

# BCI Minerals

Initiation of coverage

## Salt plus potash plus iron equals value

**BCI Minerals (BCI) has two major assets in Western Australia, namely its 100%-owned Mardie salt and potash project and a royalty interest in a producing iron ore mine (Iron Valley). Positive cash flow from the latter, in conjunction with c A\$37m in cash, is being deployed to develop the former. Notwithstanding tough conditions in the iron ore market, our base case valuation of BCI is more than double its share price.**

Year end	Revenue (A\$m)	PBT* (A\$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
06/17	64.3	6.0	1.9	0.0	7.9	N/A
06/18	33.0	(16.9)	(4.3)	0.0	N/A	N/A
06/19e	52.5	(5.6)	(1.4)	0.0	N/A	N/A
06/20e	57.6	(3.6)	(0.5)	0.0	N/A	N/A

Note: \*PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

### Mardie is unique long-life asset

The results of BCI's Mardie pre-feasibility study (PFS) were published on 1 June, which showed a project internal rate of return of 20% and a pre-tax NPV<sub>10</sub> of A\$335m. While this implies a prima facie pre-tax valuation of 84 Australian cents per existing BCI share, a fully diluted/risked analysis relative to its PFS stage of development implies an immediate valuation of 5.84–11.15c per share.

### Mardie is the key to valuation upside

Despite its relatively low (risked) valuation relative to that of Iron Valley currently (Exhibit 1), Mardie offers by far the greatest upside potential. In general, for mining companies developing projects, the lowest valuations are encountered at the PFS stage. A definitive feasibility study (DFS) with the same conclusions as its PFS should immediately increase Mardie's valuation to c 18.22c/sh. Optimisation of expanded PFS parameters (page 21) could also add 9.32c per share. Thereafter, the passage of time naturally increases our valuation to as high as 68.46c per share in FY28. In the shorter term it increases to c 60c/sh in the event of either reduced assumed equity funding of the project (page 21) and/or increasing the price at which that funding is assumed to occur. Investors should note that all these calculations treat Mardie as if it were a mining project. In fact, owing to its nature, its characteristics are closer to an agricultural project, with vastly reduced geological, metallurgical and engineering risk, albeit partly offset by increased climactic risk. Notable is management's track record of value-adding credentials, from the development of Iron Valley in 2014 to the sale of Kumina in 2018.

### Valuation: 30.66c per share

Considering its royalty interest in the Iron Valley mine, along with cash and corporate items, we value BCI at 19.51 Australian cents per share, to which should be added an immediate 5.84–11.15c for the value of its Mardie salt and sulphate of potash (SOP) project and a further 2.43c for the value of its Buckland iron ore assets. While funding options for Mardie will be investigated in more detail as part of a DFS, the PFS has confirmed the viability of the project and may well prove a catalyst for partnership discussions.

## Metals & mining

7 February 2019

**Price** **A\$0.15**

**Market cap** **A\$60m**

A\$1.4008/US\$

Net cash (A\$m) at 31 December 2018 36.6

Shares in issue 397.6m

Free float 63%

Code BCI

Primary exchange ASX

Secondary exchange N/A

### Share price performance



% 1m 3m 12m

Abs 3.7 3.7 (6.7)

Rel (local) (3.4) 1.4 (9.1)

52-week high/low A\$0.17 A\$0.13

### Business description

BCI Minerals has two major assets in Western Australia, including a 100% interest in the Mardie salt and potash project and a royalty-type interest in the Iron Valley iron ore mine operated by Mineral Resources. It also has exploration tenements in iron ore and other minerals.

### Next events

HY19 results February 2019

Q319 activity report April 2019

Mardie DFS Q4 CY19

Mardie investment decision Q1 CY20

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**BCI Minerals is a research client of Edison Investment Research Limited**

## Investment summary

### Company description: Iron, salt and SOP in the Pilbara

BCI Minerals (formerly BC Iron) is an ASX-listed resources company, with interests in salt, potash and iron ore projects in the Pilbara region of Western Australia. After being incorporated in 2006, it entered into the Nullagine joint venture with Fortescue Metals in 2009, which operated for five years and resulted in BCI paying dividends to shareholders in FY12–14. Nullagine was suspended in December 2015. However, during this period, BCI acquired Iron Ore Holdings, including the key assets of Iron Valley, Buckland and Mardie. Three years later, it also acquired a number of under-explored West Pilbara tenements from Mineralogy Pty including Kumina. Iron Valley has since been developed into a mine, operated by Mineral Resources (MIN) and from which BCI derives a royalty-type income stream. After completing a positive PFS on Mardie in June 2018, BCI made the decision to concentrate on its salt assets and commenced a formal divestment process of its iron ore assets, starting with Kumina, which it sold for A\$35m in December 2018.

### Valuation: Share price approximates Iron Valley valuation alone

A summary of our valuation of the constituent parts of BCI is as follows:

<b>Exhibit 1: Sum-of-the-parts valuation of BCI</b>	
<b>Asset</b>	<b>Base case valuation (Australian cents per share)</b>
Iron Valley	12.77
Mardie	11.15
Cash	8.77
Deferred Kumina consideration	1.38
Corporate	-3.40
<b>Sub-total</b>	<b>30.66</b>
Buckland (Bungaroo South)	2.43
<b>Total</b>	<b>33.09</b>

Source: Edison Investment Research

### Financials: Net cash of A\$37m and cash-flow positive

BCI reported net cash on its balance sheet of A\$36.6m at end-December 2018 after receiving A\$27m from the sale of the Kumina assets in December. The next 24 months will be characterised by higher c A\$25m investment in Mardie. This will be partly offset by a higher iron ore price (see pages 11–16). Nevertheless, it will be more than sufficient to carry the project to a final investment decision in early CY20. Within this context, we estimate that BCI will finish FY19 with A\$27.8m in net cash on its balance sheet.

### Sensitivities: Equity component and price key to BCI valuation

Although it is not the largest component of the whole, it is parameters relating to Mardie to which our valuation of BCI is most sensitive. Over the life of the operation, we estimate that adoption of expanded operating parameters at Mardie (see page 21) increases our valuation by 9.32c/sh, while a  $\pm 10\%$  change in forex changes the valuation by  $\pm 7.20$ c/sh, ahead of a  $\pm 10\%$  change in the salt price, which changes our valuation by  $\pm 5.22$ c/sh and a  $\pm 10\%$  change in the SOP price, which changes our valuation by  $\pm 1.48$ c/sh. While the passage of time increases our valuation to as high as 68.46c per share in FY28, in the shorter term it increases to c 60c/share in the event of either reduced assumed equity funding of the Mardie project and/or increasing the price at which that funding is assumed to occur.

## Company description: Salt, SOP and iron in the Pilbara

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### Company history

Incorporated in July 2006, BCI Minerals (formerly BC Iron) is an ASX-listed resources company, with interests in iron ore, salt, potash, gold and base metals projects, concentrated in the Pilbara region in Western Australia. BCI began operations by conducting drill tests in its fully owned Nullagine iron ore project in 2007 and completed a feasibility study in July 2009. Subsequently, in August 2009 BCI entered into the Nullagine joint venture (NJV) with Fortescue Metals Group (FMG), commencing production the following year. The NJV operated successfully for five years and delivered c A\$100m in dividends to shareholders before the project was suspended in December 2015 owing to low iron ore prices. Later, in March 2017, BCI's 75% interest in NJV was sold to FMG in return for a royalty on 75% of all future ore mined from Nullagine.

An important transaction was concluded in 2014, when BCI acquired Iron Ore Holdings (IOH) via an off-market takeover offer. The key assets transferred through this takeover were Iron Valley and Buckland (both being advanced iron ore projects in the Pilbara), Mardie and a selection of other exploration tenements.

In 2016, BCI adopted a new strategy focused on growth and portfolio diversification. As a consequence, in the beginning of 2017, it entered into a JV with Kalium Lakes for the Carnegie Project with the objective of becoming a significant player in the emerging Australian potash industry. BCI secured the rights to earn up to 50% interest in this potash exploration project by funding the exploration and development expenditure required to feasibility study level. At the same time, in July 2017, it announced the results of a scoping study into its 100%-owned Mardie salt project in the Pilbara region. Then, in September 2017, it secured a number of under-explored West Pilbara iron ore tenements from Mineralogy Pty including Kumina.

The 2018 calendar year proved to be a transformational one for BCI. In June, it announced a positive pre-feasibility study on Mardie (now incorporating both salt and SOP production potential), after which it commenced a DFS. The same month, it also completed a maiden JORC mineral resource estimate at Kumina of 115.2Mt at a grade of 58.0% Fe, after which it received expressions of interest from 'multiple' parties seeking to acquire assets in the region. In August therefore, BCI announced that it had commenced a formal divestment process for its iron ore asset portfolio, including Iron Valley, Kumina, Bungaroo South, Cape Preston East port rights and a number of other iron ore exploration tenements. Simultaneously, it announced that its primary focus will henceforth be developing a salt and potash business, focusing on Mardie.

In October, BCI announced the sale of Kumina for A\$35m (A\$27m in cash plus A\$4m deferred until the first export of iron ore from the tenements, with a further A\$4m deferred for another 12 months thereafter), which equates to 37.4 US cents per tonne of contained iron at Kumina (right at the top of Edison's potential valuation range, taking into account both grade and potential blue-sky exploration upside), or 8.8 Australian cents per BCI share. The sale completed in December, whereupon BCI duly received its A\$27m initial consideration such that its net cash position at that point was c A\$37m.

At the current time therefore, BCI is receiving earnings from Iron Valley, while simultaneously advancing its Mardie project and seeking buyers for Buckland.

### Strategy

BCI's stated intent is now to develop a salt and potash business as its primary focus in the near term. Funds realised from the iron ore divestment process will enable BCI to rapidly progress the Mardie DFS and maintain 100% ownership through to a target final investment decision date in early 2020.

## Geography

The location of the company's principal assets is presented in Exhibit 2 below.

**Exhibit 2: BCI's mining assets in Australia**



Source: BCI Minerals

## BCI's key mining projects

### Mardie Salt and SOP project

The Mardie project is located on the West Pilbara coast, between Dampier (95km north-east of Mardie) and Onslow (90km south-west of Mardie), which is Australia's major solar salt production and export region, including operations such as Rio Tinto's Dampier Salt (the world's largest single salt exporter). BCI intends to develop the project into a long-life operation, producing both salt and SOP via the solar evaporation of seawater.

**Exhibit 3: Mardie salt project location**



Source: BCI Minerals

The region is favourable for oceanic salt extraction operations because of its access to natural channels that feed seawater to the project area and a low-permeability, flat landscape that is suitable for constructing evaporation ponds. The region's windy, hot and dry climate is classified as 'grassland' by the Bureau of Meteorology, which means it experiences hot weather throughout the year with a summer drought. The Mardie tenements, in particular, comprise extremely flat mudflat topographies behind the coastal mangroves. The project has five granted exploration licences and one exploration licence application, encompassing a total area of 912km<sup>2</sup>.

A scoping study released in July 2017 by BCI demonstrated positive results for developing a 3–3.5Mtpa operation to produce high-purity, industrial-grade sodium chloride salt from seawater for onward sale to the chlor-alkali industry. The study assessed a 20-year mine life, although the project could potentially operate (effectively) almost indefinitely, given that the input resource is seawater. Capital expenditure was estimated at A\$225–255m with an accuracy of ±35%. Operating costs were expected to be c A\$19–21/t on a free-on-board (FOB) basis, which generated a pre-tax NPV of A\$290–380m over a 20-year life at a 10% discount rate and a pre-tax IRR of 25–27%. The study assumed the export of salt via the Cape Preston East Port. In due course, it was observed that Mardie could also benefit from synergies with BCI's Carnegie project, which has a similar pond design principle and processing and marketing dynamics.

