

# BCI Minerals Limited

## Bulk Materials - Producer

Australian Equity Research  
21 October 2020

Rating  
**SPECULATIVE BUY**

Price Target  
**A\$0.50**

BCI-ASX

Price  
**A\$0.24**

### Market Data

52-Week Range (A\$) :	0.10 - 0.27
Avg Daily Vol (000s) :	2,166
Market Cap (A\$M) :	143.3
Shares Out. (M) :	598.0
Dividend /Shr (A\$) :	0.00
Dividend Yield (%) :	0.0
Net Debt (Cash) (A\$M) :	(81.5)
Enterprise Value (A\$M) :	112

FYE Jun	2020A	2021E	2022E	2023E
EBITDA (A\$M)	3.6	(1.4)	1.2	(4.2)
Net Income (A\$M)	0.4	(4.7)	1.0	(3.0)
Net Debt (Cash) (A\$M)	(41)	(32)	(87)	205



Source: FactSet

Priced as of close of business 20 October 2020

BCI Minerals Ltd is a resource company, which engages in the exploration and development of assets in the Pilbara region of Western Australia. It operates through the following segments: Iron Valley, Mardie, Buckland, and Other. The Other segment include corporate and other assets. The company was founded in 2006 and is headquartered in West Perth, Australia.

Canaccord Genuity (Australia) Limited has received a fee as Joint Lead Manager to the BCI Minerals Limited Capital Raising announced 14 September 2020

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## Potential tier 1 asset with multi-generational earnings

We initiate coverage of BCI Minerals (BCI) with a SPECULATIVE BUY rating and a 12-month target price of \$0.50. BCI is an industrial minerals company primarily focused on developing its 100%-owned Mardie Salt project, situated on the West Pilbara coast of Western Australia. The company has a robust balance sheet with a net cash position of ~\$81.5m (August 2020), a supportive long-term major shareholder in Australian Capital Equity Ltd (ACE, 39.6%) and an experienced management team that we believe has a track record of seeing companies through to production and executing value accretive transactions.

### Multi-generational earnings potential

The July 2020, the Mardie definitive feasibility study (DFS) outlined a project producing 4.4mtpa salt and 120ktpa SOP fertiliser and generating steady-state annual EBITDA of \$197m over a 60+ year project life. It is this longevity which differentiates BCI from its shorter mine-life peers and should, in our view, ultimately result in BCI trading in line with more mature global comps such as Compass Minerals, Mosaic, ICL and K+S who are on 8-10x EV/EBITDA. We are bullish on BCI's share price prospects.

### Salt demand is growing and this is a tier 1 project, in our view

We believe the Mardie Salt project has the potential to be a clear tier 1 asset, as categorised by its: 1) long life (60+ years); 2) top quartile scale (4.4mtpa); 3) lowest quartile salt operating costs (after SOP by-product credits); 4) high quality product (99.5% NaCl); and 5) Western Australia location (#1 ranked mining jurisdiction in 2019). With Asian salt demand continuing to grow (+2.5% CAGR since 2010) on the back of thematics such as urbanisation, we believe the market window is open for a new high-quality solar evaporation project in Australia.

### Balance sheet positioned to accelerate early works, concessional funding likely

The capex hurdle for BCI is large (\$779m in upfront capital) but not insurmountable, in our view, given the funding interest shown by the Northern Australia Infrastructure Facility (NAIF) which has entered the formal due diligence phase, and positive engagement with commercial banks (term sheets currently being negotiated). The company is targeting a conventional funding model with a 65:35 debt:equity split and a preference for any equity injection to be at the corporate, not the project, level.

With \$81.5m in cash on the balance sheet and no debt, the company has been able to bring forward early works (e.g. trial pond, pumping stations, infrastructure) and procure long lead items ahead of pond construction targeted for June 2021.

### EPA approvals targeted for MarQ'21

Mardie's draft Environmental Review Document was submitted in mid-2019 following three years of detailed environmental studies. There is no doubt that this has been a protracted process, but with the public environmental review now closed, BCI expects to achieve EPA endorsement and Ministerial Approval in early 2021. We view environmental permitting as a clear barrier to entry for rival projects.

### An iron ore business which is more than just a side hustle

Iron Valley is a direct shipping iron ore (DSO) mine in the Central Pilbara, which is operated by Mineral Resources Limited with BCI receiving a royalty. Since 2014, this agreement has generated BCI more than \$75m in EBITDA from the sale of around 34Mt of iron ore. With Ore Reserves of around 80Mt, we believe this income stream is likely to continue for a number of years, and given iron ore prices have increased 28% in CY20, there is potential upside risk to our forecasts, based on a long-term 62% fe price of US \$70/t.

Figure 1: Financial summary

FY Jun 30	2019A	2020A	2021E	2022E	2023E		2019	2020	2021E	2022E	2023E
<b>PROFIT &amp; LOSS (A\$m)</b>						<b>KEY ASSUMPTIONS</b>					
Revenue	54	77	74	73	57	Salt (US\$/tonne)	30	30	30	30	35
Operational Costs & Royalty	-42	-53	-58	-58	-47	SOP (US\$/tonne)	500	500	500	525	509
Other Income	20	11	2	2	2	Iron ore fines (US\$/tonne)	75	90	82	81	66
Business Devt & Expl	-10	-19	-13	-10	-10	Iron ore lump (US\$/tonne)	93	105	90	92	76
Corporate & Other	-8	-11	-6	-7	-7	A\$/US\$	0.71	0.72	0.72	0.72	0.72
<b>EBITDA</b>	<b>14</b>	<b>4</b>	<b>-1</b>	<b>1</b>	<b>-4</b>	<b>PRODUCTION</b>					
DD&A	-3	-3	-5	0	0	Salt (kt)	0	0	0	0	0
Other	0	0	0	0	0	SOP (kt)	0	0	0	0	0
<b>EBIT</b>	<b>11</b>	<b>0</b>	<b>-6</b>	<b>1</b>	<b>-4</b>	<b>RESERVES AND RESOURCES</b>					
Net Financing	0	0	0	0	0	Iron Valley Resources	189Mt at 58.0% Fe				
<b>NPBT</b>	<b>11</b>	<b>0</b>	<b>-6</b>	<b>1</b>	<b>-4</b>	Iron Valley Reserves	89Mt at 58.3% Fe				
Tax	2	0	1	0	1	<b>PER SHARE DATA</b>					
<b>Normalised NPAT</b>	<b>13</b>	<b>0</b>	<b>-5</b>	<b>1</b>	<b>-3</b>	Average Shares (Diluted, M)	199	397	668	1222	1222
Sig Items, Discon Ops & Mins	0	0	0	0	0	EOP Shares (Diluted, mn)	397	397	1222	1222	1222
<b>Reported NPAT</b>	<b>13</b>	<b>0</b>	<b>-5</b>	<b>1</b>	<b>-3</b>	Normalised EPS (A¢/sh)	6.5	0.1	-0.7	0.1	-0.2
Effective income tax rate	-13%	0%	24%	15%	30%	CF PS (A¢/sh)	-3.1	1.1	-1.0	-0.1	-0.1
<b>CASHFLOW (A\$m)</b>						FCF PS (A¢/sh)	10.4	2.0	-8.2	-15.9	-23.9
Cash receipts	40	82	74	73	57	<b>RATIOS</b>					
Payments to suppliers	-48	-78	-77	-75	-64	Dividend Yield	0%	0%	0%	0%	0%
Interest received	1	0	0	0	0	PE	3.9	261.3	n/a	308.0	n/a
Interest paid	0	0	0	0	0	PCF (Debt Adj)	n/a	22.6	n/a	n/a	n/a
Other	2	0	-3	0	6	EV / EBITDA	4.7	16.4	n/a	186.9	n/a
<b>Operating Cashflow</b>	<b>-6</b>	<b>4</b>	<b>-7</b>	<b>-1</b>	<b>-1</b>	Gearing (ND / ND + E)	n/a	n/a	n/a	n/a	34%
Payments for PP&E	0	0	0	0	0	Net Debt / EBITDA	-2.4x	-11.5x	22.2x	-75x	-48x
Payments for Development	0	0	-38	-183	-276	Interest Cover	0.0x	12x	-206x	0.0x	0.0x
Payments for Exploration	-3	-10	-10	-10	-10	ROE (Reported Profit / Av Equity)	22%	0%	n/a	0%	n/a
Asset Sales / (Purchases)	27	0	0	0	0	ROIC	16%	0%	n/a	0%	n/a
Other	3	14	0	0	-5	ROACE	13%	0%	n/a	0%	n/a
<b>Investing Cashflow</b>	<b>27</b>	<b>3</b>	<b>-48</b>	<b>-193</b>	<b>-291</b>	FCF Yield	42%	8%	-33%	-64%	-96%
Share Issuance / (Buyback)	0	0	48	250	0	<b>DIVIDEND AND FRANKING</b>					
Drawdown / (Repayment) of Debt	0	0	0	0	292	Dividend (A¢/sh)	0	0	0	0	0
Dividends	0	0	0	0	0	Payout ratio	0%	0%	0%	0%	0%
Other	0	0	-3	0	0	Franking Balance (A\$m)	0	0	0	0	0
<b>Financing Cashflow</b>	<b>0</b>	<b>0</b>	<b>45</b>	<b>250</b>	<b>292</b>	<b>VALUATION</b>					
Surplus / Defecit	21	8	-10	56	0	Iron Valley	<b>Risked</b>		<b>Unrisked</b>		
<b>BALANCE SHEET (A\$m)</b>						Mardie	0.09		0.09		
Current Assets	64	70	63	119	113	EV adjustments	0.11		0.11		
Non-Current Assets	79	86	129	322	608	<b>TOTAL</b>	<b>0.50</b>		<b>0.69</b>		
<b>Total Assets</b>	<b>143</b>	<b>156</b>	<b>192</b>	<b>441</b>	<b>721</b>	<b>PREMIUM/(DISCOUNT)</b>	<b>0.0</b>				
Current Liabilities	18	19	19	19	33	<b>PRICE TARGET</b>	<b>0.50</b>				
Non-Current Liabilities	8	13	12	12	290						
<b>Total Liabilities</b>	<b>27</b>	<b>32</b>	<b>31</b>	<b>31</b>	<b>323</b>						
<b>Net Assets</b>	<b>117</b>	<b>124</b>	<b>161</b>	<b>410</b>	<b>398</b>						
Total Cash	34	42	32	87	87						
Total Debt	0	1	0	0	292						
<b>Net Debt</b>	<b>-34</b>	<b>-41</b>	<b>-32</b>	<b>-87</b>	<b>205</b>						

Source: Company reports, Canaccord Genuity estimates

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## 1. A tier 1 opportunity, in our view

We believe the Mardie Salt project has the potential to be a clear tier 1 asset as categorised by its: 1) long life (60+ years); 2) top quartile scale (4.4mtpa); 3) lowest quartile salt operating costs (after SOP by-product credits); 4) high quality product (99.5% NaCl); and 5) Western Australia location (#1 ranked mining jurisdiction in 2019). With Asian salt demand continuing to grow (+2.5% CAGR since 2010) on the back of thematics such as urbanisation, we believe the market window is open for a new high-quality solar evaporation project in Australia.

We initiate coverage on BCI with SPECULATIVE BUY and SOTP-based price target of \$0.50. The company is on track for a final investment decision at Mardie in 1H21 and we expect increasing news flow and catalysts leading into this event.

### **A multi-generational earnings stream...**

Mardie will utilise the seawater of the Indian Ocean to produce 4.4mtpa of high purity salt (>99.5% NaCl) and 120ktpa of sulphate of potash (SOP) (>52% K2O) via solar evaporation. With an inexhaustible resource and location selection which has considered the potential impact of rising sea levels Mardie will, in our view, be generating revenues beyond 2080. This is not a 'hero statement', in our view, it is simply an acknowledgement of what has occurred at the likes of Pilbara Salt at 53 years and Shark Bay Salt at 47 years.

It is this longevity which differentiates BCI from its shorter mine-life peers. The recently completed definitive feasibility study (DFS) for Mardie highlighted a \$197m/year EBITDA project and pre-tax NPV of \$1,197m. With more mature global comparable companies such as Compass Minerals, Mosaic, ICL and K+S trading on 8-10x EV/EBITDA, we are bullish on BCI's share price prospects.

### **...which will likely be built using concessional funding, in our view**

The capex hurdle for BCI is large (\$779m in upfront capital) but not insurmountable, in our view, given the funding interest shown by the Northern Australia Infrastructure Facility (NAIF) which has entered the formal due diligence phase, and positive engagement with commercial banks (term sheets currently being negotiated). The company is targeting a conventional funding model with a 65:35 debt:equity split and a preference for any equity injection to be at the corporate, not the project, level (see [Funding strategy: NAIF an important part of the puzzle](#)).

### **Offtake partners identified...**

BCI confirmed it has 13 non-binding salt offtake MOUs and two non-binding SOP offtake MOUs secured with credible Asian buyers, which accounts for 100% of Mardie's three-year salt production and 65% of five-year SOP production.

### **...and early works underway**

Post its \$48m rights issue, we estimate that BCI has ~\$81.5m in cash and a relatively fungible asset in its iron ore royalty, which we value at \$57m (see: [Valuation summary](#)). This strong cash position has enabled the company to accelerate its early works (e.g. trial ponds, major roads, etc) and order long lead time items (e.g. pumps).

### **Key potential catalysts and milestones pre-FID**

- FEED conclusion and EPC award targeted for early CY21.
- Environmental approvals the company targets for MarQ'21.
- Conversion of MOUs to binding offtake agreements.
- NAIF commitment and funding finalisation.

