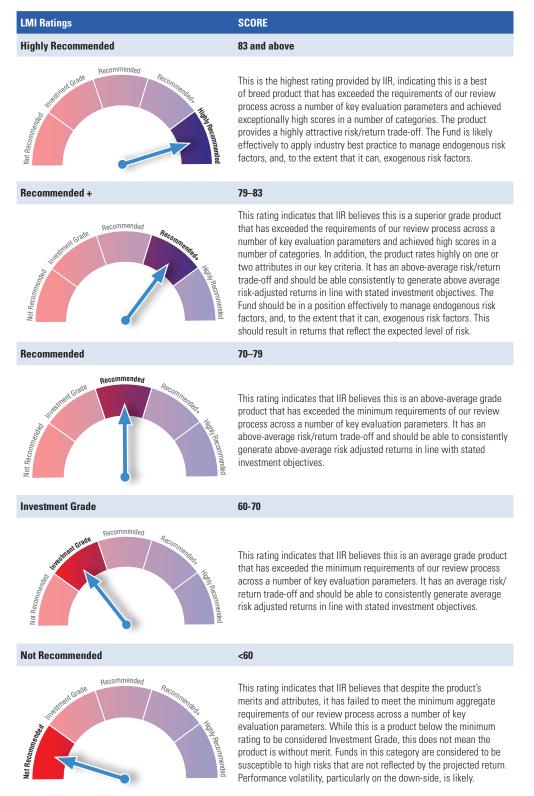
Notes:



# **APPENDIX A – RATINGS PROCESS**

#### Independent Investment Research Pty Ltd "IIR" rating system

IIR has developed a framework for rating investment product offerings in Australia. Our review process gives consideration to a broad number of qualitative and quantitative factors. Essentially, the evaluation process includes the following key factors: management and underlying portfolio construction; investment management, product structure, risk management, experience and performance; fees, risks and likely outcomes.



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For further information, please contact IIR at: client.services@ independentresearch.com.au



# Independent Investment Research (Aust.) Pty Limited

SYDNEY OFFICE Level 1, 350 George Street Sydney NSW 2000 Phone: +61 2 8001 6693 Main Fax: +61 2 8072 2170 ABN 11 152 172 079

MELBOURNE OFFICE Level 7, 20–22 Albert Road South Melbourne VIC 3205 Phone: +61 3 8678 1766 Main Fax: +61 3 8678 1826

HONG KONG OFFICE 1303 COFCO Tower 262 Gloucester Road Causeway Bay, Hong Kong

DENVER OFFICE 200 Quebec Street 300-111, Denver Colorado USA Phone: +1 161 412 444 724

MAILING ADDRESS PO Box H297 Australia Square NSW 1215