## Mardie PFS

### Background and scope

The results of the Mardie PFS were announced in June 2018. As per the July 2017 scoping study, the ultimate aim of the project was presumed to be the production of 3.5Mtpa of high-purity, industrial-grade sodium chloride salt and 75ktpa of SOP from seawater via solar evaporation, crystallisation and purification. The salt was then presumed to be exported via a purpose-built transshipping operation at BCI's planned Cape Preston East Port (note: SOP, see below, was presumed to be exported from the existing general cargo wharf at Port Dampier). The study was conducted in conjunction with at least 18 external consultants, including Salt Partners, Roskill and Braemar Shipping Services, with the objective of improving the scoping study design footprint, reducing technical and approval risks and evaluating the viability of a SOP processing flowsheet in addition to the salt one. A range of field studies, sampling and test-work programmes and surveys were undertaken regionally and locally to define the project design criteria and operational and capital cost estimates were undertaken to an accuracy of -15% to +25%, qualifying it as equal to, or better than, an AACE Class 4 estimate, as defined under Association for the Advancement of Cost Engineering Recommended Practice Number 18R-97 (ie a pre-feasibility study).

### Geotechnical and hydrogeological

The Mardie site has all the natural hydrological, climatic, topographical and geotechnical prerequisites for the production of salt and SOP from solar evaporation. In addition, it is also ideally situated to access Asia's key growth markets.

Critical geotechnical requirements for the construction of 89km<sup>2</sup> of concentrator and crystalliser ponds are:

- The presence of a low permeability clay layer that extends across the proposed pond footprint in order to reduce product losses via seepage and eliminate the need for pond liner.
- The availability of material suitable for constructing low-permeability walls in order to eliminate the need to source and transport suitable materials to site.

The tests conducted in the context of the PFS have allowed BCI to conclude that a low-permeability layer is extensive across the proposed pond footprint and that construction materials for the pond walls are available.

Similarly, hydrogeological studies have concluded that:

- Surface water flows from land to sea are minimal and, such as they are, may be accommodated by three sets of diversion bunds and three diversion channels through the project area to ensure that water flows are managed effectively, without affecting ponds or project infrastructure.
- The project is protected from potentially damaging sea to land water movements (eg storm or cyclone-induced surges and waves) by two lines of defence, namely the island archipelago system directly adjacent to the coast and the mangrove swamps lining the coast, and the fact that the ponds will be located 2–3km inland.

## **Mining and processing**

### **Sodium chloride salt**

A seawater pump will extract 132 billion litres (132 x 10<sup>9</sup> litres or 132GI – approximately 135.8Mt) of seawater, containing c 5.4Mt of salts (containing c 4.2Mt of sodium chloride and 135kt of SOP equivalent) per year and transfer it to the first of eight concentrator ponds. The seawater will then progress from Pond 1 to Pond 8 over a period of approximately one year (similar to lithium salt extraction from the South American salars), at which point solar evaporation will have reduced it to 12% of its original volume and its specific gravity will have increased to 1.216g/cm<sup>3</sup> (ie close to the point of salt crystallisation). From Pond 8, 18GI of concentrated seawater (augmented by a recycled stream from the SOP production circuit) containing 4.8Mt of sodium chloride per year will be deposited into a series of 12 crystalliser ponds, from where 3.8Mtpa of raw salt will be crystallised at specific gravities of 1.227–1.250g/cm<sup>3</sup>. At a specific gravity of 1.250g/cm<sup>3</sup>, the crystallisers are drained and raw sodium chloride salt is dry harvested for treatment in the salt purification plant. The bitterns drained from the crystallisers total 6.0GI per year and contain 1.0Mt of residual sodium chloride salt and 130kt of SOP equivalent (see below). The dry harvested salt is then hauled to a 700tph purification plant, designed by Salt Partners, using its proprietary HYDROSAL-XP salt purification process to minimise product losses (c 2–3% cf 20% via traditional methods) and maximise contaminant rejection to result in a high product purity of 99.7% on a dry basis. Finally, product is stockpiled at Mardie for up to six months to assist in dewatering and product quality. Total product losses of 7% have been assumed in the study, from harvesting to export, to result in annual saleable production of 3.5Mtpa (note that the DFS is aiming to increase this by 14.3% to 4.0Mtpa).

### **SOP**

The 6.0GI of bitterns containing 1.0Mt of sodium chloride salt and 130ktpa of SOP equivalent (see above) is pumped to four parallel streams of nine sequential secondary crystallisers. The first four of the nine crystallisers will be primarily employed in precipitating mainly sodium chloride salt (albeit with sufficient contaminants to make it unsuitable for immediate purification), which is then re-dissolved in seawater before being returned to Concentrator Pond 7 (see above). Crystallisers 5 and 6 will crystallise a mixed salt with a low potassium content that is considered waste. Kainite-type mixed salts will then form in Crystallisers 7 and 8, with the final Crystalliser 9 being allowed to hold surplus liquor. The Kainite-type mixed salts are then dry harvested from each crystalliser and hauled to the stockyard and stockpiled separately, whence they are blended to provide a consistent feed for the SOP plant. The SOP plant crushes, screens and re-dissolves the Kainite-type mixed salts and subjects them to a solid/liquid separation process to remove the majority of the sodium chloride (which is returned to the crystallisers) to form a Schoenite mother liquor, which then proceeds to decomposition, washing, concentration and drying to become SOP product at a rate of 75ktpa for the purposes of the PFS, but potentially up to 100ktpa, with less conservative recovery assumptions, which is the aim of the DFS currently underway. SOP destined for overseas markets will then be bulk packaged on site and trucked to the general cargo wharf at Port Dampier for export in sea containers. Sales into the domestic Australian market will occur via road transport and/or coastal shipping.

### **Waste disposal**

Waste, primarily in the form of bitterns and low potassium mixed salts from Crystallisers 5 and 6, will be transferred to a holding pond for dilution in seawater, prior to pumping via pipeline over the tidal flats into deeper water, where the waste liquid will be released through a purpose-designed diffuser.

### **Logistics**

The PFS assumed that the proposed Cape Preston East Port (CPE) will be constructed by BCI subsidiary, Cape Preston Logistics Pty (CPL) and will be expanded for salt export in addition to iron ore export. Within this context, product stockpiles at Mardie were presumed to be connected to CPE via a 19km sealed private project access road, which connects with a 48km section of BCI's proposed sealed private road. However, management is also pursuing government support for the development of an export jetty at Mardie as an alternative to trucking salt c 70km to CPE. Internally, management expects this initiative to reduce opex costs by c A\$4/t (or c 20%) as a result of eliminating haulage, operational simplifications and less process duplication, albeit at the expense of a c A\$65m increase in capex. We understand the Mardie export jetty solution will form the basis of the DFS. The economic consequences of such an initiative are considered in the sensitivities section, on pages 20–22, below.

### **Infrastructure**

Critical ancillary infrastructure for the development of the project may be summarised as follows:

- A 26km site access road.
- Prefabricated, modular administration facilities.
- Maintenance workshops (also serving as cyclone protection).
- Laboratory.
- A village, comprising a nominal 100 accommodation units, mess etc and supporting central infrastructure (eg waste water treatment plant, communications etc).
- A precast, concrete boat launching ramp.
- Local diesel generation for the seawater pump station.
- Mobile fleet, including raw salt harvesters, graders, raw salt haul trucks and product loading equipment.
- A desalination plant to provide fresh process and drinking water.
- Weighbridge.
- A fenced landfill site.

### **Timing**

The project has a five-year development timeline, from the completion of the PFS to first salt production in 2023. BCI plans to optimise the development timeline during the BFS and also to investigate opportunities to accelerate the schedule. To date, however, the project is planned to occur on a 'just-in-time' basis, commencing in early 2020. Key scheduled milestones are as follows:

- April 2020 to October 2021: concentration ponds completed and transferred into service.
- June 2021: first primary crystallisers ready for service and nominal 400mm salt floors to be prepared over the following 12–18 months to December 2022, before the first raw salt harvest six months later in June 2023.
- H2 CY23: Completion of the salt purification plant.
- 2023: Secondary crystallisers for SOP production constructed and salt floors prepared over the following year, ready for feed into the SOP plant in H1 CY25.

## Environmental and permitting

Key features of the Mardie project are that it is set back from the coast, thereby avoiding coastal vegetation as well as affording protection from cyclone-induced storm surges. The final environmental surveys relating to the project are currently underway. During the course of the Mardie PFS, at least 14 environmental studies were conducted, which resulted in the following modifications to the project compared with its original scope:

- A substantial reduction in the size of the project area via the surrender of a tenement to avoid mangroves in the Robe River delta.
- A further 3,000 hectare (29%) reduction in the project area to avoid algal mats.
- Minimisation of clearing, dredging and other maritime disturbance.
- Relocation of the western pond walls landward, with a 300m buffer between these walls and the mangrove algal mats, in order to minimise direct and secondary, indirect effects on the ecosystem.
- Relocation of the western pond walls to allow algal mats to migrate landwards towards the seawall and along corridors in response to predicted sea level rises over the life of the project.
- Installation of drainage corridors, designed to maintain hinterland and tidal creek flows (as much of nutrients as water) and connectivity.

Otherwise, a number of approvals will be required from a range of both State and Federal government departments, including the Department of the Environment & Energy (DOTEE), the Department of Water & Environmental Regulation (DWER), the Department of Mines, Industry Regulation & Safety and the Department of Planning, Lands & Heritage. Significantly, during the December 2018 quarter, the Environmental Protection Authority (EPA) approved the Mardie project's environmental scoping document, which sets out the scope and content of the environmental review document (ERD) required to be submitted as part of the approval process. On the basis that the ERD is submitted by April 2019, the EPA endorsed a timeline whereby the EPA's assessment report is released by the end of 2019, allowing full Ministerial approval by early 2020.

## Social

The licences comprising the Mardie project are covered by the claim areas of the Yaburara Mardudhunera and Kuruma Marthudunera native title claim groups. BCI has longstanding and strong relationships with both groups and existing land access deeds. In addition, it has completed a detailed heritage survey during the course of its PFS, in order to ensure the minimum disruption of sacred sites.

During the December 2018 quarter, BCI completed a positive heritage survey with the Yaburara and Mardudhunera people that covers approximately 90% of the project footprint. The result of the survey is that BCI has now received the required heritage-related consents to proceed with construction and operation activity in these areas, subject to relocation of some artefacts and preservation of a heritage site, which does not affect the planned project footprint. The company plans to complete a further heritage survey with the Kuruma Marthudunera people in the March 2019 quarter to cover the remaining 10% of the project's footprint area.

## Competitive advantages

Mardie has four important competitive advantages over its rivals:

- A key barrier to entry for all solar evaporation salt projects is location. In this particular case, Mardie has secured a rare combination of a low-permeability, flat landscape in a hot and dry climate, close to existing infrastructure.

- Current cost estimates derived from the pre-feasibility study suggest that, including SOP as a by-product, Mardie will be at the bottom of the global cost curve for salt production.
- On the coast of Western Australia, Mardie is projected to have a US\$15/t freight cost advantage over Mexico (the world's eighth largest producer) in shipping to Asia.
- Mardie will have a competitive advantage over domestic SOP producers that are typically located 800–1,000km from ports.