## 2. Valuation summary

We have valued BCI using a sum-of-the-parts methodology, deriving a price target of \$0.50 per share which has been risked for the development of Mardie. We have applied a discounted cash flow (DCF) valuation for Mardie, the Iron Valley royalty and the company's corporate costs. A nominal value was given to the other assets and deferred payments.

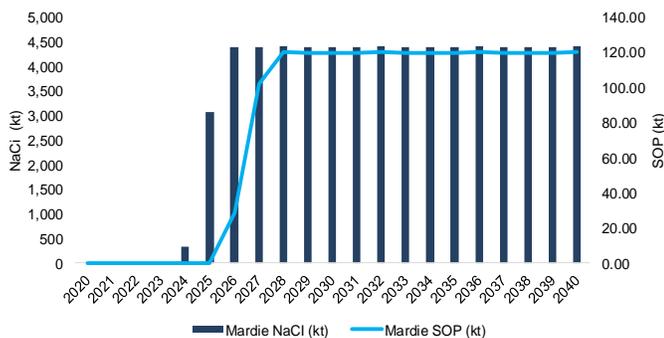
Our valuation methodology for each segment is described in further detail below.

### Mardie project

We have used a discount rate of 10% and a risk weighting of 50% to derive our DCF valuation of \$171M, or \$0.29 per share. The 50% risk weighting reflects the uncertainties around timing, funding and equity capital requirements. As the project moves forward it will progressively be de-risked and our assumptions revised accordingly.

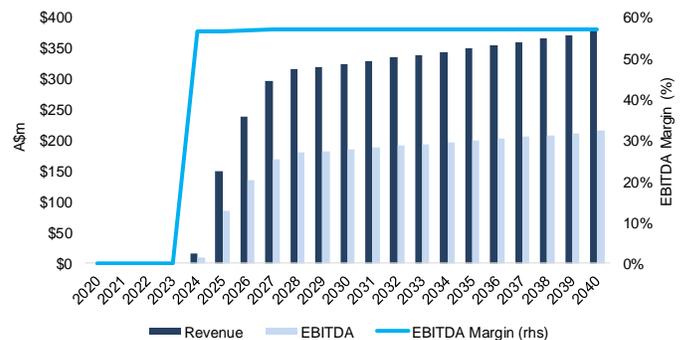
Figure 2 and Figure 3 below illustrate our assumed production profile at Mardie, along with are modelled revenue and EBITDA profile out to 2040 (60-year life used for valuation).

Figure 2: Mardie NaCl and SOP production profile



Source: Canaccord Genuity estimates

Figure 3: Mardie revenue and EBITDA profile as modelled

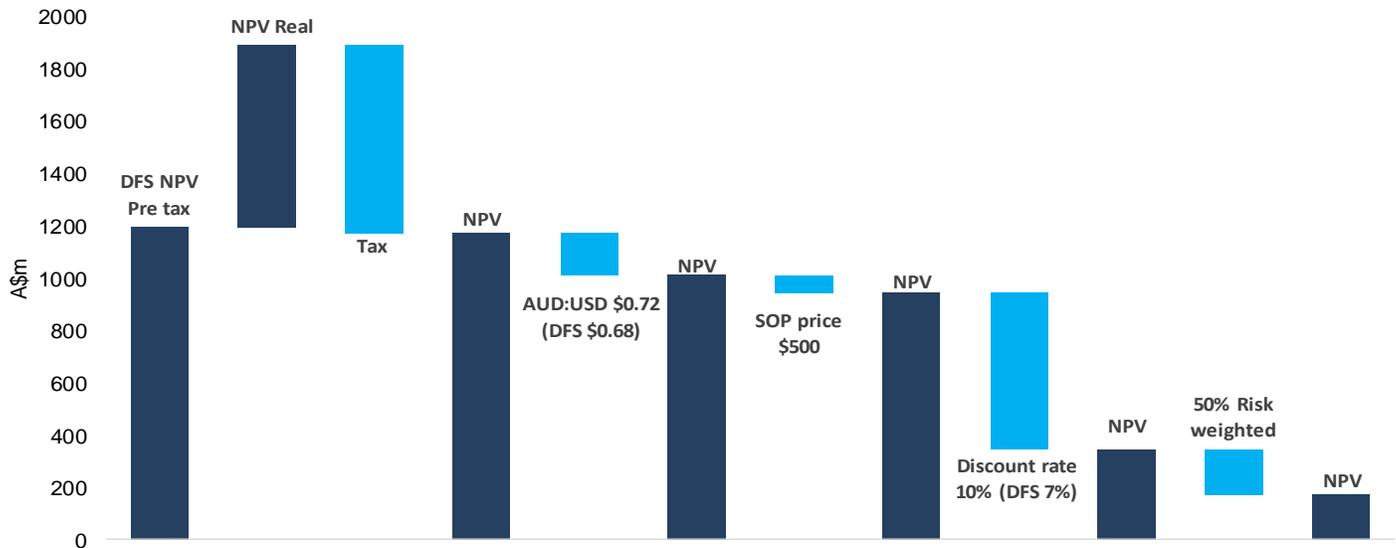


Source: Canaccord Genuity estimates

In deriving our valuation, we utilise a salt price of US\$34 and an SOP price of US\$500/t (inflating @ 1.5% p.a.). As discussed in the market sections of this report, we see a robust outlook for both salt and SOP pricing underpinned by a steady demand growth trajectory. We remain of the view that our price outlook is somewhat conservative, and even on this 'base case' price assumption, the EBITDA margins (~55%) are some of the best of any sector in mining.

Figure 4 outlines CGe modelling differences in assumptions on the Mardie project NPV versus the DFS.

Figure 4: CGe Mardie valuation changes to DFS



Source: Canaccord Genuity estimates

### Iron Valley

We have used a discount rate of 10% to derive our DCF valuation of \$57m, or \$0.09 per share. Our long-term price forecast is \$US70/t for 62% Fe, well below the current price. See [Iron Valley overview](#) for more detail.

### Net cash, corporate costs, deferred payments, etc

BCI currently has ~A\$81m in cash, as well as ~A\$28m in receivables which are partially offset by payables, corporate costs, etc.

Figure 5: Our sum-of the parts valuation for BCI

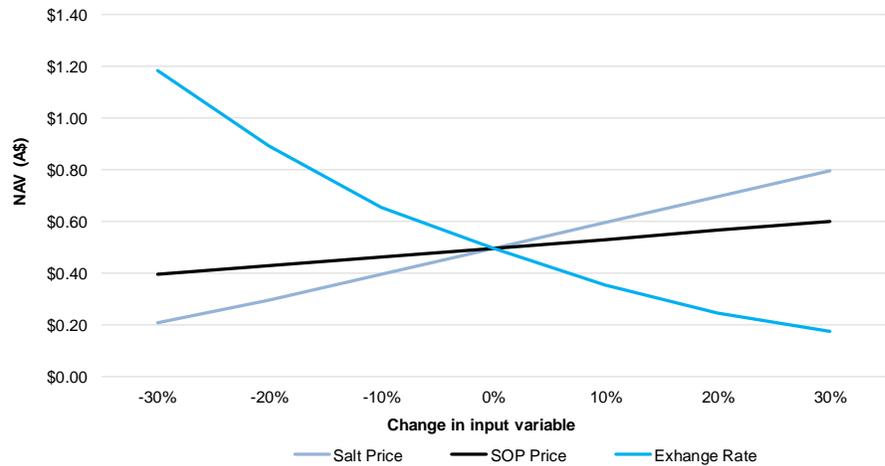
Asset	Equity %	Net Capacity ktpa	NPV A\$m	Risking %	Risked NPV A\$m	Risked NPV A\$ps
Iron Valley		7500	56.6	100%	57	0.09
<b>PRODUCTION ASSETS</b>					<b>57</b>	<b>0.09</b>
Mardie		4,400	342.9	50%	171	0.29
<b>DEVELOPMENT ASSETS</b>					<b>171</b>	<b>0.29</b>
<b>RESEOURCES</b>					<b>0</b>	<b>0.00</b>
<b>EXPLORATION</b>					<b>0</b>	<b>0.00</b>
<b>Net Debt, Balance sheet adj. &amp; corp. overhead</b>						<b>0.11</b>
Premium / (Discount)						0.00
<b>Price Target</b>						<b>0.50</b>

Source: Canaccord Genuity estimates

### Sensitivity analysis

Unsurprisingly, our valuation is mostly sensitive to changes in the exchange rate and salt price assumptions, as approximately 75% of the projects revenue is generated by salt which is priced in US\$. The project valuation is less sensitive to changes in the SOP price assumption, which is due to the lower amount of revenue generated from the product.

**Figure 6: Risked valuation sensitivity - SOP price, salt price and USD:AUD**



Source: Canaccord Genuity estimates

We have utilised a relatively generic 10% WACC for our DCF analysis, but acknowledge the potential for debt to be provided on concessional terms; sensitivity analysis is presented in Figure 7.

**Figure 7: Risked valuation sensitivity to cost of funding using a 65:35 debt-to-equity ratio**

Cost of Debt	\$/ps	Cost of Equity					
		9%	10%	11%	12%	13%	14%
4%	1.05	0.90	0.77	0.66	0.57	0.49	
5%	0.99	0.84	0.72	0.62	0.53	0.46	
6%	0.93	0.80	0.68	0.59	0.51	0.44	
7%	0.88	0.75	0.64	0.55	0.48	0.41	
8%	0.83	0.71	0.61	0.52	0.45	0.39	
9%	0.78	0.67	0.58	0.50	0.43	0.37	

Source: Canaccord Genuity estimates

### 3. Company background

BCI (formerly BC Iron) is well known to the investment community through its successful operation of the Nullagine project in the Pilbara region of Western Australia. In 2009, BCI established a joint venture with Fortescue Metals Group Limited, and by early 2011, became the first junior minor to gain access to an iron ore major's port and rail infrastructure. Nullagine was a successful operation for BCI shareholders for a number of years, with approximately \$100m being paid out in dividends.

In 2014, BCI acquired Iron Ore Holdings in a friendly scrip-based takeover which included the Iron Valley, Buckland and Mardie assets. Around this time, Mineral Resources commenced production at the Iron Valley mine, which continues to generate royalty-type cash flows for BCI.

As a result of falling iron ore prices, the Nullagine project was sold to Fortescue in 2016 and BCI shifted its focus toward growth and asset diversification. In line with the company's growth strategy to consider assets in commodities with strong long-term growth profiles, BCI commenced studies at the Mardie project in 2017 and it has continued to be the company's main focus following the positive results outlined in the numerous studies completed to date.

**Figure 8: BCI share price history and major events**



Source: FactSet, Canaccord Genuity estimates

## 4. Salt: a quick primer

We dive into more detail on the salt market in [Appendix 1](#). The salt market, but given the market is relatively unknown to most, we provide a quick primer below.

### A long established and large market

Salt has been used for various applications for thousands of years. Today, it is used in over 10,000 applications across a range of traditional and new age industries for a total consumption of ~350mtpa, equating to a US\$15b annual market. To put this in perspective, this is comparable in size to the global silver market, larger than lead, lithium, uranium and all mineral sands. Importantly for Mardie, Asia makes up ~45% of the market (growing at ~2.5% p.a. since 2010).

### One of the most important materials in the chemical industry

Salt is one of the most widely used materials in the chemical industry, with thousands of chemical and industrial products needing salt at some stage of their development. Its primary industrial uses are in the production of soda ash, caustic soda and chlorine; these products are then used in numerous industrial processes including the manufacture of glass, plastics, rubber and many other products.

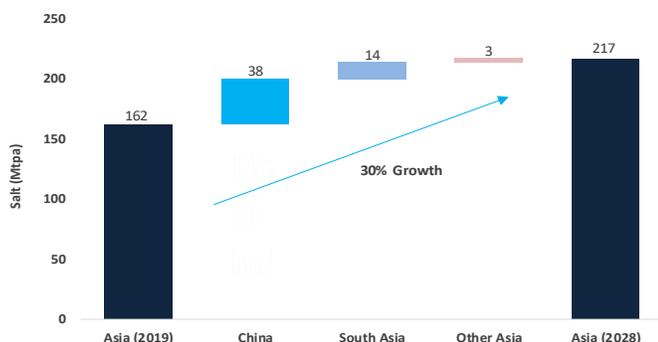
### Chlor-alkali industry to drive growth (particularly in Asia)

The steady growth of the world economy is increasing the global consumption of salt, especially in Asia, where, according to industry consultants Roskill, salt demand is forecast to increase significantly over the next 10 years (+30%). This demand can be attributed to the increased production of chlorine, caustic soda and soda ash, which will mainly be driven by the expansion of the chlor-alkali industry (the chemical process in which chlorine and caustic soda are formed) and the increasing number of water treatment plants expected by Roskill to be developed throughout Asia in the coming years.

### China is the largest producer, but this will likely diminish

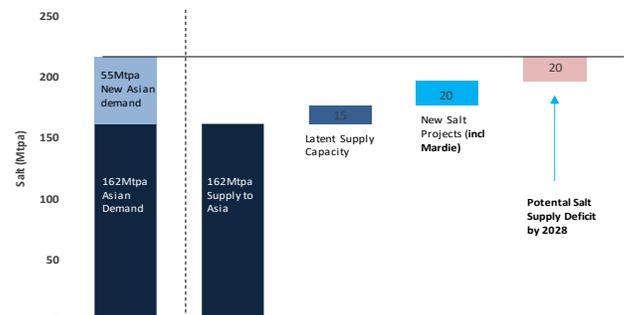
Currently, China produces the majority of salt globally, producing a total of 90mt in 2019. However, urbanisation due to a rapidly growing Chinese middle class is significantly increasing the demand for coastal regions, the areas where existing salt fields are operating. We therefore expect Chinese production of salt to diminish in the future. This reduction in salt produced internally will result in an increased demand for imported salt, we believe specifically from Australia, as its high-grade nature caters to the membrane cell method used for the chlor-alkali process.

**Figure 9: Roskill forecasts Asian salt demand will grow by 30% by 2028, driven by a growing chlor-alkali industry and an increasing number of water treatment plants**



Source: Roskill, BCI Minerals, Canaccord Genuity estimates

**Figure 10: Asian salt demand/supply balance 2019-28. Even with up to 20mtpa of salt coming to market by 2028, we think there is still potentially a 20mtpa supply deficit**

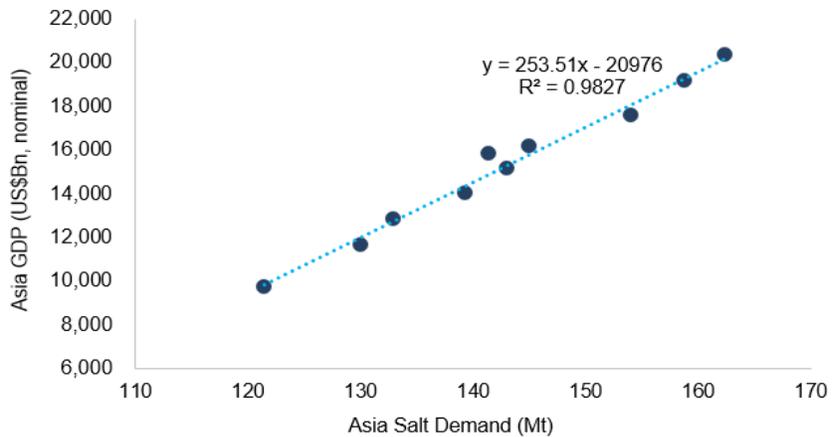


Source: Roskill, BCI Minerals, Canaccord Genuity estimates

### Salt demand is closely correlated with GDP

Given that salt has an extensive range of end uses covering all key sectors of the economy, demand is shown to be closely correlated with GDP. GDP in Asia has risen from US\$9.7b to US\$20.3b since 2010, and during that same period, salt demand in Asia has grown from 121mtpa to 162mtpa, with a correlation factor ( $R^2=0.98$ ) to GDP growth.

**Figure 11: Asia salt consumption versus Asia GDP (2010-19)**

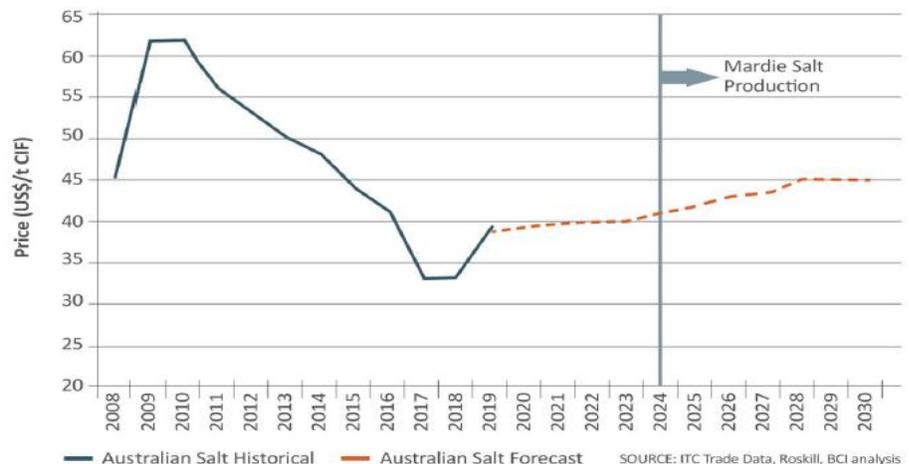


Source: Roskill, IMF, BCI Minerals, Canaccord Genuity estimates

### Salt prices expected to trend upwards

Salt prices tend to vary depending on a number of factors (country of sale, end-use market, product quality, etc). Historical prices for Australian salt delivered into Asia have ranged between US\$33-60/t CIF over the last decade, with an average of US\$44/t. The 2009/10 peak of US\$62/t was driven by high priced contracts set just before the GFC, whereas the 2017/18 low point (US\$33/t) was driven by economic slowdown in Asia combined with an increase in Indian exports. In 2019, prices increased ~20% to ~US\$40/t CIF and Roskill forecasts prices to increase to US\$45/t CIF by the end of 2028, which forms the basis of our long-term US\$34/t FOB price assumption.

**Figure 12: Historical Australian salt price with Roskill forecasts**



Source: Roskill, BCI Minerals

## 5. Mardie project overview

The Mardie Salt & SOP project is located along the West Pilbara coast, approximately 95km north-west of Onslow. BCI plans to develop the project to produce 4.4mtpa of high purity, industrial grade salt (>99.5% NaCl) from seawater via solar evaporation. Through the processing of the remaining brine, the project will also aim to produce 120ktpa of SOP (>52% K<sub>2</sub>O). Both salt and SOP will be exported from a purpose-built processing facility at the Mardie site.

On 1 July 2020, BCI released a definitive feasibility study (DFS) for the Mardie project, with results indicating a strategic long-life development opportunity that has the potential to supply Asian markets with salt and SOP for at least the next 60 years. The study was built on previous project studies that include a scoping study (July 2017), pre-feasibility study (June 2018) and an optimised PFS (May 2019). Key aspects released in the recent DFS include:

- NPV<sub>7</sub> pre-tax A\$1,197m (ungeared)
- IRR pre-tax 15.3%
- EBITDA of A\$197m pa (steady state)
- Capex A\$779m
- AISC for salt of A\$20/t and SOP of US\$310/t
- Western Australia ministerial approval (early 2021)
- Final investment decision (early 2021)
- Commence construction (mid 2021)
- First salt production & sales (mid 2024)
- First SOP production & sales (mid 2025)

Key inputs in our modelled development scenario are outlined in Figure 13. Our assumptions are largely in line with the recent DFS, which we view as robust (and conservative) and believe there is significant upside potential.

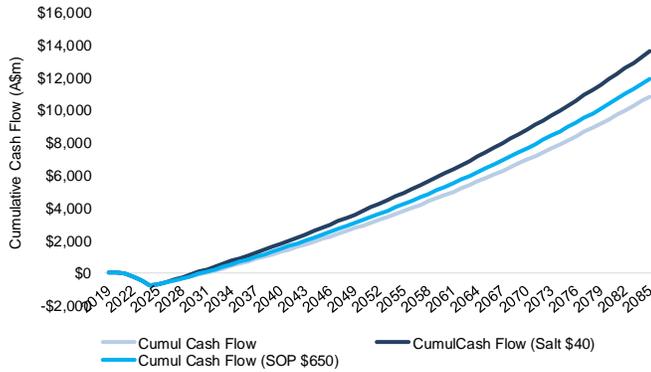
**Figure 13 PFS versus DFS versus CG forecasts**

	Optimised PFS	DFS	CG forecast
Mine life once ramped up	60 years	60 years	60 years
upfront capex	A498	A\$779	A\$779
Sustaining capex Salt	A\$1/t	A\$1/t	A\$1/t
Sustaining capex SOP	A\$20/t	A\$15/t	A\$15/t
Production rate Salt	4.0Mtpa	4.4Mtpa	4.4Mtpa
Production rate SOP	100ktpa	120ktpa	120ktpa
First production Salt	Mid 2023	Mid 2024	Mid 2024
AISC salt (FOB)	A\$17/t	A\$20/t	A\$20/t
AISC SOP (FOB)	A\$230/t	A\$310/t	A\$310/t
LT Salt price (FOB)	US\$30/t	US\$34/t	US\$34/t
LT SOP price (FOB)	US\$500/t	US\$583/t	US\$500
Forex	0.70	0.68	0.72

Source: Company reports, Canaccord Genuity estimates

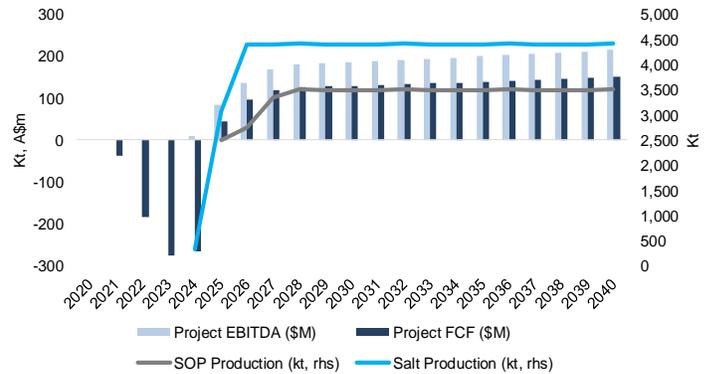
As noted previously, our modelled assumptions are essentially an extension of the DFS, and underpin our forecast cash flows for the project. Our post-tax project cash flow estimates for the construction period and out to 2040 are shown in Figure 15. After a ~3.5-year construction period starting in 2021, we forecast first salt sales to commence in mid-2024 and SOP sales commence in mid-2025. We forecast free cash flows to become positive in 2025, ramping up to approximately \$130m per annum by 2028 and maintained through the remainder of the 60+ year project.

Figure 14: Cumulative cash flow over LOM at Mardie



Source: Canaccord Genuity estimates

Figure 15: EBITDA/FCF YoY over first 40 years at Mardie



Source: Canaccord Genuity estimates

BCI's project development timeline is outlined below in Figure 16.

Figure 16: Mardie project development timeline

Item	2020		2021		2022		2023		2024		2025	
	SepQ	DecQ	MarQ	JunQ	SepQ	DecQ	MarQ	JunQ	SepQ	DecQ	MarQ	JunQ
FEED												
Approvals												
Funding												
Early Works												
Ponds												
Cyrstallisers												
Grow Salt Inventory												
Salt Plant												
Grow Sop Inventory												
SOP Plant												
Port												

Source: BCI Minerals, Canaccord Genuity estimates

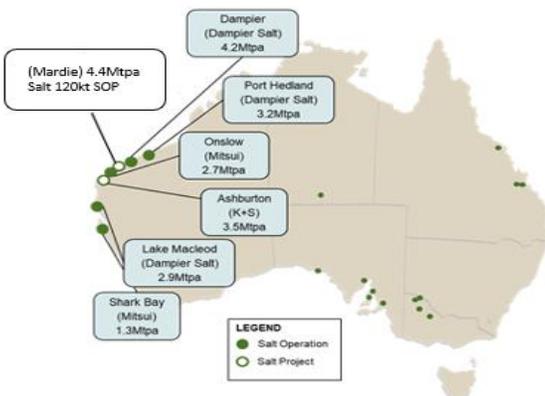
### A proven salt producing region

The Pilbara coast is a proven salt producing region, with some of the five existing operations (Onslow, Shark Bay, Lake Macleod, Port Hedland and Dampier) having operated for over five decades (Figure 17).

The major barriers to entry for large scale salt evaporation projects are large, flat landholdings on the coast in an area with low rainfall and high heat/wind conditions, and finding favourable impermeable clay-type soil conditions. Given operation is normally spread across 20-30km, it also needs to be in an area with minimal environmental and social impact. The Mardie project has all the requirements necessary to operate as a successful solar evaporation operation, in our view:

- **Climate:** The Pilbara coast is considered a 'Grassland climate', meaning it's hot all year round with a summer drought. Based on the analysis of monthly evaporation, rainfall and temperature data at the Dampier and Learmonth weather stations, conditions are considered ideal for solar evaporation, with results indicating a net evaporation rate of 2,970mm per annum.
- **Coastal setting:** Mardie is located 3-5km inland from the coast, allowing for easy access to an inexhaustible resource of stable quality seawater. The coastal setting also eliminates haulage costs to an onsite Port facility ideally situated for low cost shipping to Asian markets.
- **Topographical and geotechnical:** Flat topography with a low permeability clay layer that extends across the planned pond footprint, which reduces the amount of product lost to seepage whilst also eliminating the need to line the ponds. Material surrounding the project is also suitable for the construction of a low permeability sea wall which eliminates the need to transport suitable material up to site.
- **Minimal environmental and social impact:** Although we acknowledge BCI is yet to receive all the environmental approvals required for project development, we believe the extensive work BCI has completed to date demonstrates a project that offers minimal environmental and social impact (see [Tenure and approvals on track for completion in early 2021](#)).

Figure 17: Mardie's location amongst existing operations



Source: BCI Minerals

Figure 18: Mardie project's location

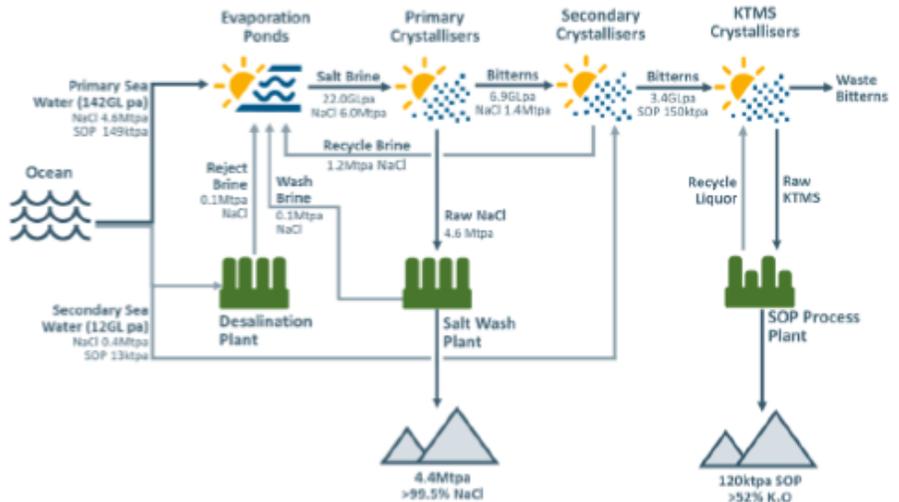


Source: BCI Minerals

### A relatively straightforward production process

Salt will be produced via the solar evaporation of seawater and the crystallisation of raw salt, which will then be dry harvested and purified through a wash plant to produce high purity industrial grade NaCl. The remaining brine (bitterns) will then be extracted from the primary salt crystalliser and undergo further crystallisation and processing to produce SOP.