## Iron Valley

Iron Valley is an operating mine located in the Central Pilbara region that has been in production since October 2014. It has a relatively simple deposit geometry with a low waste to ore stripping ratio and produces both lump and fines that are transported to Port Hedland by trains and exported via Utah Point. At June 2018, it had reserves and resources capable of supporting a simple direct shipment operation with a life of c 13 years at current production rates of c 7.5Mtpa.

<b>Exhibit 4: Iron Valley mineral resource estimate</b>								
Classification	Cut-off (% Fe)	Mt	Fe (%)	Ca Fe (%)	Al <sub>2</sub> O <sub>2</sub> (%)	SiO <sub>2</sub> (%)	P (%)	LOI (%)
Measured	50	92.0	57.8	62.6	3.2	5.4	0.2	7.7
Indicated	50	79.6	58.4	62.9	3.3	5.2	0.17	7.1
Inferred	50	26.1	57.8	61.3	3.9	6.6	0.14	5.6
<b>Total as at 30 June 2018</b>	<b>50</b>	<b>197.8</b>	<b>58.1</b>	<b>62.6</b>	<b>3.3</b>	<b>5.4</b>	<b>0.17</b>	<b>7.2</b>
Total as at 30 June 2017	50	229.9	58.4	62.8	3.2	5.2	0.17	7.0

Source: BCI Minerals. Note: 100% BC Iron, subject to sale agreement with MIN.

<b>Exhibit 5: Iron Valley ore reserve estimate</b>								
Classification	Cut-off (% Fe)	Mt	Fe (%)	Ca Fe (%)	Al <sub>2</sub> O <sub>2</sub> (%)	SiO <sub>2</sub> (%)	P (%)	LOI (%)
Stockpiles (Proven)	54	5.2	56.1	60.1	3.7	8.3	0.14	6.6
Proven	54	56.6	58.4	63.3	3.1	4.6	0.19	7.7
Probable	54	33.6	58.6	63.1	3.2	5.0	0.16	7.2
<b>Total as at 30 June 2018</b>	<b>54</b>	<b>95.4</b>	<b>58.4</b>	<b>63.1</b>	<b>3.1</b>	<b>5.0</b>	<b>0.18</b>	<b>7.4</b>
Total as at 30 June 2017	54	113.0	58.7	63.3	3.0	4.8	0.18	7.3

Source: BCI Minerals. Note: 100% BC Iron, subject to sale agreement with MIN.

Until August 2014, Iron Valley was a part of IOH and had a mine gate sale arrangement with MIN whereby the latter bore the operating expenses and purchased Iron Valley product at prices linked to MIN's realised sale price – an arrangement that BCI retained after its acquisition of IOH in October 2014 (albeit with minor amendments). Note that BCI retains ownership of the tenements and certain statutory obligations, including payment of government, state and third-party royalties. The arrangement with MIN effectively means that BCI receives a royalty-type income stream from Iron Valley. Sales and earnings figures attributable to BCI from Iron Valley since 2014 have been as follows:

<b>Exhibit 6: Iron Valley production and sales</b>				
Iron Valley	FY15	FY16	FY17	FY18
Production per year (wmt*, millions)	2.83	6.5	8.0	6.1
Revenue from Iron Valley to BCI (A\$m)	18.8	39.9	63.5	33.0
EBITDA** from Iron Valley to BCI (A\$m)	4.1	10.2	16.0	7.9

Source: BCI Minerals. Note: \*wmt denotes wet metric tonnes; \*\*company calculated.

Until recently, BCI's received royalty was based on MIN's received price for Iron Valley iron ore, whereas its paid royalty to the State Government, in particular, was based on an indexed price – a mechanism that gave rise to apparent anomalies and subsequent adjustments to BCI's net income from Iron Valley. To correct this income volatility, BCI management engaged with State Government in the June quarter of 2018 and negotiated an agreement to alter the calculation of its paid royalties from an indexed price to a received price basis – with the result that net income from Iron Valley to BCI in recent quarters appears much smoother than in previous quarters and to approach an A\$1/t approximation relative to wet metric tonne production.

## Logistics upside

MIN is seeking to implement an enhanced logistics solution for Iron Valley known as the Pilbara Infrastructure Project, which comprises an innovative 330km lightweight, narrow gauge rail transport system connecting to automated port infrastructure at Port Hedland with fully autonomous c 120t payload shuttles. Once operational, potential gains would include lower operating expenses and doubled production rates to 15Mtpa, leading to a direct benefit to BCI in the form of a corresponding increase in royalty payments as well as an indirect benefit in the form of Iron Valley's becoming a more economically efficient operation.

Once appropriate state approvals have been received, construction of the project is likely to take 18 months before the system becomes operational. Note that for the purposes of our sensitivities' sections on pages 20–22, in which we consider the valuation implications of a doubling of the sales rate at Iron Valley, we assume that construction of the Pilbara Infrastructure Project would be complete at the end of FY20, that commissioning and ramp-up would occur in FY21 and that full capacity will be reached in FY22.

## Terminal market background

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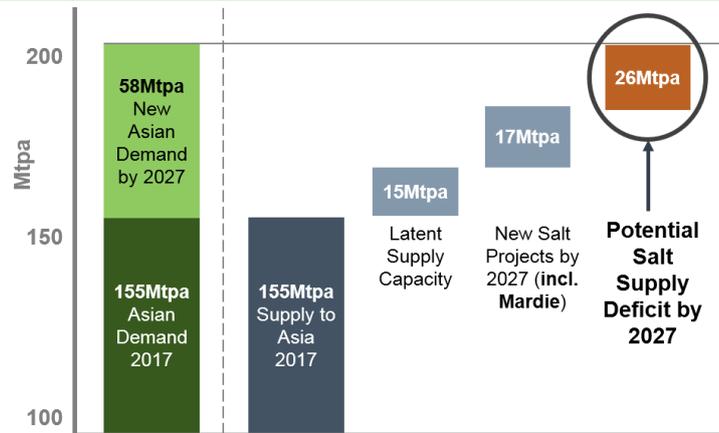
### The salt market

#### Sodium chloride

According to the US Geological Survey, Australia was the seventh largest producer of salt in the world, in 2015, after China, USA, India, Germany, Canada and Chile. In crude terms, China accounts for 25.9% of global production of c 270Mtpa, followed by the USA with 16.7%. The next six largest producers (including Australia) produce c 4–7% each of global production. Within this context, Mardie's proposed output of up to 4.0Mtpa accounts for approximately 1.5% of global output, or a more material 36.4% of existing Australian capacity.

Salt is commonly associated with the food (9% of total demand) and de-icing (12%) industries, of which it forms an important component. Its largest use, however, is industrial (54% of demand) primarily as an input into the chlor-alkali process, whereby high-purity brine solution is electrolysed to form chlorine, caustic soda and hydrogen. These, in turn, become inputs into the PVC, plastics and paper industries, among others. As with other commodities, therefore, there is a causative association between global economic growth (and especially that in the developing world and Asia in the form of an increasingly large and increasingly prosperous middle class) and salt demand. According to consultants Roskill (quoted in BCI's Mardie PFS announcement on 1 June 2018), demand for salt in 2017 was 339Mt, of which approximately 46% was accounted for by Asia, which is forecast to increase by 37.4%, or 58Mt, over the 10 years to 213Mt in 2027 (ie a compound rate of growth of 3.2% per year). During the same period, supply is anticipated to increase by 32Mtpa – impaired, among other things, by pressure on land in Asia for solar evaporation projects – creating a 26Mtpa supply-side shortfall and driving prices from below US\$40/t currently (CIF) to c US\$50/t (cf 'a realistic average longer-term freight rate of US\$13/t').

**Exhibit 7: Asian salt market dynamics**



Source: Roskill 2017 Salt market report, BCI Analysis

## SOP

In contrast to common salt, SOP is a premium fertiliser that is used as a source of potassium for high-value crops that are intolerant to the chlorine contained in fertilisers such as muriate of potash (KCl, or potassium chloride). SOP also has the benefit of contributing sulphur (another key macro-ingredient) to the plant.

SOP is typically manufactured by one of three methods: the Mannheim process (c 50% of supply), solar evaporation (30% of supply) and other (20% of supply). In contrast to solar evaporation, the Mannheim process reacts sulphuric acid with potassium chloride to produce sodium sulphate and hydrogen chloride, which is driven off in a furnace in gaseous form. Owing to its greater chemical intensity, the Mannheim process is almost invariably more expensive than comparable processes, with the purchase of chemicals accounting for approximately 80% of costs and fuel accounting for an additional 10%. In consequence, the Mardie solar evaporation method of SOP production is expected to result in its being placed well within the lowest cost quartile of SOP producers globally.

The total potash market in 2016 was estimated to be approximately 68Mt, of which muriate of potash (MOP) accounted for 85%, SOP 10% and other products 4%. In common with salt, the major drivers of SOP demand are the increasing, and increasingly prosperous, Asian middle class in addition to the consideration that increasing crop yields are required from remaining cultivatable land, after urbanisation. The 7.1Mtpa SOP market, in particular, is forecast by Integer Research (quoted by BCI on 1 June 2018) to expand by 11.3%, to 7.9Mtpa in 2027 (a compound annual growth rate of 1.0% per year over 11 years), with South Asia – primarily India – accounting for substantially all of the growth, coupled with an increasing trend of substituting SOP for MOP. BCI proposes to market its Mardie SOP both domestically and regionally, to South-East Asia, and adopted a price of US\$500/t (FOB Dampier) for the purposes of its PFS.

## Iron ore

China dominates both the global steel market and the global iron ore market. However, while it is prima facie the world's largest domestic producer of iron ore, mine production for China is based on crude ore, rather than usable ore. Moreover, Chinese iron ore is of an inferior grade compared to other major producers around the world, with an iron content of around 17–20%, of a 62% standard worldwide. As a result, China is also the world's largest importer of iron ore, with imports of c 1bn tonnes per year accounting for approximately half of global supply and two-thirds of the world's export trade. In turn, it accounts for c 50% of global steel production.

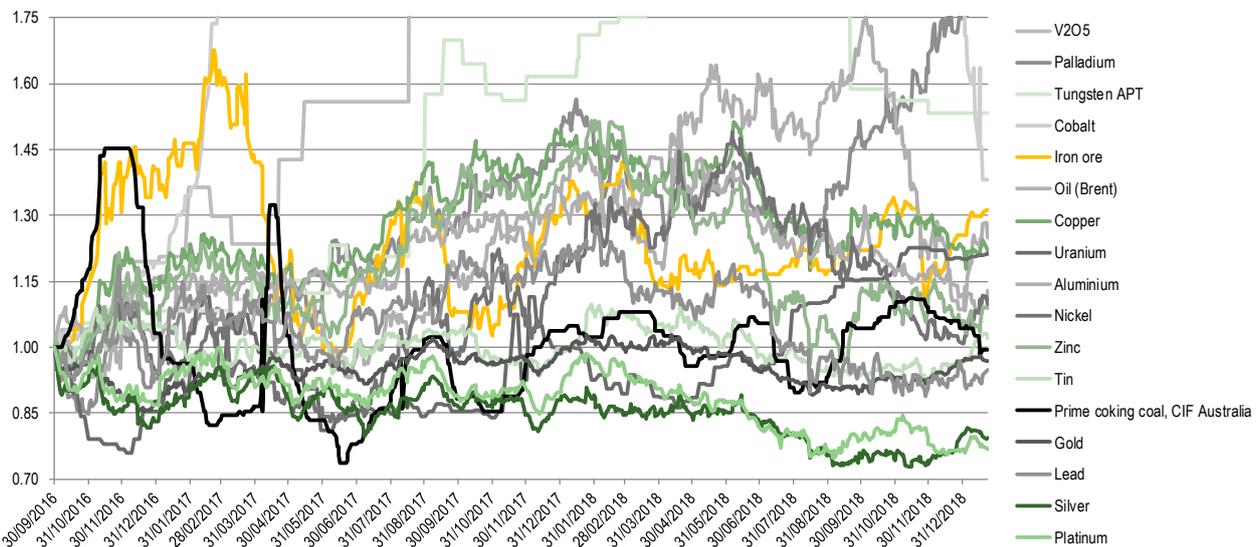
In recent months, the export price for iron ore has been caught between the expectation that Chinese steelmaking capacity will be cut at the same time as iron ore capacity is being brought on stream, and the reality that actual steel output has continued to prove stubbornly resilient.