**Figure 19: Salt and SOP production flowsheet**



Source: BCI Minerals

#### Seawater intake and concentrator ponds

A seawater pump station will pump out 142 gigalitres (GL) of seawater from the ocean and transfer it to the first of nine ponds. Over a period of one year, seawater progresses from pond 1 to pond 9, gradually reducing in volume through solar evaporation (approximately 12% of original volume).

#### Primary crystalliser ponds

The primary crystalliser ponds receive approximately 22GLpa of brine containing 6.0mtpa of NaCl from pond 9. The brine is deposited into the crystalliser cells where further evaporation crystallises 4.6mtpa of raw salt. The brine (now termed bitterns) is transferred from the primary crystallisers to the secondary salt crystallisers via a pipeline for further salt recovery. The primary salt crystallisers are mechanically harvested and sent to the wash plant.

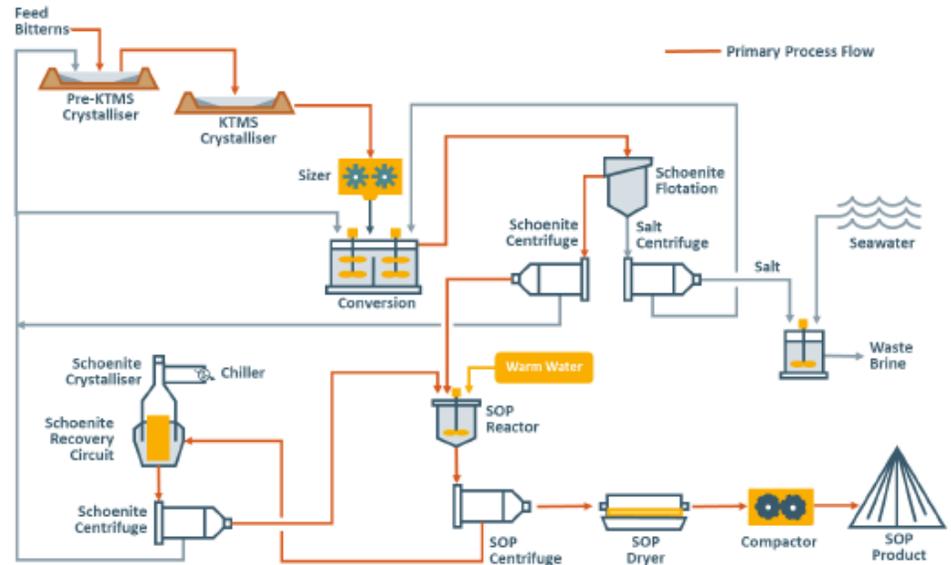
#### Secondary crystalliser ponds

The secondary salt crystallisers receive 6.9GLpa of bitterns containing 1.4mtpa of NaCl. This is periodically harvested by dissolving crystallised salt with fresh seawater and 1.2mtpa of salt is recycled to pond 8 for recovery in the primary salt crystallisers. The final bitterns discharged from the secondary salt crystallisers is transferred to the KTMS crystallisers.

#### Salt production

The dry-harvested salt (4.6mtpa from the primary crystalliser) is then taken to the purification plant, where it undergoes a standard wash process. The product is then stockpiled on site for up to six months, depending on dewatering requirements and product quality. Overall product losses amount to 7% from harvest through to export, resulting in saleable production of 4.4mtpa.

Figure 20: SOP flowsheet



Source: BCI Minerals

#### Pre-KTMS crystallisers

The Pre-kainite-type-mixed-salts (KTMS) crystallisers receive 3.4GLpa of bitterns containing 150ktpa of SOP equivalent tonnes. Approximately 25% of the magnesium within the bitterns is precipitated as epsomite. Two recycle brines are added to the Pre-KTMS crystallisers to optimise the KTMS salting path and ensure the KTMS is suitable for refining to SOP.

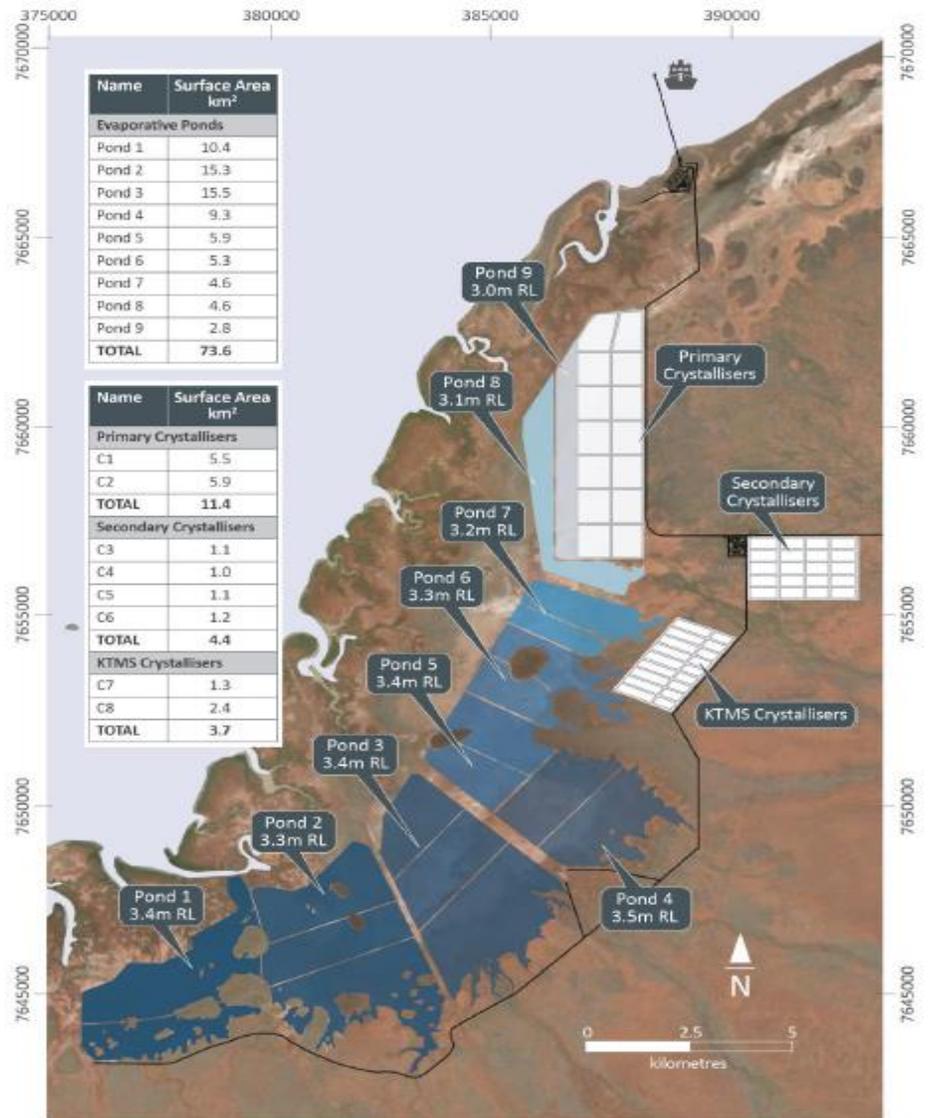
#### KTMS crystallisers

The KTM crystallisers receive 3.8GLpa of bitterns containing 225ktpa equivalent of SOP (include recycled streams outlined above). The bitterns is deposited into a series of 18 crystalliser cells operating in nine parallel trains of two cells, where approximately 770ktpa of KTMS is crystallised containing equivalent of 210ktpa SOP. The KTMS crystallisers are dry harvested and the KTMS are transferred to the SOP processing plant.

#### SOP processing

KTMS is then converted to shoenite salt before additional processing/crystallisation delivers SOP which is dried via a fluidised air dryer, compacted into granular form and stored in fully enclosed stockpiles. SOP is ultimately reclaimed via front-end loader, screened to remove any fines, and an anti-caking agent applied. The final SOP product is loaded into haul trucks for transport to the Mardie Port Facility.

Figure 21: Pond and crystalliser layout



Source: BCI Minerals

**A capex-heavy, opex-light approach**

Given the large-scale, long-life nature of the project, BCI has opted to invest heavily in the initial capex of the project (i.e. build its own port facility) to reduce operating costs (lower handling) going forward. While this does require a significant uplift in the capital funding envelope, we believe this approach allows for improved project economics. For more detail on BCI’s funding strategy see [Funding strategy: NAIF an important part of the puzzle](#).

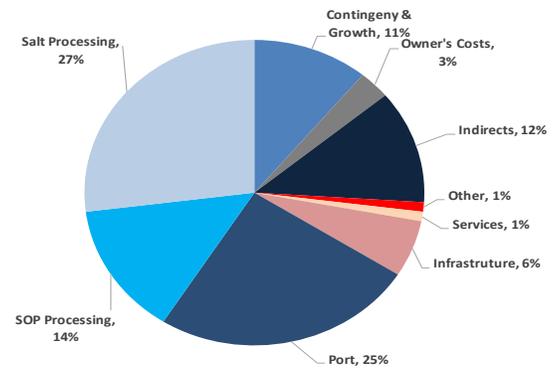
Results from the DFS outline direct capital costs of A\$580m, plus an additional A\$199m which includes indirect costs, owners’ costs and an 11% contingency for a total of A\$779m, Figure 22.

**Figure 22: Capex breakdown by area**

Area Description	A\$M
Salt	210
SOP	109
Port	197
Supporting infrastructure	51
Services	9
Other	5
<b>Direct Capital Cost</b>	<b>580</b>
Indirects (EPCM construction Facilities)	91
Owners Costs	25
Contingency and Growth Allowance	83
<b>Total Capital Cost</b>	<b>779</b>

Source: BCI Minerals, Canaccord Genuity estimates

**Figure 23: Capex breakdown by area**

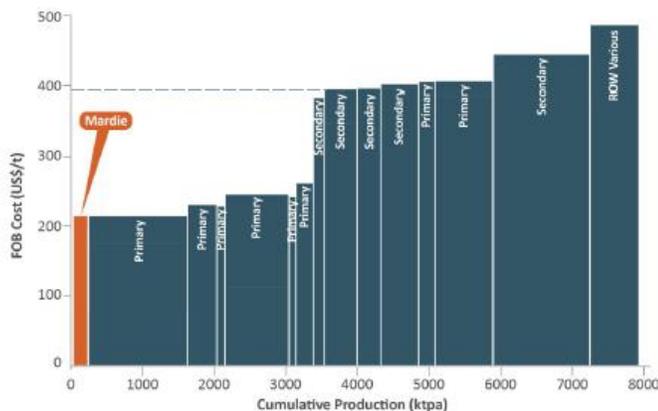


Source: BCI Minerals, Canaccord Genuity estimates

**First quartile operating costs when SOP considered a by-product**

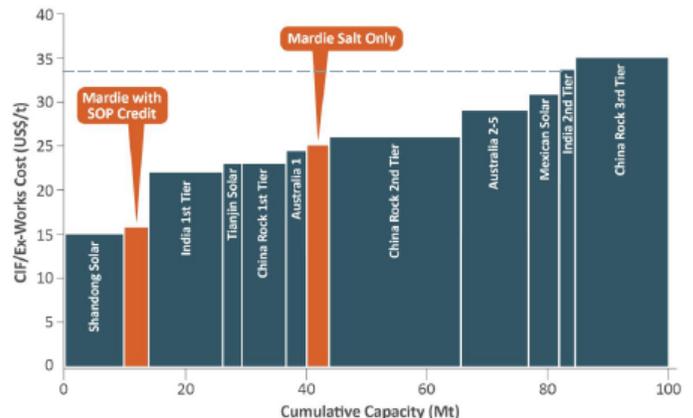
The cost curves for suppliers in Asian markets for salt and SOP are shown below. Mardie’s on site port facility allows BCI to utilise larger vessels than other Australian salt operators that are draft constrained which delivers a freight cost advantage. This, coupled with SOP being considered as a by-product credit, brings Mardie’s operating cost down to the first quartile as one of the lowest cost suppliers into the Asian salt market.