Expectations of a cut in steelmaking capacity in particular have been driven by both a suite of smog restrictions imposed by Beijing, which is expected to result in the closure of ageing, high-polluting steel mills and induction furnaces, and a perceived desire to curb overcapacity in the sector. As a result, in April 2018, the country's top steelmaking city of Tangshan ordered steel mills to cut 50% of their sintering capacity over and above the existing output restrictions in place until November, as a bout of pollution was expected to blanket the city and the surrounding Beijing-Tianjin-Hebei region. Emergency measures in Tangshan were effective from 15 April and it is reported that the authorities are considering an extension of the output restrictions by six months after the earlier curbs appeared to have little effect on pollution.

One explanation for the absence of obvious capacity reductions may be that downstream demand remained buoyed by strong demand at construction sites in the south and east in H118. Since then, there has been evidence of a weakening property market in China (which accounts for c 40% of demand) in conjunction with a slowdown in more general economic conditions. This has been somewhat offset by efforts by China's central bank to stimulate activity. However, it has also led to speculation that enforcement of the production restrictions may be less robust than officially sanctioned.

Simultaneously however, there have also been disruptions to supply – including the most recent tailings dam disaster in Brazil. Partly as a result (and generally against analysts' expectations), the iron ore price has demonstrated remarkable resilience, rising by 31.2% since Q316 and being the fifth best performing of 17 (common) metals and minerals over the period:

**Exhibit 8: Iron ore price performance vs 16 other metals and minerals, Q316-present (factor)**



Source: Refinitiv, Edison Investment Research. Note: The order of the lines in the legend corresponds to the finishing position of the lines in the graph.

In conclusion, Rio Tinto has stated that it expects the global iron ore market to stay balanced throughout 2019 despite 'a likely moderation in steel demand growth in China', but with a market bias towards high-grade ores, as Chinese steelmakers focus on higher unit productivity and lower emissions per tonne of steel produced. This was an assessment that has largely been echoed by BHP, citing the discount applied to lower-grade ores relative to higher-grade ores as evidence for the change in market dynamics (see Exhibit 10). However, it had been contradicted by Fortescue Metals, which reports that mills have indicated that they will instead seek to source cheaper raw

materials in a bid to remain competitive. At the same time, Fabio Schvartsman, the CEO of the world's largest producer of iron ore, Vale, has indicated that the Brazilian producer would be prepared to withhold capacity in the event of low prices in the market (eg 62% iron ore approaching the US\$60/t level) and to supply into high prices (eg 62% iron ore approaching the US\$100/t level). Notwithstanding the Australian government's official position that it expects the price of iron ore to fall in CY19 as Chinese imports level off and new mines, including Vale's S11D, come online, metals consultant Wood Mackenzie has echoed Vale's comparatively optimistic outlook, saying it expects the 62% benchmark iron ore price to remain comfortably above US\$60/t over the long term. These assessments appear to be largely echoed by financial analysts who are generally forecasting prices in the range US\$57–70/t in the period CY19–20 (cf an average price of US\$70.13/t recorded for 62% iron ore in CY18).

Finally, within the context of the iron ore market, it would be remiss not to note that, US initiatives last year to impose import duties of 25% on steel products (among other things) on 1 March. The proposal is comparable to a tariff imposed by Mr Trump's Republican presidential predecessor, George W. Bush in 2002, when the US imposed heavy tariffs on steel imports, but withdrew them again 18 months later after they were perceived as largely ineffectual, or even harmful, to the US economy. By common consent, the initiative was aimed at China and, at the time, President Trump temporarily excluded six countries and the European Union from the duties. However, on 1 June, the move was extended to the European Union, Canada, and Mexico as well, such that the only countries to remain exempted are Australia and Argentina.

In retaliation, China initiated a WTO complaint against the US on 9 April and the EU followed suit on 1 June. Shortly thereafter – and not least in the face of Chinese threats to retaliate – the US and China released a joint statement agreeing to put tariffs on hold. Despite a 90-day armistice, in which the two countries agreed to suspend tariff hikes and work toward a resolution, the arrest of Huawei Technologies' chief financial officer by Canadian authorities at the behest of the US Justice Department has reignited tensions.

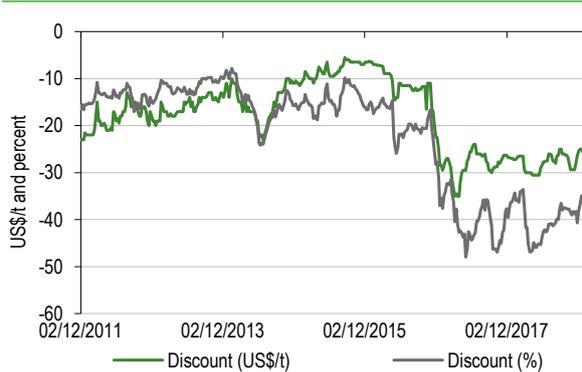
An appreciation of current conditions in the iron ore market may be gained by an analysis of the following graphs:

**Exhibit 9: Graph of 62% iron ore price (US\$/t) vs 58% iron ore price and oil price (US\$/bbl), Dec 11-present**



Source: Refinitiv, Edison Investment Research

**Exhibit 10: Graph of discount of 58% iron ore price vs 62% iron ore price, Dec 11-present (% and US\$/t)**



Source: Refinitiv, Edison Investment Research

A number of features of these graphs are noteworthy:

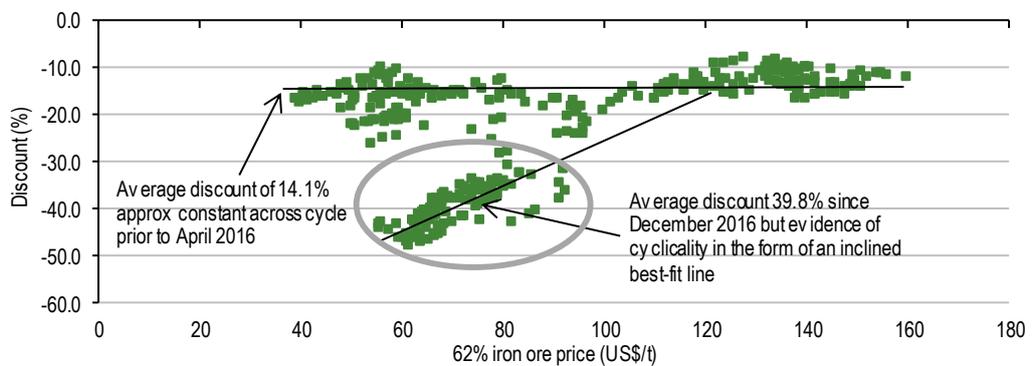
- The close correlation between both the price of 62% iron ore and 58% iron ore with the price of oil – the Pearson product-moment (correlation) coefficient between each to oil being 0.87 and 0.85, respectively.
- The sharp increase in the price discount of 58% iron ore relative to 62% iron ore from April 2016 (in percentage terms) and from November 2016 (in US\$/t terms). Prior to April 2016 the average discount was 14.1% or US\$13.94/t; after December 2016, the discount widened to 39.8% or US\$27.92/t.

- The current price of 58% iron ore is US\$49/t (see Assumptions, below). The current price of 62% iron ore is US\$74.80/t.
- Assuming that it remains at US\$49/t for the remainder of FY19, the likely average price for 58% iron ore for BCI's financial year ending June 2019 is US\$45.59/t. Assuming that it remains at US\$74.80/t for the remainder of FY19, the likely average price for 62% iron ore for BCI's financial year ending June 2019 is US\$71.89/t (see Assumptions, below).

## Iron ore market analysis

The following is a scattergram of the discount of the price of 58% iron ore relative to 62% iron ore in percentage terms plotted against the price of 62% iron ore.

**Exhibit 11: Graph of 62% iron ore price (US\$/t) vs 58% iron ore price discount to 62% iron ore price (%), December 2011 to present**



Source: Edison Investment Research, underlying data Refinitiv

A number of features are noteworthy:

- The cluster of more recently dated points to the bottom left of the chart (circled), relative to the remainder of the points, which suggests that there has indeed been a change in market dynamics since December 2016.
- Whereas, prior to April 2016, the discount of the price of 58% iron ore relative to 62% iron ore was near constant at 14.1% irrespective of the price of 62% iron ore, since December 2016 there is evidence that the level of the discount is dependent on the price of 62% iron ore, ie there is now a degree of cyclical in the size of the discount and that higher 62% iron ore prices correspond to lower discounts in percentage terms.

## Iron ore assumptions

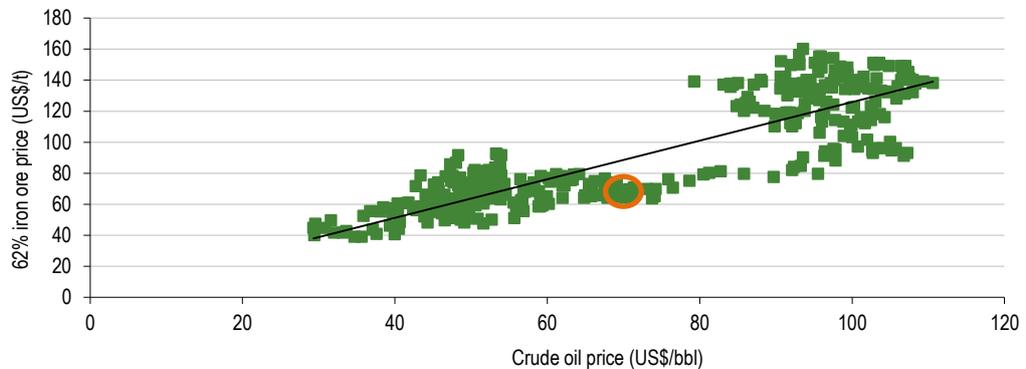
Although BCI has stated that Iron Valley is potentially part of its iron ore divestment process, in formulating our valuation of the company, on account of its cash-generating status, we have chosen to make this asset the core of our initial valuation 'base case' scenario and then to build the Mardie project onto that, rather than vice-versa. The implicit assumption therefore is that Iron Valley is worth either its discounted dividend flow valuation to BCI or the cash equivalent if it were to be sold to a third party.

Assumptions we have made relating to BCI's Iron Valley asset in consideration of this methodology are as follows:

- Shipments of iron ore from Iron Valley will be 7.5Mtpa from FY19 onwards (note that it achieved 8.0Mtpa in FY17), in which case its reserves are sufficient to support mining operations for 13 years until FY31.

- That the price of iron ore will be US\$71.89/t and US\$45.59/t for 62% and 58% iron ore in FY19 respectively, and that it will be US\$74.80/t and US\$49.00/t in FY20, respectively. The long-term price of iron ore will be determined by the close correlation of the price of 62% iron ore with the crude oil price, according to the following graph:

**Exhibit 12: Scattergram of 62% iron ore price (US\$/t) vs crude oil price (US\$/bbl)**



Source: Edison Investment Research, underlying data Refinitiv

- Our long-term crude oil price, as determined by our oil & gas team, is stipulated to be US\$70/bbl, in which case – in strictly empirical terms – the corresponding long-term price of 62% iron ore should be US\$88.52/t (vs a spot price at the time of writing of US\$74.80/t – ie a variance of 18.3%). Note that US\$88.52/t is very close to the average price of US\$89.32/t in the period from December 2011 to the present (as shown in Exhibit 9). However, while we believe this to be an appropriate analysis, in recognition of the fact that the current, long-term consensus among analysts is materially lower than the price implied by the oil correlation, for the moment, we are conducting our base case valuation of BCI on the basis of a long-term 62% iron ore price of US\$67.50/t (as indicated by the orange oval in Exhibit 12 but which ‘should’ otherwise correspond to a long-term oil price of US\$58.03/bbl).
- The discount of 58% iron ore (approximately the price received by Iron Valley for its fines product) at a 62% iron ore price of US\$67.50/t is predicted to be 41.0% (see Exhibit 11), in which case the price of 58% iron ore should be US\$39.84/t (a discount of US\$27.66/t). However, note that Iron Valley’s lump product commands an US\$8–10/t premium over the price of its fines product and that MIN is prioritising the production and export of lump from Iron Valley for this reason.
- After achieving an average level of US\$49.00/t in FY20, the price of 58% iron ore will then decrease to its long-term price of US\$39.84/t in equal increments over a period of three years to FY23.
- BCI’s revenue will reflect a royalty of 10.5–13.5% on the value of tonnages shipped, with the actual rate being directly proportional to the price received by Iron Valley for its product.
- BCI will incur costs – predominantly government, state and third-party royalties – equivalent to 9% of the value of tonnages shipped.
- Administration expenses continue at a long-term average rate of A\$2.0m per year.
- Profits are taxed at the standard rate of corporate income tax (CIT) in Australia, namely 30%, after utilisation of A\$76.0m in unrecognised deferred tax assets and A\$5.7m in research & development offsets. For accounting purposes, readers should note that BCI recognises deferred tax assets relating to carried forward tax losses to the extent they can be utilised. The utilisation of the tax losses depends on the ability of the entities to generate sufficient future taxable profits. As at 30 June 2018, the company had unrecognised deferred tax assets relating to tax losses of A\$76.0m. It also has an R&D off-set available of A\$5.7m.

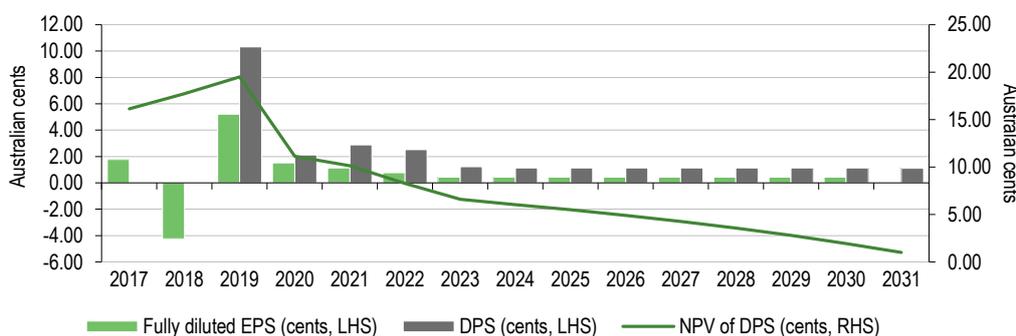
Other assumptions include debtor days (assumed to be 90), stock turnover (assumed to be 730, ie 0.5 stock days) and creditor days (assumed to be 90) in line with recent accounts. Note that variations from the principal assumptions detailed here are considered in the Sensitivities section, below.

## Valuation of principal BCI iron assets (Iron Valley)

### Iron Valley

Given the assumptions outlined above, our long-term estimates of BCI's earnings, (maximum potential) dividends per share and valuation trajectory are as follows:

**Exhibit 13: BCI EPS and (maximum potential) DPS forecasts, FY17–31 (cents) Iron Valley**



Source: Edison Investment Research. Note: Income derived from Iron Valley only; no contribution assumed from either Buckland or Mardie.

Discounting at 10% per year, the value of these cash flows to shareholders is 19.51 Australian cents per share as at 1 July 2018. Readers should note the disproportionately large maximum potential dividend payable in FY19, reflecting not only cash-flow from Iron Valley but also the potential distribution of the cash earned by BCI as a result of its sale of its Kumina assets earlier in the year. A summary of the proportion of this valuation attributable to Iron Valley, individually, as well as cash, the value of the Kumina sale and centralised corporate costs (excluding exploration) is as follows:

**Exhibit 14: BCI valuation, by component (excluding Mardie), Australian cents**

Asset	Valuation (Australian cents per share)
Iron Valley plus corporate overheads	12.76
Cash	8.77
Deferred Kumina consideration	1.38
Corporate costs	-3.40
<b>Total</b>	<b>19.51</b>

Source: Edison Investment Research

## Valuation of principal BCI salt and potash assets (Mardie)

### Mardie assumptions

#### Capex

BCI's contracting strategy is designed to ensure that it has adequate control over key production processes, but that non-production activities (eg road haulage, accommodation, power supply and

transshipment) are contracted out. Consequently, these are excluded from Mardie's capital cost estimate, but are included in its opex estimate. Within this context, the total capex estimate for the Mardie project is A\$335m, comprising A\$248m for the salt production circuit and A\$87m for the SOP production circuit, as follows:

<b>Exhibit 15: Mardie capex estimate by project component</b>						
Description	Salt capex (A\$m)	Percent of total (%)	SOP capex (A\$m)	Percent of total (%)	Total capex (A\$m)	Percent of total (%)
Concentrator and crystalliser ponds	62	25.0	15	17.2	77	23.0
Processing	25	10.1	46	52.9	71	21.2
Supporting infrastructure	14	5.6	4	4.6	18	5.4
Accommodation village	1	0.4	0	0.0	1	0.3
CPE Port	73	29.4	0	0.0	73	21.8
Temporary construction services	10	4.0	4	4.6	15	4.5
Project management	14	5.6	7	8.0	21	6.3
Owner's costs	28	11.3	4	4.6	32	9.6
Contingency	21	8.5	7	8.0	28	8.4
<b>Total</b>	<b>248</b>	<b>100.0</b>	<b>87</b>	<b>100.0</b>	<b>335</b>	<b>100.0</b>

Source: BCI, Edison Investment Research. Note: Totals may not add up owing to rounding.

## Opex

Operating cost estimates have been calculated on an FOB basis, assuming production of 3.5Mtpa salt and 75ktpa SOP:

<b>Exhibit 16: Mardie salt and SOP opex estimates (A\$m and A\$/t)</b>				
Description	Salt		Potash	
	Annual opex (A\$m)	Unit opex (A\$/t)	Annual opex (A\$m)	Unit opex (A\$/t)
Production (Mardie site)	20.4	5.8	12.9	171.4
Haulage	11.5	3.3	0.5	7.1
Port handling & transshipment	18.5	5.3	1.5	20.0
Corporate & overheads	6.7	1.9	0.0	0.0
Contingency	5.7	1.6	1.5	19.9
<b>C1 cash costs (FOB)</b>	<b>62.8</b>	<b>17.9</b>	<b>16.4</b>	<b>218.4</b>
Marketing (2% of revenue)	2.8	0.8	1.0	12.8
State government royalty	2.6*	0.7*	1.2**	16.0**
Native title royalty (0.5% of revenue)	0.7	0.2	0.2	3.2
<b>Cash costs (FOB)</b>	<b>68.8</b>	<b>19.7</b>	<b>18.8</b>	<b>250.4</b>
Sustaining capex	0.9	0.3	0.8	10.0
<b>All in sustaining costs (AISC)</b>	<b>69.7</b>	<b>19.9</b>	<b>19.5</b>	<b>260.4</b>

Source: BCI. Note: \*A\$0.73/t for salt and \*\*2.5% of revenue for SOP; totals may not add up owing to rounding.

## Mardie valuation

On the basis of the above assumptions and that salt and SOP prices are US\$30/t and US\$500/t (as per the Mardie PFS), and that the first full years of production for each are FY24 and FY26, respectively, we estimate the following valuations for the project (assuming a 30% standard rate of corporate tax in Australia):

<b>Exhibit 17: Mardie valuation, Edison vs PFS study</b>			
Item	Mardie PFS	Edison	
A\$/US\$	1.3333	1.4008	
Project life (years)	30	30	
Steady-state annual EBITDA (A\$m)	102	111.7	
Pre-tax NPV <sub>10</sub> (A\$m)	335	*396.0	
Pre-tax NPV <sub>10</sub> per existing BCI share (Australian cents)	84	99.6	
Pre-tax IRR (%)	20	20.7	
Payback	5	5	
Post-tax NPV <sub>10</sub> (A\$m)	N/D	*234.3	
Post-tax NPV <sub>10</sub> per existing BCI share (Australian cents)	N/D	58.9	

Source: BCI, Edison Investment Research. Note: \*Discounted back to the start of capex.

Note that the extent by which Edison’s pre-tax NPV<sub>10</sub> exceeds that of the Mardie PFS can be entirely explained by the effect of the (weaker) forex rate prevailing currently compared with that used in the PFS.