**Figure 24: SOP cost curve into Asian markets**



Source: Roskill, SMM, BCI Minerals

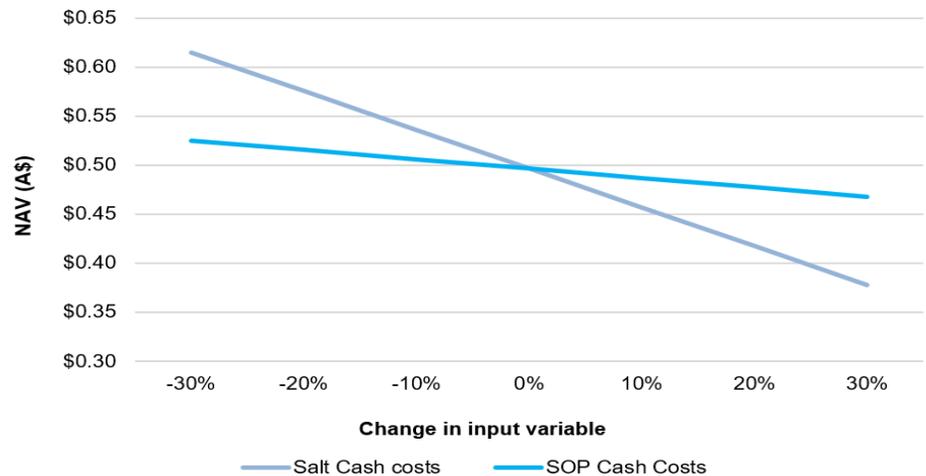
**Figure 25: Salt cost curve into Asian markets**



Source: Roskill, SMM, BCI Minerals

As highlighted below in Figure 26, changes to both Mardie’s salt and SOP cash costs have a relatively small impact in our overall NAV. In our view, this further demonstrates the robust nature of the Mardie project and its ability to still operate profitably if unforeseen circumstances which negatively impacted operating costs were to arise.

**Figure 26: NAV sensitivity to changes in Salt and SOP cash costs**

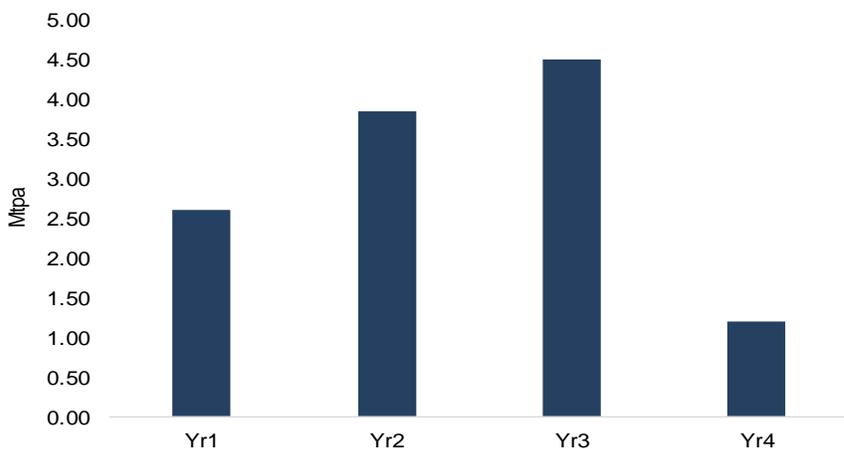


Source: Canaccord Genuity estimates

### Marketing strategy and sales agreements

As previously outlined, Asia is where we see salt consumption grow significantly over the next 10 years. Because of this, BCI is planning on supplying the majority of its product to Asian markets, where a maximum of 80% of annual salt and SOP production will be sold through 2-4 year offtake contracts (as is current market practice), with the remaining 20% to be sold via short-term and spot contracts. BCI has entered into 13 non-binding salt offtake MOUs with Asian chemical companies and traders for up to 4.5mtpa, which are typically for initial terms of 3-4 years with options to extend. Although these MOUs are positive, we view binding contracts as a potential share price catalyst in the near term.

**Figure 27: Salt contract book for Mardie (mtpa)**



Source: Company reports, Canaccord Genuity estimates

## 6. Critical path to Mardie development.

### Tenure and approvals on track for completion in early 2021

#### Environmental

BCI has completed Mardie's environmental and review documents (ERD) which were compiled over a three-year period and incorporate surveys, studies and reports prepared in collaboration with the WA Environmental Protection Authority (EPA) and the Federal Department of Agriculture, Water and Environment (DAWE). The ERD was accepted by the EPA and released for public comment in late June 2020, with BCI targeting final Ministerial environmental approval in early 2021. We view this approval as one of the key catalysts for BCI which, in our view, will open the door for traditional bank finance and allow for easier access to equity markets. We believe the work BCI has done to date is of the highest quality and are confident the company will receive the approvals it requires.

#### Native Title

Native Title agreements have been executed with two Traditional Owner groups and compensation arrangements agreed, which facilitates the commencement of construction and operations. Heritage surveys have been completed across the entire project footprint over the past three years. Registered sites and other heritage places have been identified with the assistance of the Traditional Owner groups and will be managed according to the agreed protocols.

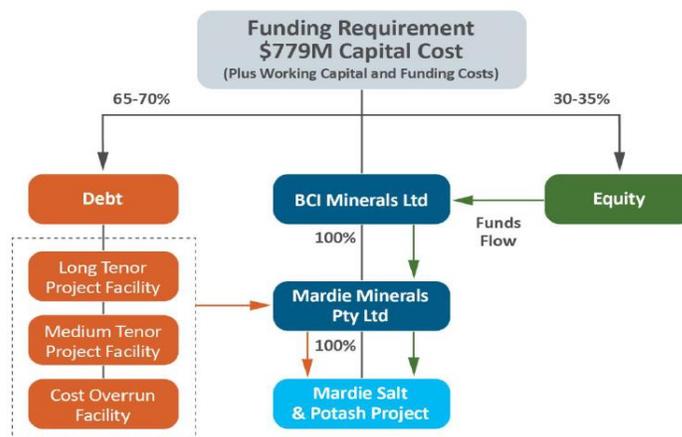
#### Tenure

Mardie will require approximately 180km<sup>2</sup> of tenure granted through a combination of mining leases, general purpose leases, miscellaneous licences and port leases. BCI targets key tenure required for the construction phase to be secured by Q1 2021, subject to finalising access agreements with third parties.

### Funding strategy: NAIF an important part of the puzzle

Given the long-life nature of Mardie, BCI has guided towards a 65-70%/35-30% debt-to-equity split for the funding of the project. With upfront capital costs of A\$779m, plus additional funds to cover working capital, cost overrun facilities, debt interest and capital raising costs, we assume BCI will require funding of ~A\$950m, made up from: 1) Equity; 2) NAIF; and 3) traditional project finance.

Figure 28: Proposed funding structure



Source: BCI Minerals

### *Equity requirements*

Having recently completed a A\$48m capital raising, which was heavily supported by the company's existing major shareholder ACE, BCI now has a cash position of ~A\$81m. Although this still leaves ~A\$250m of required equity funding, the support from ACE (which has participated in and underwritten all IOH and BCI equity raisings since it became a shareholder), together with the strong merits of the Mardie project, give us confidence that BCI will be able to satisfy its equity raising requirements.

### *Northern Australia Infrastructure Fund (NAIF)*

Given the Mardie port's ability for public benefit and ability to service multiple users, in July 2019 Mardie was assessed by NAIF as having the potential to meet NAIF's eligibility criteria for funding support. NAIF typically provides supplementary finance (with the exception of Genex Power Limited) however we believe changes will likely be made in an effort to stimulate a post COVID-19 economy, see [AFR article](#). Mardie's unlimited resource and 100+ year potential makes it an ideal project for NAIF, in our view, as the project has the potential to generate over >A\$22b in revenue and >A\$10b in cash flows over the life of mine, which we believe will positively impact the economy.

BCI is currently working with NAIF to progress through the due diligence phase and we expect an outcome in the near term.

**Figure 29: Natural resources projects to receive NAIF funding**

Proponent	Project description	\$m (up to)	Location
Genex Power Limited	Pumped storage hydro renewable energy	610	Queensland
Verdant Minerals	Open cut mine and associated infrastructure (Amaroo Phosphate Project)	160	Northern Territory
Strandline Resources	Key infrastructure for the Coburn Mineral Sands Project	150	Western Australia
Sheffield Resources Limited	Processing plant, LNG power station, gas storage facilities	95	Western Australia
Alinta Energy	Chichester Solar Gas Hybrid Project	90	Western Australia
Kalium Lakes Limited	Supporting infrastructure for SOP project	74	Western Australia
Metro Mining Limited	Construct an offshore terminal for Bauxite hill expansion	48	Queensland
Pilbara Minerals Limited	Upgrade of public road, south of Port Hedland	20	Western Australia

Source: Company Reports

### *Traditional debt finance*

BCI has commenced discussions with commercial banks for traditional debt financing, and we expect these will advance once BCI secures binding offtake agreements.

## 7. Comparable companies

Unfortunately the existing salt producers in the Pilbara region are either unlisted or make up a small proportion of a large company (Rio Tinto and Mitsui), and this therefore makes them difficult to compare to BCI on market valuation metrics. There are, however, a combination of salt and SOP producers listed globally that we can draw some comparisons from (Figure 30). Average EV/EBITDA across the existing salt and SOP producers is currently 7.6x.

**Figure 30: Salt and SOP existing produces**

Company	Enterprise Value (A\$M)	EBITDA 2020	EV/EBITDA x
Compass Minerals	4,724	482	9.8
K&S AG	6,854	797	8.6
Mosaic	16,632	1,934	8.6
ICL Group Ltd	10,464	1,308	8.0
BCI Minerals		185*	

Source: \*CGe steady state, FactSet consensus

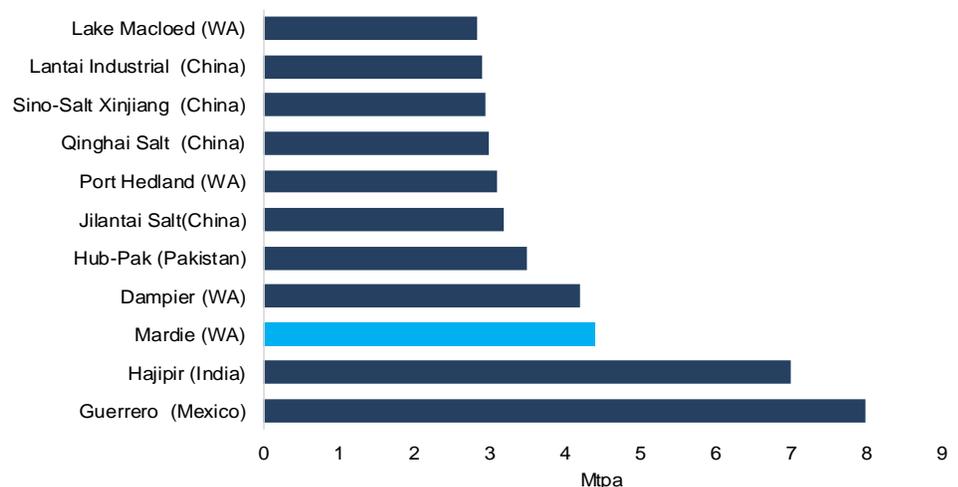
### K+S sale of US business a positive read through

Recently K+S Aktiengesellschaft sold its US operating unit to Kissner, a producer and supplier of salt controlled by holding Stone Canyon Industries for a total of US\$3.2b, representing 12.5x the 2019 EBITDA of US\$257m. Although we acknowledge that the premium paid by Kissner is likely due to the synergies achieved through K+S's established distribution network, we do feel it is somewhat appropriate to draw comparisons from given we estimate Mardie has a similar steady state EBITDA of CGe A\$185m.

### Mardie to be the third-largest solar salt operation globally

When we compare Mardie to other large solar salt operations around the globe, Mardie ranks as the third-largest (Figure 31), which further emphasises Mardie as a globally significant project, in our view.

**Figure 31: Mardie compared with other solar salt operations**



Source: BCI Minerals

## 8. Iron Valley overview

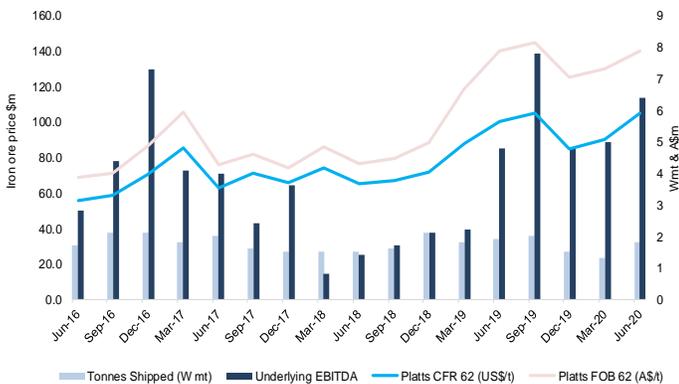
Iron Valley is a direct shipping iron ore (DSO) mine in the Central Pilbara, which is operated by Mineral Resources Limited (MIN). The asset was originally owned by Iron Ore Holding Limited (IOH), which acquired by BCI in October 2014 in a friendly scrip-based takeover. As at 30 June 2020, Iron Valley's Mineral Resources were 189Mt at 58% Fe, and its Ore Reserves were 89Mt at 58.3% Fe.

The Iron Valley operation is a fairly simple DSO operation, which commenced production in December 2014. The mine produces a dual product of lump and fines ore which is trucked to Port Hedland using road trains, after which, it is exported out of the Utah Point Bulk Export facility.

BCI receives cash from the Iron Valley operation linked to the realised sale price obtained by MIN, and not from MIN's operating profits. This agreement, entered into in February 2013, is framed as a mine gate sale of ore with MIN committed to buying a minimum annual tonnage. The detailed terms of the mine gate purchased price and minimum annual tonnes are confidential between MIN and BCI.

In FY20, MIN shipped 6.7m wet metric tonnes (wmt) (June 2019: 7.4mwmt) which generated revenue for BCI of \$76.8m (June 2019: \$54.3m), which, after the payment of third party royalties left BCI with an EBITDA of \$23.0m (June 2019: \$12.3m).