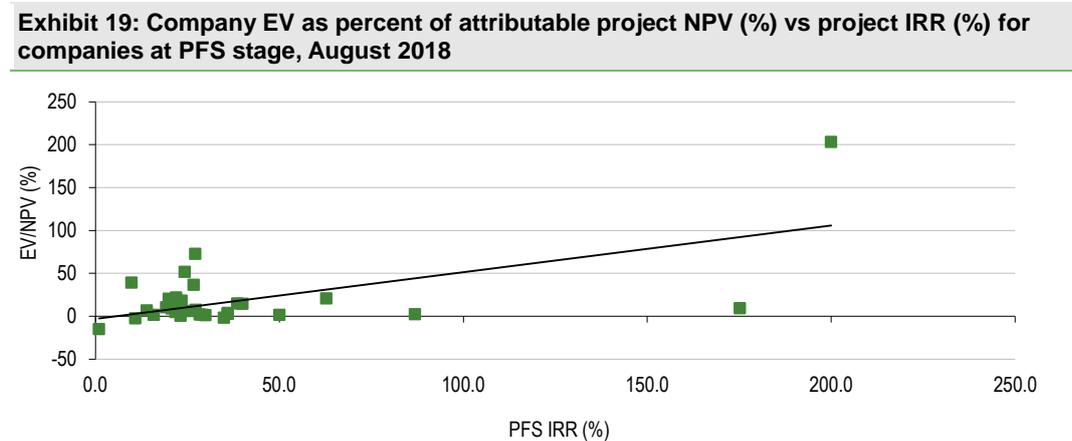
In our report, [Gold stars and Black holes: Analysing the discount: From resource to sanction](#), published in January 2019, we observed that, excluding outliers, the maximum and minimum valuations for companies with projects at different stages of development are as follows (Exhibits 166 and 173 of the original report):

**Exhibit 18: Company EV as percent of attributable project NPV (%), by study type, ordinarily valued companies, excluding statistical outliers**

Percent	Scoping study/PEA	PFS	BFS
Maximum	50.7	51.3	133.5
Mean	11.7	9.9	30.9
Minimum	-4.8	-15.4	-10.1

Source: Edison Investment Research

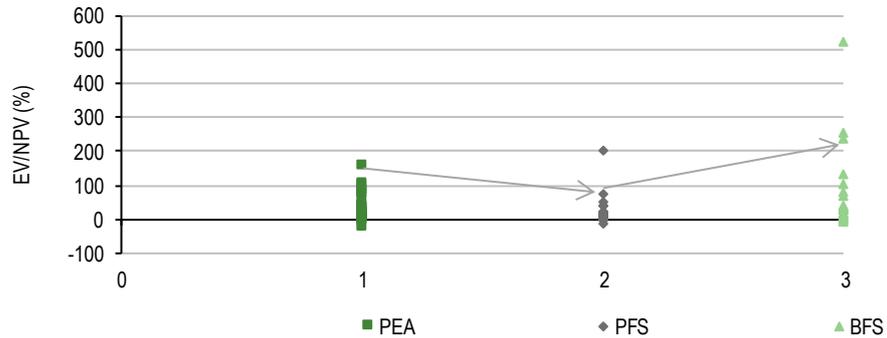
In addition, we were able to show that the valuations of companies with projects at PFS stage have a statistically significant correlation with the projects’ IRRs:



Source: Edison Investment Research

Assuming a post-tax NPV of 70% of pre-tax NPV of A\$335m (as per its PFS), an average valuation for BCI of 9.9% of Mardie’s NPV (excluding its other assets) would be A\$23.2m, or 5.84 Australian cents per BCI share. If the DFS on Mardie is completed on approximately the same terms, however, we would expect this valuation to increase more than threefold, to c 30.9% of NPV, or 18.22c per share. Within this context, it is worth noting that our report, [Gold stars and Black holes: Analysing the discount: From resource to sanction](#), found that, within the evolution of a mining project through its various stages of development, the lowest valuation is encountered at PFS stage:

**Exhibit 20: Company EV as a percentage of attributable NPV (%), by study type**

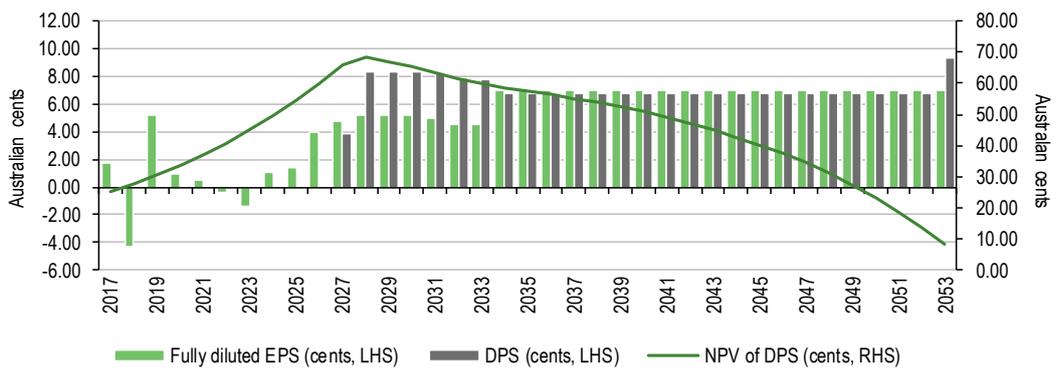


Source: Edison Investment Research, Refinitiv, company sources

BCI has stated that it will advance development funding options and ownership structures for the project in detail during the preparation of the Mardie DFS. Currently, project development capex of A\$335m is 'likely to be funded from a combination of project debt, equity, product offtake pre-commitments and via build-own-operate (or similar) models where feasible.' However, it has also said that it 'will consider all feasible funding structures for the equity component including raising equity in BCI for investment into the project, or raising direct equity into the project.'

Assuming that BCI were to fund Mardie via equity into the company, we estimate that it would have to raise A\$91.6m in FY20 in order to maintain a maximum leverage ratio (net debt/[net debt+equity]) of no more than 50% in FY23 when net debt to fund the project would peak at A\$191.9m (some of the equity having been provided by retained earnings from income from Iron Valley). Conducted at the current share price, this would involve the issue of an additional c 678.6m shares, in which case Edison's long-term estimates of BCI's earnings, (maximum potential) dividends per share and valuation trajectory are as follows (cf Exhibit 13 for Iron Valley base case valuation only):

**Exhibit 21: BCI EPS and (maximum potential) DPS forecasts, FY18–53 (cents)**



Source: Edison Investment Research. Note: Income derived from Iron Valley and Mardie, combined; no contribution assumed from Buckland or any other assets.

Discounting at Edison's customary discount rate of 10% per year, the value of these cash flows to shareholders is 30.66 Australian cents (fully diluted) at 1 July 2018 cf 19.51 Australian cents per share for Iron Valley, cash and corporate costs only (see Exhibits 13 and 14) – implying a Mardie component of the valuation of 11.15 Australian cents:

**Exhibit 22: BCI discounted dividend valuation, by component**

Component	Valuation (Australian cents per fully diluted share)
Iron Valley, cash and corporate	19.51
Mardie	11.15
<b>Total</b>	<b>30.66</b>

Source: Edison Investment Research

Note that our valuation, on this basis, peaks at 68.46 Australian cents in FY28 (see Exhibit 21), when EPS would be 5.26 Australian cents – therefore putting it on a contemporary P/E ratio of 13.0x.

## BCI iron asset valuation sensitivities

The principal sensitivities to which BCI is exposed from an empirical perspective are the price of iron ore received for its output at Iron Valley and the rate of sales at Iron Valley.

### Valuation sensitivity to the iron ore price

Three scenarios were considered in this analysis: 1) a  $\pm 20\%$  move in the price of iron ore from those assumed; 2) the permanent high discount of 39.7% for the price of 58% iron ore vs 62% iron ore; and 3) a reversion to the low discounts of 14.1% between the prices of 62% and 58% iron ore prevailing before April 2016.

In the event that the price which BCI receives for its Iron Valley iron ore moves by 20% from that assumed in our base case scenario, the effect on our base case valuation of BCI is as follows:

**Exhibit 23: BCI valuation sensitivity to a  $\pm 20\%$  move in the price of Iron Valley iron ore**

Iron Valley iron ore price change (%)	-20%	-10%	0%	+10%	+20%
Valuation (Australian cents per share)	29.27	29.82	30.66	31.81	33.09
Percentage change (%)	-4.5	-2.7	u/c	+3.8	+7.9

Source: Edison Investment Research

In the event that the high price discount of 39.7% for the price of 58% iron ore vs 62% iron ore becomes permanent and unchanging, we estimate that the long-term price of 58% iron ore will reduce to US\$40.73/t, in which case our valuation of BCI is barely changed at 30.82c/share, an increase of 0.5% relative to our base case scenario.

By contrast, in the event that the iron ore market reverts to the low price discount of 14.1% that prevailed before April 2016 for the price of 58% iron ore vs 62% iron ore, we estimate that the long-term price of 58% iron ore will increase to US\$57.97/t, in which case our valuation of BCI increases to 34.77c/share, an increase of 13.4% relative to our base case scenario.

### Valuation sensitivity to the sales rate at Iron Valley

Lastly, our BCI valuation sensitivity to the sales rate achieved at Iron Valley is as follows:

**Exhibit 24: BCI valuation sensitivity to Iron Valley sales rates**

Sales rate change vs base case (%)	-20.0	-6.7	0.0	+6.7	+100.0
Sales rate (Mtpa)	6.0	7.0	7.5	8.0	*15.0
Valuation (Australian cents per share)	30.13	30.49	30.66	30.81	32.33
Percentage change (%)	-1.7	-0.6	u/c	+0.5	+5.4

Source: Edison Investment Research. Note: \*See section on Iron Valley Logistics upside on page 10.

Note the asymmetry of this analysis, as higher throughput rates shorten the life of operations at Iron Valley (all other things being equal), with the result that a greater proportion of output is sold at higher prices (near-term prices being higher than Edison's long-term price estimate). By contrast, lower throughput rates lengthen the life of operations, meaning that a higher proportion of

aggregate sales occur at lower prices and, at the same time, earnings and dividends are deferred to later years, where they have less net present value to shareholders.

## Mardie valuation sensitivities

In quantitative terms, the principal risks (and valuation sensitivities) to which the Mardie project is subject are to the salt price, opex and foreign exchange rates. BCI's valuation sensitivity to each of these is provided below (including Iron Valley):

<b>Exhibit 25: BCI valuation sensitivity relative to salt price</b>					
Salt price (US\$/t)	24	27	30	33	36
Salt price change (%)	-20	-10	u/c	+10	+20
BCI valuation (Australian cents per share)	20.22	25.44	30.66	35.87	41.07
Percent change (%)	-34.1	-17.0	u/c	+17.0	+34.0

Source: Edison Investment Research

<b>Exhibit 26: BCI valuation sensitivity relative to SOP price</b>					
SOP price (US\$/t)	400	450	500	550	600
SOP price change (%)	-20	-10	u/c	+10	+20
BCI valuation (Australian cents per share)	27.71	29.18	30.66	32.13	33.60
Percent change (%)	-9.6	-4.8	u/c	+4.8	+9.6

Source: Edison Investment Research

<b>Exhibit 27: BCI valuation sensitivity relative to changes in Mardie unit costs</b>					
Unit cost change (%)	+20	+10	u/c	-10	-20
BCI valuation (Australian cents per share)	25.13	27.89	30.66	33.42	36.18
Percent change (%)	-18.0	-9.0	u/c	+9.0	+18.0

Source: Edison Investment Research

<b>Exhibit 28: BCI valuation sensitivity relative to A\$/US\$ rate</b>					
A\$/US\$	1.1206	1.2607	1.4008	1.5409	1.6810
Change (%)	-20	-10	u/c	+10	+20
BCI valuation (Australian cents per share)	16.04	23.46	30.66	37.85	45.02
Percent change (%)	-47.7	-23.5	u/c	+23.5	+46.8

Source: Edison Investment Research

Two other variables are of critical importance to Mardie's valuation contribution to BCI, namely the amount of equity financing raised to fund the project and the price at which it is raised:

<b>Exhibit 29: BCI valuation sensitivity relative to maximum leverage ratio (%)</b>									
Equity funding raised (A\$m)	0.0	27.0	59.3	91.6	123.9	156.2	191.0	226.3	262.9
Maximum leverage ratio (%)*	79.0	70.0	60.0	50.0	40.0	30.0	20.0	10.0	0.0
BCI valuation (Australian cents per share)	63.17	46.37	36.33	30.66	27.01	24.46	22.35	20.72	19.36
Percent change (%)	+106.0	+51.2	+18.5	u/c	-11.9	-20.2	-27.1	-32.4	-36.9

Source: Edison Investment Research. Note: \*Leverage ratio defined as (net debt/[net debt+equity]).