**Figure 32: Historical Iron Valley shipments and underlying EBITDA (reported quarterly)**



Source: Company reports

**Figure 33: Modelled production profile at Iron Valley and forecast EBITDA less 40% rebate**



Source: Company reports, Canaccord Genuity estimates

### Changes to the State Government royalty

Under the terms of the agreement between BCI and MIN, BCI is responsible for the payment of third-party royalties such as the State Government royalty, the Native Title royalty and private royalties. The State Government royalty is the largest and had previously been tied to an indexed price, which led to volatility in BCI's net income given revenue is based on MIN's received price (as displayed above). In June 2018, the State Government agreed to change of the royalty calculation from an indexed price to MIN's received price. This has now resulted in a smoothing out of net income received from Iron Valley.

### Iron Valley optimisation plans and revised agreement

In November 2019, MIN announced that significant additional capital investment is required in 2020 on waste stripping and infrastructure upgrades at the Iron Valley. In March 2020, BCI agreed to share the cost of these activities to improve the longevity of the mine, by rebating 40% of its net royalties to MIN until the total rebated amount reaches \$25m. The royalty rebate is subject to BCI receiving a minimum net royalty of A\$1.5m per quarter, and in the event that MIN suspends Iron Valley operations, the minimum \$1.5m net royalty to BCI will continue to be payable for at least the next two quarters.

These amendments will support MRL in developing additional areas of the 89mt Ore Reserve at Iron Valley and offer BCI improved income protection in a low iron ore price and/or tonnage environment (e.g. Q2 2017 to Q3 2018).

### Forecasts and assumptions

Given that the terms of the royalty-like agreement are confidential between MIN and BCI, we have made a number of assumptions. Through analysing historical quarterly data between BCI and MIN, we make the below assumptions (Figure 34).

**Figure 34: Iron Valley forecasts**

	FY20	FY21e	FY22e	FY23e	FY24e	FY25e	FY26e	FY27e	FY28e	FY29e	FY30e
Realised Fines price A\$/t	95.2	87.2	85.1	69.2	70.9	67.8	64.6	66.3	67.9	69.6	71.4
Realised Lump price A\$/t	111.0	95.8	98.2	79.8	81.8	78.7	75.4	77.3	79.2	81.2	83.3
Realised Price A\$/t	103.1	91.5	91.6	74.5	76.4	73.3	70.0	71.8	73.6	75.4	77.3
Tonnes shipped (Wmt)	6.7	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	3.0
BCI Royalty rate estimate%	3.8%	3.8%	3.8%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Approx A\$/t	3.4	3.4	3.4	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7
BCI EBITDA	25.9	25.7	25.6	12.5	12.8	12.2	11.7	11.9	12.1	12.3	5.0
Less 40% Rebate	2.8	10.3	10.2	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net EBITDA	23.1	15.4	15.4	10.1	12.8	12.2	11.7	11.9	12.1	12.3	5.0

Source: Company reports, Canaccord Genuity estimates

## 9. Royalties and deferred payments

### **Bungaroo South**

BCI agreed to sell Bungaroo South to Mineral Resources in March 2020. Deferred consideration of A\$14m is payable to BCI upon certain project milestones being achieved. BCI is also entitled to a 1% FOB revenue royalty on iron ore mined from Bungaroo South.

### **Kumina**

BCI agreed to sell the Kumina tenements to Mineral Resources in October 2018 for total cash consideration of A\$35m. The final A\$4m deferred payment is due 12 months after first export of product from Kumina.

### **Nullagine royalty**

In October 2016, BCI agreed to sell its 75% interest in the Nullagine project to Fortescue Metals Group. BCI retains a royalty on 75% on all future iron ore mined from Nullagine of:

- 1.0-2.0% of FOB revenue for  $\geq 55\%$  Fe iron ore; and
- A\$0.50-1.50/t for  $< 55\%$  Fe iron ore, adjusted for 15% yield loss.

Fortescue will initially pay BCI 33% of the agreed royalty in cash, until the total amount waived by BCI equals A\$7.5m. Thereafter, Fortescue will pay BCI 100% of the agreed royalty.

A 50% reduction in the royalty rate will apply to all iron ore mined above 15mt and a 75% reduction will apply to all iron ore mined above 25mt.

At the time of sale to Fortescue, the Nullagine project had Ore Reserves of 21.6mt. The mine could be restarted rapidly if Fortescue elects to do so.

### **Koodaideri South royalty**

Koodaideri South forms part of the larger Rio Tinto proposed Koodaideri mine in the Central Pilbara. BC Iron is entitled to a royalty of 2% of FOB revenue on any ore mined from the Koodaideri South project area.

At the time of sale to Rio Tinto, Koodaideri South had Mineral Resources of 106Mt at 58.6% Fe.

Rio Tinto is currently undertaking a feasibility study on the larger Koodaideri mine, with the potential for construction to commence in 2019 and first production during 2021.

### **Extension royalty**

The Extension project is owned by Australian Aboriginal Mining Corporation Limited ("AAMC"). BCI is entitled to a \$1.75m cash payment 90 days after production commences and a royalty of 1.25-2.50% of FOB revenue on all iron ore produced.

At the time of the sale to AAMC, Extension had Mineral Resources of 15.6Mt at 54.0% Fe.

AAMC is currently progressing development and funding solutions for the Extension project.

## 10. Corporate and finance

### Balance sheet

BCI had a reported cash position of A\$45m as at 30 June 2020 and no debt (~A\$81m after recent capital raising). BCI's recent capital raisings comprised:

- September 2020 - \$48m rights issue at \$0.24 per share.
- November 2016 - \$25m placement issued at A\$0.13 per share.

### Capital structure

After the recent A\$48m capital raising, BCI has a total of 598,398,833 shares on issue, with no listed options. At the current share price there are 11,052,271 performance rights on issue, which vest for no consideration but with high share price vesting hurdles.

### Substantial shareholders

BCI has one substantial shareholder in the company, ACE, which owns 39.6% of the issued capital. ACE is the holding company for Kerry Stokes' private business interests. ACE currently has one board representative (Chairman Mr Brian O'Donnell).

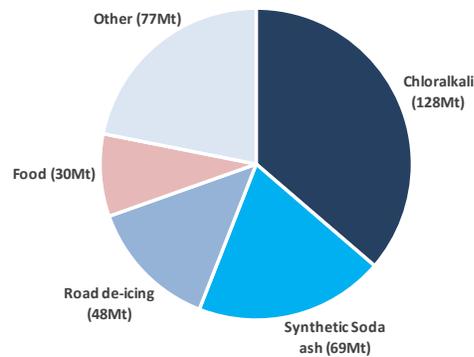
Other major holders include Ryder Capital Management and Sandon Capital.

## Appendix 1. The salt market

Salt is a white crystalline substance that is composed primarily of sodium chloride (NaCl). It is one of the most important materials in the chemical industry, with thousands of chemical and industrial products needing salt at some stage of their development. Its primary industrial uses are in the production of soda ash, caustic soda and chlorine; these products are then used in numerous industrial processes including the manufacture of glass, plastics, rubber, and many other products. Salt is also an essential source of nutrition for the human body and approximately 9% of all salt produced is used on food. In Europe and across North America roughly 48mt (12%) of salt is used for the de-icing of roads.

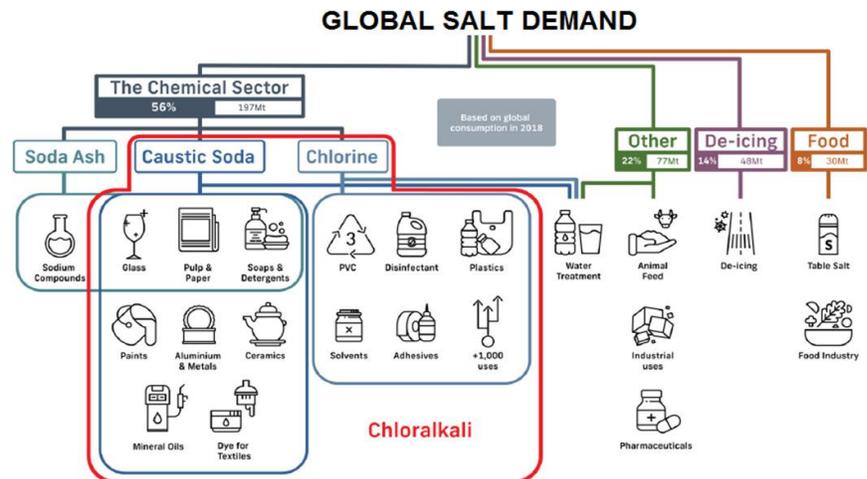
The end use of salt determines what quality of salt can be used. Uses such as de-icing roads (US and Europe mainly) can use low grade salt, whereas salt used in the chemical industry requires high quality salt. As displayed below in Figure 35, the majority of salt is used in the chlor-alkali process, the chemical process for the manufacture of chlorine and caustic soda.

**Figure 35: Global consumption of salt by end use in 2019**



Source: BCI Minerals, Roskill

**Figure 36: End-use market breakdown**



Source: BCI Minerals

## Methods of production

### *Solar evaporation (Mardie)*

The use of sun and wind to evaporate saline water to obtain salt is the oldest and most basic production method. This method accounts for approximately 40% of global production and is the method used by all the existing Australian operations. Solar evaporation operations tend to produce higher grade salt at a lower cost, however they have three main requirements which make the barriers to entry high, namely: 1) Access to a brine source; 2) Hot dry and windy climate; and 3) Large, flat land area with preferably low permeability.

### *Rock salt mining*

Rock salt mining is much like mining for any other material. Typically, the salt exists as deposits in historical underground seabeds, which have become buried over time. Salt is mined using standard underground mining techniques where it is removed, crushed and taken to surface. This method of producing salt is typically low cost, but quality tends to be lower than solar evaporation operations.

### *Solution mining*

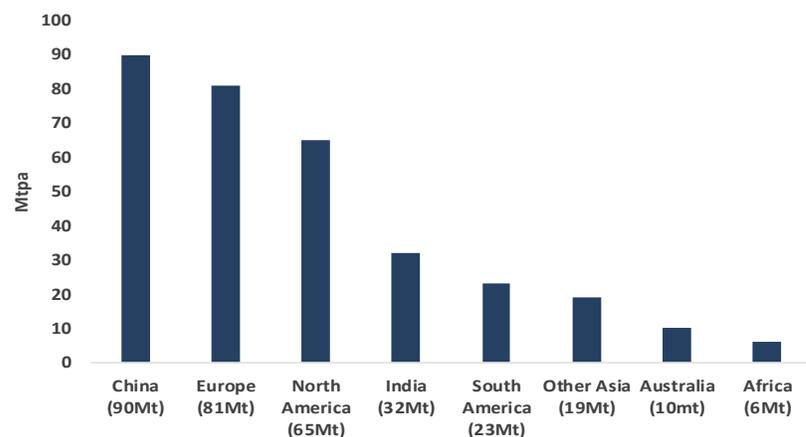
Wells are erected over salt beds or domes (deposits of salt forced up out of the earth by tectonic pressure) and water is injected to dissolve the salt. Then the salt solution is pumped out and taken to a plant for evaporation. This method of producing salt is the highest cost and also typically produces the highest quality.

## China is the largest producer although this will likely diminish

Currently, China produces the majority of salt globally, producing a total of 90mt in 2019. However, urbanisation due to a rapidly growing Chinese middle class is significantly increasing the demand for coastal regions, the areas where existing salt fields are operating, we therefore expect Chinese production of salt to diminish in the future. This reduction in salt produced internally will result in an increased demand for imported salt, we think specifically from Australia, as its high-grade nature caters to the membrane cell method used for the chlor-alkali process.

Mexican solar salt production is a similar quality to Australian production. However, the salt generally incurs multiple transshipping transfers, increasing logistics cost to deliver product into most Asian regions. Indian and Chinese solar salt is generally a mix of grades with a large proportion being unwashed and of much lower quality. These products are usually unsuitable for high-end chemical production processes that manufacture chlorine and caustic soda.

**Figure 37: Global production of salt in 2019**

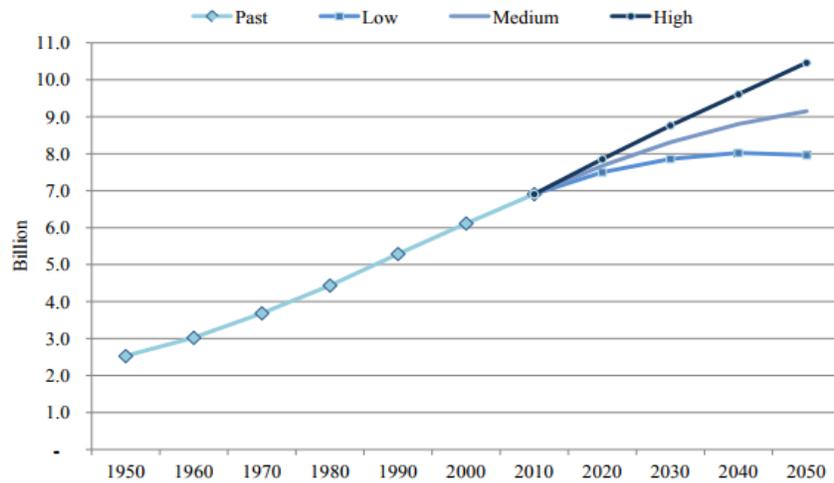


Source: BCI Minerals, Roskill, Canaccord Genuity estimates

**Population growth and urbanisation the driver of increased demand**

Rising salt production and consumption is ultimately driven by rising populations and urbanisation, in our view. The global population is around 7.6b currently, and according to the UN it is forecast to reach 10.0b by 2050. Both population growth and urbanisation are strong in Asia, particularly in China where according to Roskill, salt demand is forecast to increase significantly over the next 10 years. Urbanisation requires the construction of housing and infrastructure, which in turn requires PVC (chlor-alkali) and flat glass (soda ash) so we believe this demand will mainly be driven by the expansion of the chlor-alkali industry as well as the increasing number of water treatment plants expected to be developed throughout Asia in the coming years.