<b>Exhibit 30: BCI valuation sensitivity relative to equity financing price (Australian cents)</b>														
Equity financing price (cps)	8	9	10	13.5	15	20	25	30	35	40	45	50	55	60
BCI valuation (Australian cents per share)	21.50	23.41	25.20	30.66	32.68	38.38	42.86	46.49	49.47	51.98	54.11	55.94	57.54	58.94
Percent change (%)	-29.9	-23.6	-17.8	u/c	+6.6	+25.2	+39.8	+51.6	+61.4	+69.5	+76.5	+82.5	+87.7	+92.2

Source: Edison Investment Research

## Improvements vs the PFS

Three improvements of the actual project relative to that envisaged in the PFS have been identified by management:

- An incremental increase in production of salt, from 3.5Mtpa to 4.0Mtpa and an incremental increase in production of SOP, from 75ktpa to 100ktpa.

- As an alternative to exporting via Cape Preston East port, management has begun to actively look at developing an export jetty at Mardie to avoid trucking salt c 70km to CPE. Internally, this initiative is expected by management to reduce opex costs by c A\$4/t (or c 20%), albeit at the expense of a c A\$65m increase in capex.
- Use of gas as a power source. There are c four to five gas pipelines that run through BCI's tenements. The PFS assumed the use of diesel as a power source for Mardie. However, the project could equally well be designed around gas as a power source.

While the effect of the last of these potential initiatives is difficult to quantify at the current time, we estimate that implementation of the other two, at the parameters indicated, increases the current value of BCI to shareholders by 30.4%, from 30.66c per share to 39.98c per share.

## Risk and risk mitigation

Given that it is already in production, Iron Valley is already substantially de-risked. Those risks that remain may be summarised as sovereign, commercial, commodity price, foreign exchange and global economic risks with limited technical risk (much the same as an agricultural operation). These may be encapsulated in the discount rate applied to future dividends payable by the company to shareholders. Edison customarily uses a 10% discount rate to apply to future dividends. However, variations from this assumption for BCI are as follows:

**Exhibit 31: BCI valuation sensitivity to discount rate**

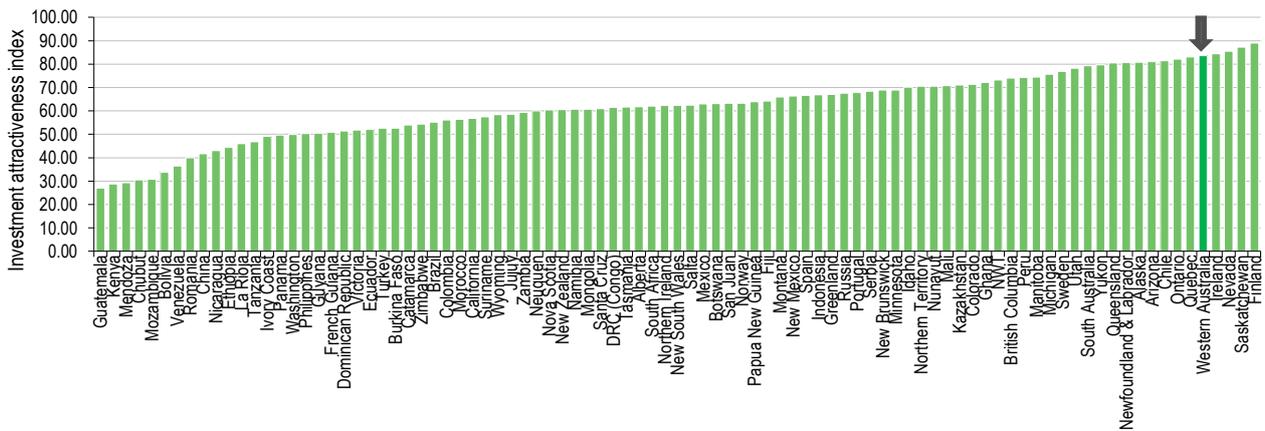
Discount rate	0%	5%	10%	15%	20%	25%	30%
BCI valuation, Australian cents	191.18	70.36	30.66	15.14	8.18	4.71	2.85

Source: Edison Investment Research

In qualitative terms, the principal risks to which the Mardie project is immediately exposed include geographical/sovereign risk, engineering risk, financing risk and management risk. Unlike most mining projects however, there is only minimal geological and metallurgical risk (there being a virtual certainty that seawater contains sodium chloride and SOP and that it crystallises out on evaporation). To some extent, these have been partially replaced by climatic risk in the form of high rainfall disrupting the evaporation process. Otherwise, in general terms, these risks may be summarised as execution risk, ie management's ability to bring the project to account within its geographical jurisdiction and the required technical parameters. In the case of Mardie, however, many of these risks are also substantially mitigated:

- Mardie (and Iron Valley) are both located in Western Australia, which is a well understood and respected historical destination for mining investment that ranks fifth out of 91 in the most recent Fraser Institute index of (mining) Investment Attractiveness:

**Exhibit 32: Fraser Institute index of (mining) Investment Attractiveness, 2017 survey**



On 22 October, BCI announced that it had sold its Kumina tenements for a total consideration of A\$35m, of which A\$27m was received in Q219 (ie the three months to end-December), such that its net cash position at end December 2018 was c A\$37m, with an additional A\$4m in consideration deferred until the first export of iron ore from the tenements (expected FY21) and a further A\$4m deferred for another 12 months beyond that, in FY22.

The next 18 months will be characterised by higher c A\$25m investment (capex and opex) in Mardie. This will be partly offset by a higher iron ore price (see pages 11–16). Nevertheless, it will be more than sufficient to carry the project to a final investment decision in early CY20. Within this context, we estimate that BCI will finish FY19 with A\$27.8m in net cash on its balance sheet.

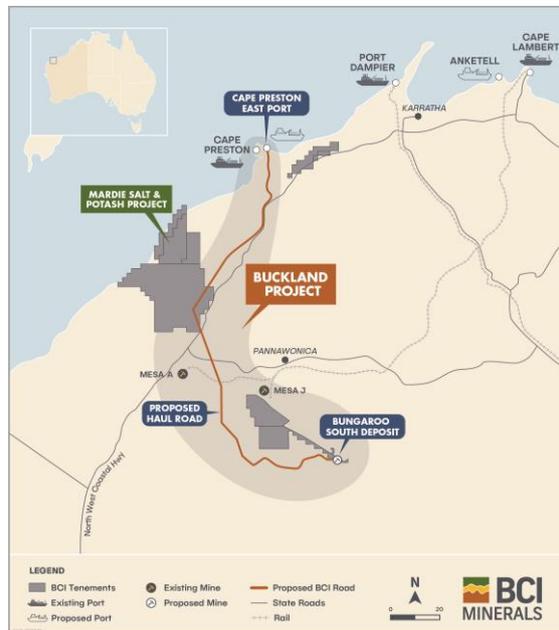
## Other assets

In addition to those described above, BCI has a number of early-stage exploration projects in the Pilbara and Murchison regions of Western Australia, known as the Buckland, Marble Bar, Black Hills and Peak Hill projects, which are prospective for iron ore, gold (both shear-hosted and conglomerate-hosted paleoplacer), lithium, zinc and copper, but which it is nevertheless seeking to sell to concentrate on its Mardie salt and potash asset.

## Buckland

Buckland is an iron ore development project based in Western Australia’s West Pilbara region. The project consists of Bungaroo South and a proposed road and port logistics solution in the form of the Cape Preston East port. Bungaroo South is located c 45km south-east of Pannawonica and 35km from Robe rail infrastructure.

**Exhibit 33: Buckland project’s mining operations**



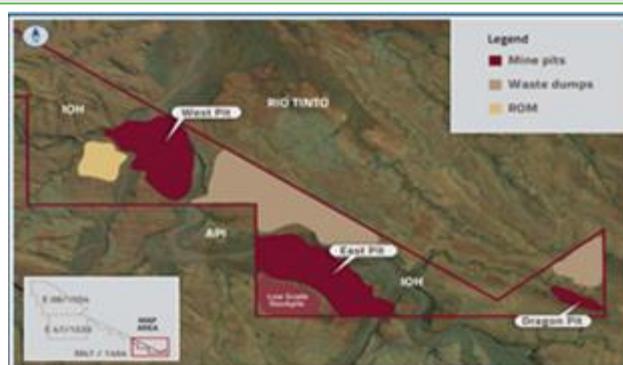
Source: BCI Minerals

The project was started in 2012, when IOH initiated the development of a supply chain solution for the Bungaroo South deposit. In June 2014, IOH entered into a port lease agreement with Dampier Port Authority (now the Pilbara Ports Authority) for the development of a port facility at Cape Preston East to support an independent export supply chain solution for Buckland and a feasibility study was completed on an 8Mtpa operation hauling ore via a private road to the new port the same year. The project was considered to be viable at the time of the study, but was subsequently

reinterpreted to require a higher quality ore and a higher trucking rate of 15.0Mtpa in order to provide adequate returns to stakeholders. In the wake of its acquisition of IOH in August 2014, BCI evaluated options to determine the optimal development and financing path for Buckland (although this has obviously now been superseded by the company's decision to divest itself of its iron ore assets to concentrate on Mardie).

Bungaroo South's mining lease includes the Western Pit, two Eastern pits and the Dragon pit, which are located within a range of c 7km from each other.

#### Exhibit 34: Bungaroo South mine pit layout



Source: BCI Minerals

According to the conclusions of its feasibility study, Bungaroo South has an estimated life of more than 15 years, a waste to ore stripping ratio of 1:1 and an estimated pre-tax IRR of 24%. As at 30 June 2018, resources and reserves at Bungaroo South were as follows:

#### Exhibit 35: Bungaroo South mineral resource estimate (100% BC Iron)

Classification	Cut-off (% Fe)	Mt	Fe (%)	Ca Fe (%)	Al <sub>2</sub> O <sub>3</sub> (%)	SiO <sub>2</sub> (%)	P (%)	LOI (%)
<b>Bungaroo South Area</b>								
Measured	50	30.9	57.4	62.1	3.0	6.7	0.15	7.6
Indicated	50	224.0	56.6	61.6	2.4	7.8	0.15	8.1
Inferred	50	3.4	54.7	59.4	3.0	10.2	0.13	7.9
<b>Regional Satellite Deposits</b>								
Indicated	50	11.1	55.4	59.5	4.0	8.8	0.11	6.9
Inferred	50	13.8	54.8	59.9	4.2	7.8	0.11	8.6
<b>Total as at 30/06/2018</b>	<b>50</b>	<b>283.3</b>	<b>56.5</b>	<b>61.4</b>	<b>2.7</b>	<b>7.8</b>	<b>0.14</b>	<b>8.1</b>
Total as at 30/06/2017	50	283.3	56.5	61.4	2.7	7.8	0.14	8.1

Source: BCI Minerals. Note: Bungaroo South Area is Bungaroo South and Dragon. Regional Satellite Deposits are Rabbit, Rooster and Snake.

#### Exhibit 36: Bungaroo South ore reserve estimate (100% BC Iron)

Classification	Cut off (% Fe)	Mt	Fe (%)	Ca Fe (%)	Al <sub>2</sub> O <sub>3</sub> (%)	SiO <sub>2</sub> (%)	P (%)	LOI (%)
Proven	54	23.2	58.3	62.9	2.9	5.8	0.15	7.4
Probable	54	111.1	57.5	62.6	2.3	6.6	0.15	8.1
<b>Total as at 30/06/2018</b>	<b>54</b>	<b>134.3</b>	<b>57.6</b>	<b>62.6</b>	<b>2.4</b>	<b>6.5</b>	<b>0.15</b>	<b>8.0</b>
Total as at 30/06/2017	54	134.3	57.6	62.6	2.4	6.5	0.15	8.0

Source: BCI Minerals

Bungaroo South is a channel iron deposit (CID) with a phosphorus grade of 0.14% (cf a maximum desired grade of 0.12%) and, as such, it is an ore that would benefit from blending. In early 2018, BCI signed a Memorandum of Understanding (MoU) with Sinosteel Australia Pty, to further support the development of the Buckland project. The MoU sets a framework for potential binding agreements relating to marketing and offtake, engineering services, funding and joint venture structures.