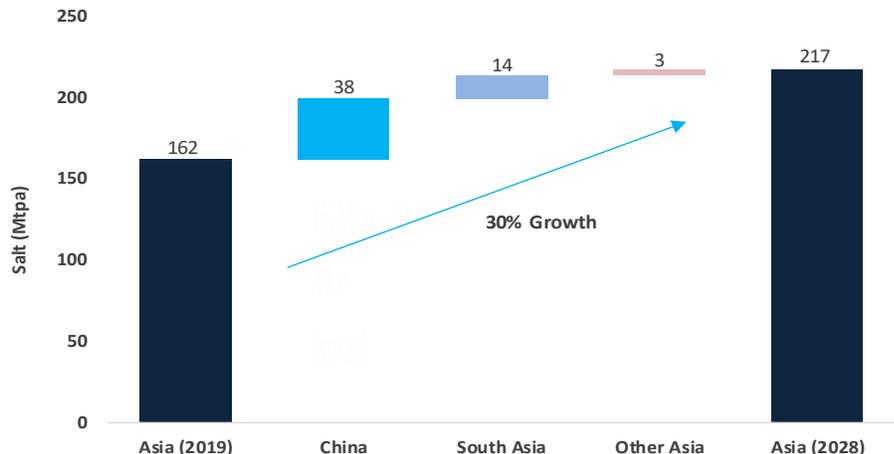
**Figure 38: Global population forecasts**



Source: UN

In 2019, Asia accounted for nearly 50% of the 350mt of salt consumed globally, with approximately 75mt coming from the chlor-alkali industry, according to Roskill. China’s chlor-alkali industry alone is expected to grow from 28mtpa to over 42mtpa in 2028, along with an increase in soda ash production by 8mtpa. This will therefore increase salt demand in Asia from 162mtpa in 2019 to 217mtpa by 2028.

**Figure 39: Roskill forecasts Asian salt production will grow by 30% by 2028**

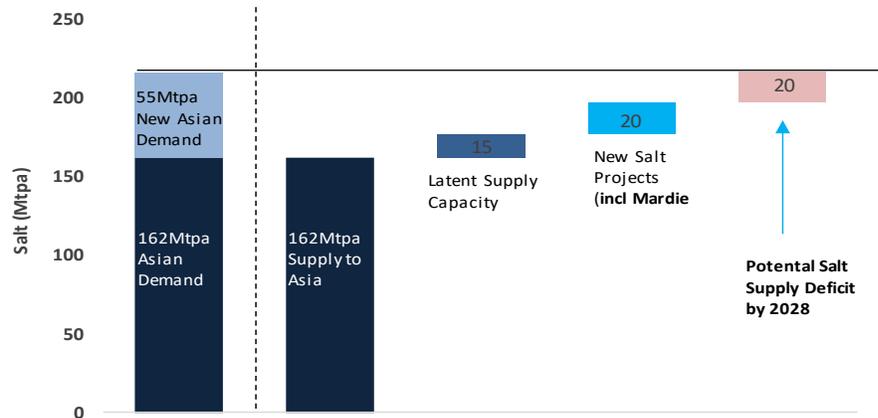


Source: Roskill, SMM, BCI Minerals

### Demand and supply balance

According to Roskill, by 2028 there will be 35mtpa of additional supply coming onto the market from operations that are suitably positioned to supply Asia (Mardie included). It expects that 20mtpa will come from new projects and 15mtpa will come from increased capacity utilisation at existing salt operations, leaving a supply shortfall of approximately 20mtpa by 2028.

**Figure 40: Asia market salt demand/supply balance 2019-28**

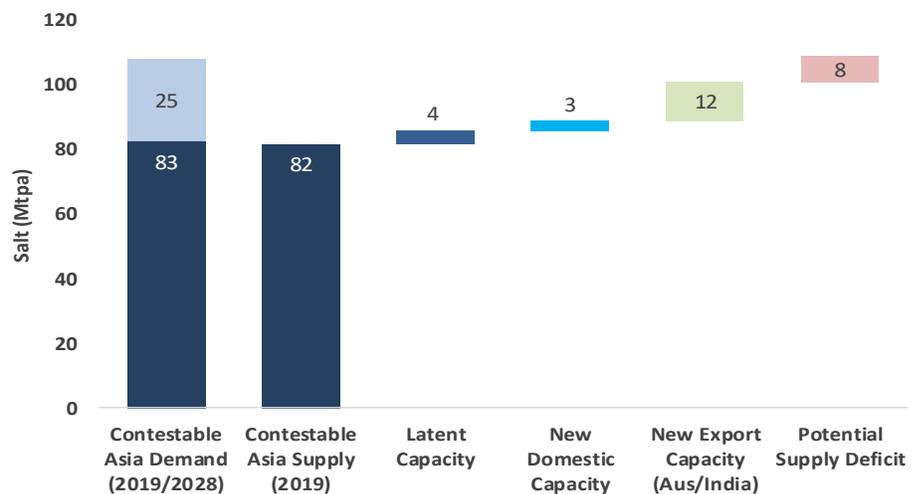


Source: Roskill, SMM, BCI Minerals

To break this down even further, BCI has completed analysis which looks at the main target markets where Mardie can compete with existing and new suppliers on a cost and quality basis. This includes coastal provinces of China, Japan, Korea, Taiwan and South East Asia, where Roskill forecasts demand of 83mtpa in 2019, growing to 108mtpa by 2028.

With solar salt production reducing in the China coastal regions, and insufficient new projects in the Asian region that can competitively supply these markets, BCI expects a potential supply deficit by 2028.

**Figure 41: Target market salt demand/supply balance 2019-28**

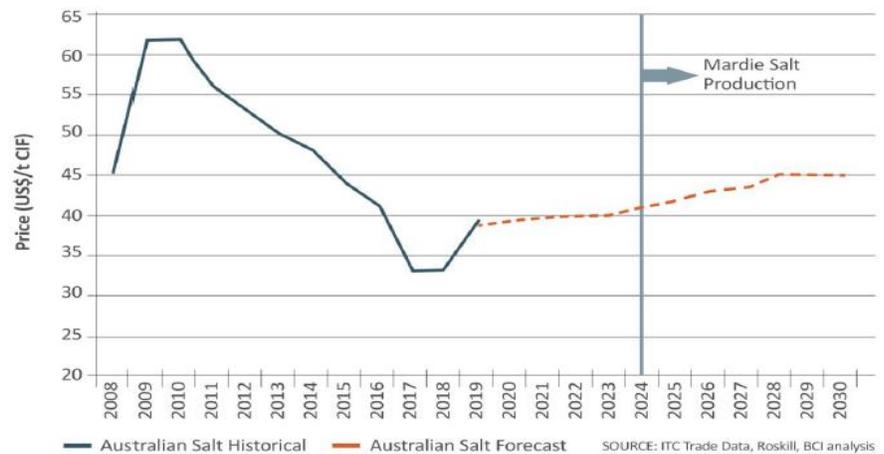


Source: Roskill, SMM, BCI analysis

### Pricing looks to be stabilising

Salt prices tend to vary depending on a number of factors (country of sale, end-use market, product quality, etc). Historical prices for Australian salt delivered into Asia have ranged between US\$33-60/t CIF over the last decade, with an average of US\$44/t. The 2009/10 peak US\$62/t was driven by high priced contracts set just before the GFC, whereas the 2017/18 low point (US\$33/t) were driven by economic slowdown in Asia combined with an increase in Indian exports. In 2019, prices increased ~20% to ~US\$40/t CIF and Roskill forecasts prices to increase to US\$45/t CIF by the end of 2028 which form the basis of our long term US\$34/t FOB price assumption.

**Figure 42: Historical Australian salt prices and Roskill forecasts**

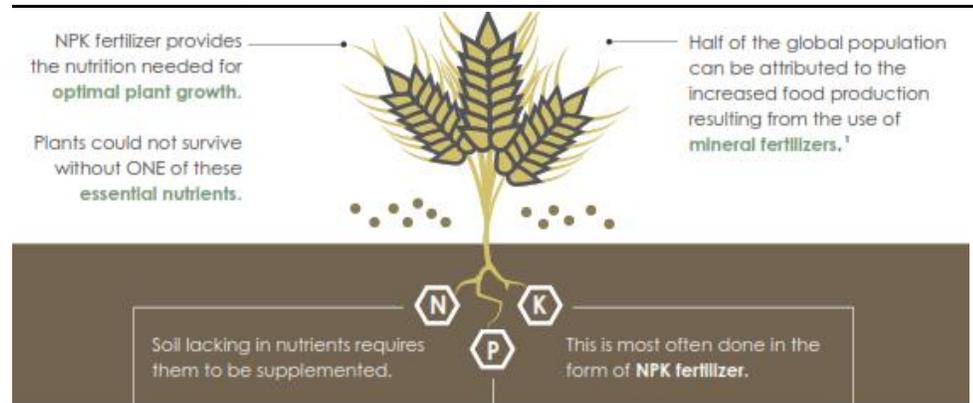


Source: Roskill, BCI Minerals

## Appendix 2. Sulphate of potash market

Potassium is essential in nearly all processes needed to sustain plant growth and reproduction. Plants lacking sufficient potassium are generally far less resistant to drought, excess water and temperature variations. They are also less resistant to pests and diseases. The main sources of potassium come from potash minerals and they come in different forms including sulphate of potash (SOP) and muriate of potash (MOP), which is the most commonly used potash fertiliser. SOP is considered a premium fertiliser and is generally used more as a source of potassium for high value crops such as fruit and vegetables and crops that are intolerant to fertilisers that contain chloride such as MOP. SOP also has the added benefit of supplying sulphur to the plant which is another key macronutrient.

**Figure 43: Nitrogen (N), phosphorous (P) and potassium (K) are essential nutrients for plant growth**



Source: Company reports

### Global demand for food is rising...

As previously mentioned in the salt market section of this report, the world's population is rising. With this growing population comes growing economies, such as China, India and Indonesia which are generating higher incomes, better infrastructure and increased consumer awareness. This growth is not only driving an increase in food consumption but also a trend towards higher demand for agricultural products and for high protein foods like those consumed in the west. As a consequence, food sourcing and security has and will continue assume a higher priority in future international agendas, in our view.

The Food and Agriculture Organization of the United Nations (FAO) estimates that global food production must increase by 70% over the next four decades to fulfill the needs of the world population.

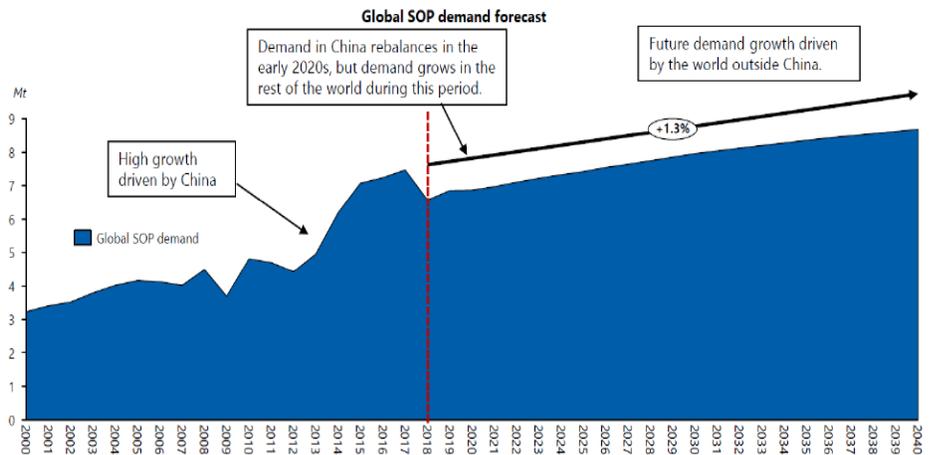
### ...which means changes need to be made to satisfy upcoming demand

As a result of this increase in demand for food, we believe there will be a significant change in the way agricultural markets operate globally. We have seen agricultural investments and technologies increase productivity on existing crops, however crop yields have slowed to levels that will be unable to meet the forecast future demand. Farmers will either need to increase the agricultural land they can farm on or increase the yields on the farmland they currently have, in our view.

Given that the ecological and social trade-offs of clearing for more agricultural land are considered too high by many, we believe increasing crop yields is the only real solution we have to meet the rising food demand. As the amount of production continues to increase, so will the amount of potassium that is drawn from the soil through harvesting. As such, we believe that the use of potash fertilisers, and in particular SOP, will be essential in providing our soils with the nutrients they need.

Currently 50% of the world's SOP is consumed in China, with the majority of it (3-4mtpa) produced entirely by the Chinese domestic market. China is expected to remain relatively stable going forward, with the majority of growth expected to come from south-east Asian countries, including Japan and Korea where SOP crop area has risen in recent years.

**Figure 44: Global SOP demand forecast**

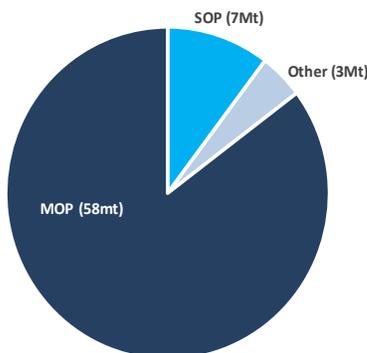


Source: Argus consulting, APC

**Global supply for SOP is tightening**

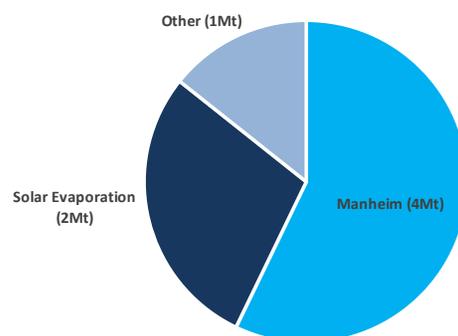
Integer Research estimated that the total potash market in 2018 was 68mt, with roughly 58mt (85%) made up of MOP and 7mt (11%) coming from SOP - approximately 3mt came from other products. There are two main processes by which SOP is produced. One method is the Mannheim process, in which MOP is chemically converted to SOP through the reaction of MOP with sulphuric acid at an elevated temperature. Another commonly used practice to produce SOP is the solar evaporation and crystallisation of brines from salt lakes and seawater. The chart below illustrates the global SOP production split by production method.

**Figure 45: Global potash market**



Source: Integer Research

**Figure 46: SOP market by production method**



Source: Integer Research

As illustrated in the chart above, SOP production via solar evaporation makes up less than half of the total SOP market. Of the SOP produced via primary methods, a significant majority of it comes from China, either at Xinjiang Luobupo's Lop Nur salt lake, which alone has capacity of 1.8mtpa, or the Qinghai Lenghu Bindi salt lake which has a capacity of 900ktpa. China is also the largest producer of SOP via Mannheim production, with a total capacity of approximately 4mtpa.

Historically, supply outside of China has been dominated by a relatively small number of large facilities who produce via secondary methods, namely K+S and Tessenderlo. What we can see from Figure 46 is the majority of SOP is sourced through the inorganic Mannheim process. We believe that this method, although popular, will become less favourable going forward, due to its negative environmental impact and higher costs. We have already begun to see this occur amongst Chinese Mannheim producers, as a government crackdown on high polluting energy sources, such as coal, is increasing energy costs, which we believe will push some Mannheim producers out of the market.

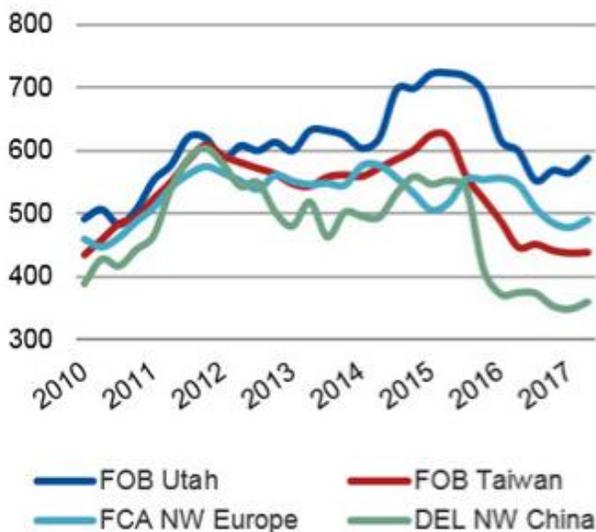
**SOP price premium**

SOP is considered a premium fertiliser and is generally used more as a source of potassium for high value crops such as fruit and vegetables and crops that are intolerant to fertilisers that contain chloride such as MOP. Because of this, SOP has historically been sold at a premium to MOP.

As displayed in the chart below, in 2013 the SOP premium over MOP grew significantly, this was mainly due to the disruption caused by the dismantling of Europe's largest potash fertiliser cartel, BPC. Since then, SOP prices have remained steady and continue to hold between US\$450/t and US\$650/t, where the price of MOP has trended downwards.

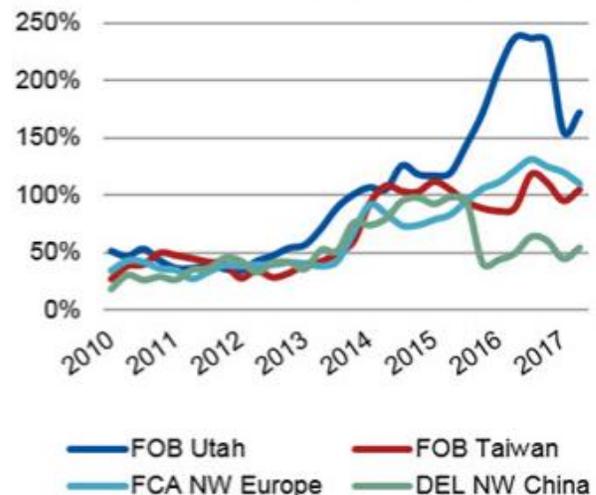
As the majority of the world's supply of SOP is currently sourced via the high cost Mannheim process, there is a natural 'floor' in the cost curve of approximately US\$400/t. This floor is considerably higher than the cash costs of the solar primary producers and we therefore believe that there is an opportunity for BCI and other primary developers to price the secondary producers out of the market.

Figure 47: SOP pricing (US\$/t)



Source: Compass Minerals

Figure 48: SOP premium over MOP



Source: Compass Minerals

## Appendix 3. Board and management

### **Mr Brian O'Donnell – Non-Executive Chairman**

In addition to his role as Chairman of BCI, Mr O'Donnell is Director, Finance and Investments for Australian Capital Equity (ACE). Mr O'Donnell is a director of various ACE group companies, including companies active in the agricultural, advertising and investment sectors, in Australia and China.

Mr O'Donnell is also a Non-Executive Director of ASX-listed Capilano Honey Limited, and The Guide Dog Foundation Pty Ltd (WA). He is a former director of Iron Ore Holdings Limited, Coates Group Holdings Pty Ltd, WesTrac Pty Ltd, Landis & Gyr AG, Fremantle Football Club Ltd and YMCA of Perth Inc. Mr O'Donnell is a Fellow of the Institute of Chartered Accountants, and has 31 years' experience in the finance and investment industry

### **Mr Alwyn Vorster – Managing Director**

Mr Vorster commenced as Chief Executive Officer of BC Iron in May 2016 and was appointed as Managing Director in September 2016. He has more than 25 years' experience with numerous mining houses in technical and commercial management roles covering the total supply chain from mine to market for iron ore, coal and other minerals.

Prior to BCI he was Group Executive Mining at ACE and other recent roles include Chief Executive Officer of API Management, the company responsible for developing the multi-billion dollar West Pilbara Project, and Chief Executive Officer and Managing Director of Iron Ore Holdings Ltd. Mr Vorster is a Non-Executive Director of Volt Resources Ltd, and a board member of the RSPCA WA.

### **Ms Jenny Bloom – Non-Executive Director**

Ms Bloom has an extensive business background with experience in the private and public sector and is currently the Deputy Chair of the Waste Authority Western Australia. Jenny held senior positions with Ansett Australia, leading high-level change projects across various areas of the business including major operational business realignment. Ms Bloom has owned and operated successful businesses in the Kimberley and was Councillor and Deputy Shire President for the Shire of Broome from 2009 to 2014 and an Independent Director of an Aboriginal corporation from 2008 to 2011. Resource sector exposure includes involvement in the approval processes for large onshore shale oil & gas and mineral sands projects.

### **Mr Michael Blakiston – Non-Executive Director**

Mr Blakiston is a partner in Gilbert + Tobin's Energy and Resources group. He has over 30 years' experience gained across a range of jurisdictions. He advises in relation to asset acquisition and disposal, project structuring, joint ventures and strategic alliances, development agreements and project commercialisation, capital raisings and company merger and acquisitions. Mr Blakiston has served on numerous ASX-listed companies and not-for-profit boards and is currently the Chairman of Precision Opportunities Fund Ltd, a specialist small-to-medium cap fund.

**Mr Simon Hodge – Chief Financial Officer**

Mr Hodge commenced as Chief Financial Officer on 1 February 2017. He has more than 25 years' experience in senior executive, corporate advisory and equity research roles. He was most recently engaged in a consulting capacity as Corporate and Commercial Advisor to BC Iron. Prior to joining BC Iron, Mr Hodge was Chief Financial Officer and Chief Operating Officer for Quickflix Limited, an ASX-listed company he co-founded. He has extensive finance, capital markets, corporate advisory and equity research experience having held senior positions in corporate advisory with Poynton and Partners and in equity research with JP Morgan (London) and a major Australian stockbroker.

Mr Hodge has a Bachelor of Commerce (First Class Honours in Accounting and Finance) from University of Western Australia.

**Susan Hunter – Company Secretary**

Ms Hunter has over 23 years' experience in the corporate finance industry and extensive experience in Company Secretarial and Non-Executive Director roles with ASX, AIM and TSX-listed companies. Ms Hunter holds a Bachelor of Commerce, is a Member of the Australian Institute of Chartered Accountants, a Fellow of the Financial Services Institute of Australasia, a Graduate Member of the Australian Institute of Company Directors and a Graduate Member of the Governance Institute of Australia. She is currently Company Secretary of several ASX-listed companies.

## Appendix 4. Investment Risks

### **BCI's exploration properties may never be brought into production**

The exploration for, and development of, mineral deposits involves a high degree of risk. Few properties that are explored are ultimately developed into producing mines. To mitigate this risk, the company has undertaken systematic and staged exploration and testing programs on its mineral properties and progressively undertaken a number of technical and economic studies with respect to its projects. However, given a formal decision on development is yet to be taken, there can be no guarantee that the properties will be ultimately brought into production.

### **BCI's activities will require further capital**

The development of the company's exploration properties will require substantial additional financing. Failure to obtain sufficient financing may result in delaying or indefinite postponement of exploration, and any development of the company's properties or even a loss of property interest. There can be no assurance that additional capital or other types of financing will be available if needed or that, if available, the terms of such financing will be favourable to the company.

### **BCI is yet to receive the required environmental permits**

An ERD has been submitted and the public consultation period is now closed, but there is no guarantee that the company will receive the requisite permits in a timely fashion.

### **BCI may be adversely affected by fluctuations in commodity prices**

The price of salt and potash fluctuates and is affected by numerous factors beyond the control of the company. Future production and revenue, if any, from the company's mineral properties will be dependent upon the price of salt and potash being adequate to make these properties economic. The company does not currently engage in any hedging or derivative transactions to manage commodity price risk. This policy will be reviewed periodically going forward, as the company's operations change.

### **Global financial conditions may adversely affect BCI's growth and profitability**

Many industries, including the mineral resource industry, are impacted by these market conditions. Some of the key impacts of the current financial market turmoil include contraction in credit markets resulting in a widening of credit risk, devaluations and high volatility in global equity, commodity, foreign exchange and precious metal markets, and a lack of market liquidity. Due to the current nature of the company's activities, a slowdown in the financial markets or other economic conditions may adversely affect the Company's growth and ability to finance its activities.

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### **Investment Recommendation**

Date and time of first dissemination: October 20, 2020, 15:31 ET

Date and time of production: October 20, 2020, 15:31 ET

### **Target Price / Valuation Methodology:**

BCI Minerals Limited - BCI

The price target of A\$0.50ps is set using a SOTP based methodology.

### **Risks to achieving Target Price / Valuation:**

BCI Minerals Limited - BCI

### **BCI's exploration properties may never be brought into production**

The exploration for, and development of, mineral deposits involves a high degree of risk. Few properties that are explored are ultimately developed into producing mines. To mitigate this risk, the company has undertaken systematic and staged exploration and testing programs on its mineral properties and progressively undertaken a number of technical and economic studies with respect to its projects. However, given a formal decision on development is yet to be taken, there can be no guarantee that the properties will be ultimately brought into production.

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**Global Stock Ratings (as of 10/20/20)**

Rating	Coverage Universe		IB Clients
	#	%	%
Buy	541	62.47%	55.08%
Hold	166	19.17%	40.36%
Sell	9	1.04%	33.33%
Speculative Buy	127	14.67%	78.74%
	866*	100.0%	

\*Total includes stocks that are Under Review

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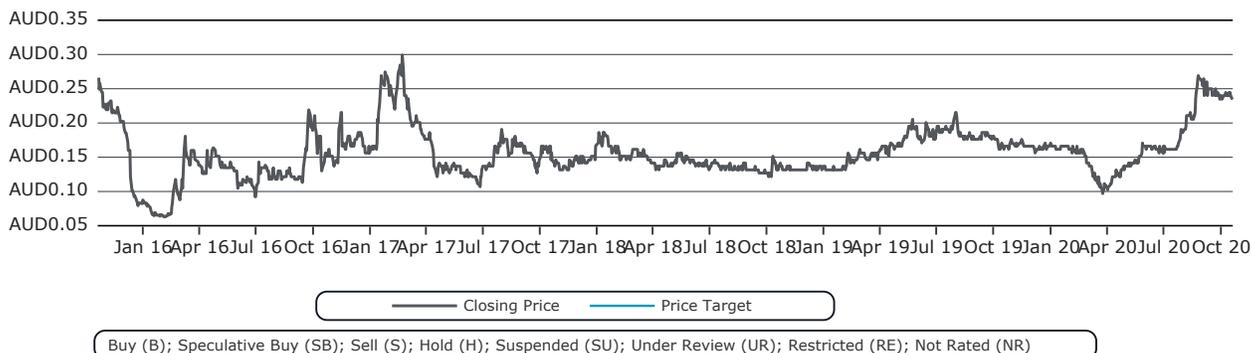
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**BCI Minerals Limited Rating History as of 10/19/2020**



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