## Bungaroo South potential valuation

In our report, [Gold stars and Black holes: Analysing the discount: From resource to sanction](#), published in January 2019, we calculated an average value of iron ore resources at the exploration stage of 4.3 US cents per tonne of contained iron, distinguished by category as follows: measured (4.4c), indicated (6.0c) and inferred (2.1c). On this basis, our immediate valuation of Bungaroo South is as follows:

<b>Exhibit 37: In-situ value estimate of Bungaroo South</b>							
Category	Cut-off grade (%)	Tonnage (Mt)	Grade (% Fe)	Resource multiple (US\$/t Fe)	Resource value (US\$m)	Resource value (A\$m)	Resource value per BCI share (Australian cents)
Measured	50	30.9	57.4	0.044	0.8	1.1	0.27
Indicated	50	235.1	56.5	0.060	8.0	11.2	2.81
Inferred	50	17.2	54.8	0.021	0.2	0.3	0.07
<b>Total</b>	<b>50</b>	<b>283.3</b>	<b>56.5</b>	<b>0.043</b>	<b>6.9</b>	<b>9.6</b>	<b>2.43</b>

Source: Edison Investment Research, BCI Minerals

In this case, the valuation of Bungaroo South, at global average in-situ values, lies between US\$6.9m, or 2.43 Australian cents per share (with all categories of resources treated equally) and US\$9.0m, or 3.15c/share (with differentiated values applied to each category of resources). Factors favouring the higher valuation include the fact that the deposit is in Western Australia, where there is an established iron ore mining industry, the legal basis for mining is well respected and understood and there is good access to infrastructure. Factors militating against this include the slightly higher phosphorus content (Exhibits 35 and 36).

## Other assets

Also of note is Maitland River, which is located in the Pilbara region of Western Australia and plays host to a large (albeit magnetite) iron ore resource, as shown below.

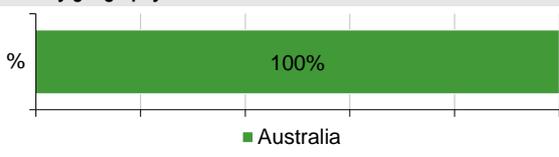
<b>Exhibit 38: In-situ value estimate of Maitland River</b>			
Category	Cut-off grade (%)	Tonnage (Mt)	Grade (% Fe)
Measured	N/A	0.0	0.0
Indicated	N/A	0.0	0.0
Inferred	26	1,106.0	30.4
<b>Total</b>	<b>26</b>	<b>1,106.0</b>	<b>30.4</b>

Source: BCI Minerals

**Exhibit 39: Financial summary**

	A\$'000s	2015	2016	2017	2018	2019e	2020e
June		IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
<b>PROFIT &amp; LOSS</b>							
Revenue		281,211	151,279	64,324	33,029	52,529	57,560
Cost of Sales		(278,465)	(158,210)	(55,190)	(47,442)	(55,402)	(58,629)
Gross Profit		2,746	(6,931)	9,134	(14,413)	(2,873)	(1,069)
EBITDA		2,746	(6,931)	9,134	(14,413)	(2,873)	(1,069)
Operating Profit (before amort. and except.)		(26,090)	(12,622)	5,665	(17,330)	(5,790)	(3,986)
Intangible Amortisation		0	0	0	0	0	0
Exceptionals		(170,881)	(40,108)	(302)	0	17,000	0
Other		(2,935)	812	(5)	0	0	1
Operating Profit		(199,906)	(51,918)	5,358	(17,330)	11,210	(3,985)
Net Interest		(3,505)	(951)	311	420	196	417
Profit Before Tax (norm)		(29,595)	(13,573)	5,976	(16,910)	(5,594)	(3,569)
Profit Before Tax (FRS 3)		(203,411)	(52,869)	5,669	(16,910)	11,406	(3,568)
Tax		44,912	(27,086)	0	0	0	0
Profit After Tax (norm)		12,382	(39,847)	5,971	(16,910)	(5,594)	(3,569)
Profit After Tax (FRS 3)		(158,499)	(79,955)	5,669	(16,910)	11,406	(3,568)
Average Number of Shares Outstanding (m)		174.8	196.2	316.7	394.6	396.1	736.9
EPS - normalised (c)		7.1	(20.3)	1.9	(4.3)	(1.4)	(0.5)
EPS - normalised and fully diluted (c)		7.1	(19.5)	1.9	(4.3)	(1.3)	(0.5)
EPS - (IFRS) (c)		(90.7)	(40.8)	1.8	(4.3)	2.9	(0.5)
Dividend per share (p)		0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)		1.0	-4.6	14.2	-43.6	-5.5	-1.9
EBITDA Margin (%)		1.0	-4.6	14.2	-43.6	-5.5	-1.9
Operating Margin (before GW and except.) (%)		-9.3	-8.3	8.8	-52.5	-11.0	-6.9
<b>BALANCE SHEET</b>							
Fixed Assets		154,904	86,546	78,059	85,768	77,851	153,634
Intangible Assets		60,237	33,618	33,063	43,615	38,615	43,615
Tangible Assets		94,667	52,928	44,996	42,153	39,236	110,019
Investments		0	0	0	0	0	0
Current Assets		102,374	23,204	46,429	20,270	40,848	49,326
Stocks		9,886	61	0	0	72	79
Debtors		24,427	13,694	10,053	7,213	12,952	14,193
Cash		67,671	9,449	36,376	13,057	27,824	35,054
Other		390	0	0	0	0	0
Current Liabilities		(77,222)	(21,769)	(12,107)	(9,373)	(10,628)	(11,424)
Creditors		(70,947)	(19,749)	(12,107)	(9,373)	(10,628)	(11,424)
Short term borrowings		(6,275)	(2,020)	0	0	0	0
Long Term Liabilities		(20,773)	(11,307)	(5,225)	(6,054)	(6,054)	(6,054)
Long term borrowings		0	0	0	0	0	0
Other long term liabilities		(20,773)	(11,307)	(5,225)	(6,054)	(6,054)	(6,054)
Net Assets		159,283	76,674	107,156	90,611	102,017	185,482
<b>CASH FLOW</b>							
Operating Cash Flow		(77,686)	(19,721)	11,860	(11,957)	(7,429)	(1,521)
Net Interest		(1,120)	0	0	0	196	417
Tax		44,912	(27,086)	0	0	0	0
Capex		(10,987)	(8,075)	(2,220)	(10,074)	(5,000)	(78,700)
Acquisitions/disposals		24,338	0	(5,151)	(1,288)	27,000	0
Financing		6,118	1,510	24,403	0	0	87,034
Dividends		(18,652)	0	0	0	0	0
Net Cash Flow		(33,077)	(53,372)	28,892	(23,319)	14,767	7,230
Opening net debt/(cash)		(94,473)	(61,396)	(7,429)	(36,376)	(13,057)	(27,824)
HP finance leases initiated		0	0	0	0	0	0
Other		0	(595)	55	0	0	0
Closing net debt/(cash)		(61,396)	(7,429)	(36,376)	(13,057)	(27,824)	(35,054)

Source: Company sources, Edison Investment Research. Note: Balance sheet excludes unrecognised deferred tax assets of A\$76.0m.

<b>Contact details</b> Level 1 15 Rheola Street West Perth – WA 6005 Australia +61 8 6311 3400 bciminerals.com.au	<b>Revenue by geography</b> 																
<b>Board &amp; Management team</b>																	
<b>Non-executive chairman: Brian Francis O'Donnell</b> Mr O'Donnell has 31 years' experience in the finance and investment industry. He is director of finance and investments for the Australian Capital Equity group, which includes the company's largest shareholder, Wroxby Pty. He is a director of a number of other ACE group companies, including companies active in the agricultural, advertising and investment sectors in Australia and China, and also a non-executive director of ASX-listed Capilano Honey and The Guide Dog Foundation Pty (WA). He is a former director of Iron Ore Holdings, Coates Group Holdings Pty, WesTrac Pty, Landis & Gyr, Fremantle Football Club and YMCA of Perth. He is a Fellow of the Institute of Chartered Accountants.	<b>Managing director: Alwyn Vorster</b> Mr Vorster 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. He started as CEO of BCI in May 2016 and was appointed MD in September 2016. Before that, he was group executive of mining at Australian Capital Equity. Other recent roles include CEO of API Management (the company responsible for developing the multi-billion-dollar West Pilbara Project), and CEO and MD of Iron Ore Holdings.																
<b>CFO: Simon Hodge</b> Mr Hodge has more than 25 years' experience in senior executive, corporate advisory and equity research roles. Most recently, he was corporate and commercial advisor to BCI, before starting formally as CFO on 1 February 2017. Prior to that, he was CFO and COO for Quickflix and has held senior positions in corporate advisory with Poynton & Partners, JP Morgan (London) and a major Australian stockbroker. He has a Bachelor of Commerce (first-class honours in accounting and finance) from the University of Western Australia.	<b>Non-executive director: Michael Blakiston</b> Mr Blakiston has over 30 years' experience gained across a range of jurisdictions and advises in relation to acquisitions and disposals, project structuring, joint ventures, strategic alliances, development agreements, project commercialisation and capital raisings. He has served on the boards of a number of ASX-listed companies and not-for-profit organisations and is currently the chairman of the Precision Opportunities Fund as well as being a partner in Gilbert+Tobin's Energy & Resources group.																
<table border="1"> <thead> <tr> <th data-bbox="146 958 1129 985">Principal shareholders</th> <th data-bbox="1129 958 1442 985"> (%)</th> </tr> </thead> <tbody> <tr> <td data-bbox="146 985 1129 1019">Wroxby Pty</td> <td data-bbox="1129 985 1442 1019">27.56</td> </tr> <tr> <td data-bbox="146 1019 1129 1052">Citicorp Nominees</td> <td data-bbox="1129 1019 1442 1052">4.52</td> </tr> <tr> <td data-bbox="146 1052 1129 1086">JP Morgan Nominees Australia</td> <td data-bbox="1129 1052 1442 1086">3.97</td> </tr> <tr> <td data-bbox="146 1086 1129 1120">National Nominees Ltd</td> <td data-bbox="1129 1086 1442 1120">2.23</td> </tr> <tr> <td data-bbox="146 1120 1129 1153">One Managed Inv't Funds Ltd</td> <td data-bbox="1129 1120 1442 1153">1.81</td> </tr> <tr> <td data-bbox="146 1153 1129 1187">Mineralogy Pty Ltd</td> <td data-bbox="1129 1153 1442 1187">1.53</td> </tr> <tr> <td data-bbox="146 1187 1129 1220">A. P. Vorster Esq</td> <td data-bbox="1129 1187 1442 1220">1.00</td> </tr> </tbody> </table>		Principal shareholders	(%)	Wroxby Pty	27.56	Citicorp Nominees	4.52	JP Morgan Nominees Australia	3.97	National Nominees Ltd	2.23	One Managed Inv't Funds Ltd	1.81	Mineralogy Pty Ltd	1.53	A. P. Vorster Esq	1.00
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<b>Companies named in this report</b> BCI Minerals																	

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