

# Vulcan Energy Resources

Australia | Basic Materials | MCap AUD 1,433.9m

10 December 2021

UPDATE



Once an exploration company,  
now an incumbent operator;  
PT raised, remains BUY

**BUY** (BUY)

|                     |                          |
|---------------------|--------------------------|
| <b>Target price</b> | <b>AUD 25.00 (22.00)</b> |
| Current price       | AUD 11.50                |
| Up/downside         | 117.4%                   |



## What's it all about?

1 January 2022 marks a fundamental transition of Vulcan. The company will take over the operational geothermal plant in Insheim, Germany. Vulcan will be an incumbent operator, producing renewable power for approximately 8,000 households. Moreover, from now on, there is virtually no risk anymore that Vulcan could be circumvented by potential competitors when it comes to lithium production in the Upper Rhine Valley, as Vulcan has underpinned its indispensable role on the path to commercial lithium extraction. We therefore don't use a risk related discount of 0.40x (Equity value ex net cash) anymore, but – since Vulcan is not only an ambitious, but an obviously performing company – of 0.25x only. Vulcan Energy provides a rare opportunity to benefit from the strongly growing lithium growth trajectory and, by the same token, to participate in a project directly located in Germany, a heartland of automotive industry. **We raise our PT from AUD 22.00 to AUD 25.00, equivalent to EUR 15.81, and reiterate our BUY recommendation. Upside 117%.**

**MAIN AUTHOR**

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IMPORTANT. Please refer to the last page of this report for "Important disclosures" and analyst(s) certifications.

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# Vulcan Energy Resources

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Current price AUD 11.50  
Up/downside 117.4%

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## Once an exploration company, now an incumbent operator

**Insheim renewable energy plant acquisition:** Vulcan Energy will take over the operational geothermal plant in Insheim on 1 January 2022. The purchase price of EUR 31.5m (AUD 50m) will utilize a portion of proceeds from the recent AUD 200m capital raise (September 2021). It is anticipated that the Insheim Plant will be a source of revenue for Vulcan, having reported sales of EUR 5.8m and an EBITDA of EUR 2.9m for the financial year ending 31 December 2020. The plant presently capitalises on the Feed-in Tariff for geothermal power. Besides the Insheim takeover, Vulcan has executed a 20-year brine offtake agreement for the operational geothermal plant at Landau. Vulcan has the right to purchase and extract the lithium from the brine. At the Landau site, Vulcan plans to accommodate its demonstration lithium extraction plant, with a target start-up date of Q2/2022.

**Indispensable role on the path to commercial lithium:** The acquisition of Insheim marks a fundamental transition of the company. Vulcan will be an incumbent operator, producing renewable power for approximately 8,000 households. Moreover, from now on, there is virtually no risk anymore that Vulcan could be circumvented by potential competitors when it comes to lithium production in the Upper Rhine Valley as Vulcan has underpinned its indispensable role on the path to commercial lithium extraction. **We therefore don't use a risk related discount of 0.40x (Equity value ex net cash) anymore, but – since Vulcan is not only an ambitious, but an obviously performing company – of 0.25x only.**

**PT raised to AUD 25.00:** Vulcan now becomes a renewable energy producer, supplying electricity to 8,000 households. And, with the expertise of close to 80 professionals, its financial reach, extraordinary customer relationships and with geothermal projects having political backing, Vulcan is also en route to become a battery chemicals company of industrial scale. **We raise our PT from AUD 22.00 to AUD 25.00, equivalent to EUR 15.81, and reiterate our BUY recommendation.**



Source: Company data, AlsterResearch

**High/low 52 weeks** 16.65 / 02.25  
**Price/Book Ratio** 3.9x

### Ticker / Symbols

ISIN AU0000066086  
WKN A2PV3A  
Bloomberg VUL:AU

### Changes in estimates

|      |     | Sales  | EBIT  | EPS   |
|------|-----|--------|-------|-------|
| 2022 | old | 00.0   | -16.8 | -0.09 |
|      | Δ   | na     | na    | na    |
| 2023 | old | 00.0   | -20.0 | -0.25 |
|      | Δ   | na     | na    | na    |
| 2024 | old | 33.6   | 2.8   | -0.20 |
|      | Δ   | -47.2% | na    | na    |

### Key share data

Number of shares: (in m pcs) 124.36  
Book value per share: (in AUD) 2.93  
Ø trading volume: (12 months) 40,000

### Major shareholders

F. Wedin 10.5%  
HPPL Group (G. Rinehart) 6.7%  
G. Rezos 4.9%  
Free Float 77.9%

### Company description

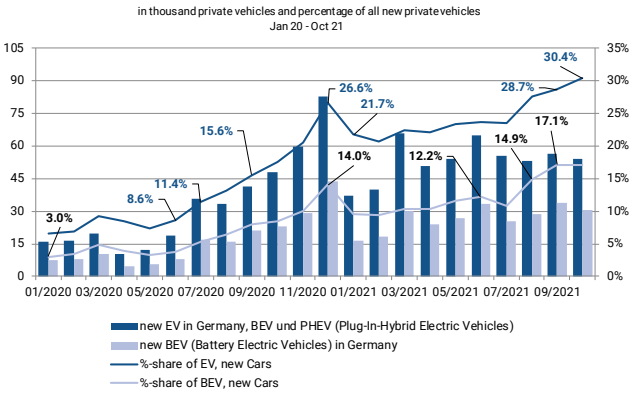
The Australian lithium chemicals & renewable energy company Vulcan Energy Resources Ltd. has been developing a project in the Upper Rhine Valley in Germany that combines the use of thermal water as an energy source (hydrogeothermal energy) with the extraction of the lithium contained in the geothermal brine without polluting the environment with emissions, waste material or toxic substances. With a CO<sub>2</sub> footprint of "zero", the project is predestined to mark the beginning of the decarbonization of the battery industry.

| Vulcan Energy Resources in AUDm | 2020    | 2021    | 2022E   | 2023E  | 2024E   | 2025E  |
|---------------------------------|---------|---------|---------|--------|---------|--------|
| Sales                           | 0.0     | 0.0     | 5.1     | 9.5    | 17.8    | 183.4  |
| Growth yoy                      | na      | na      | na      | na     | 87.2%   | 932.9% |
| EBITDA                          | -3.3    | -10.5   | -14.1   | -14.0  | -10.8   | 130.0  |
| EBIT                            | -3.6    | -10.9   | -14.2   | -14.3  | -13.7   | 100.0  |
| Net profit                      | -3.6    | -10.7   | -9.6    | -31.1  | -44.8   | 34.8   |
| Net debt (net cash)             | -6.4    | -114.1  | -331.7  | -434.3 | 202.8   | 701.0  |
| Net debt/EBITDA                 | 1.9x    | 10.9x   | 23.5x   | 31.0x  | -18.8x  | 5.4x   |
| EPS recurring                   | -0.07   | -0.12   | -0.08   | -0.23  | -0.29   | 0.22   |
| DPS                             | 0.00    | 0.00    | 0.00    | 0.00   | 0.00    | 0.00   |
| Dividend yield                  | 0.0%    | 0.0%    | 0.0%    | 0.0%   | 0.0%    | 0.0%   |
| Gross profit margin             | na      | na      | na      | na     | 41.3%   | 66.6%  |
| EBITDA margin                   | na      | na      | na      | na     | -60.8%  | 70.9%  |
| EBIT margin                     | na      | na      | na      | na     | -77.0%  | 54.6%  |
| ROCE                            | -40.5%  | -8.4%   | -3.9%   | -0.9%  | -0.5%   | 4.0%   |
| EV/EBITDA                       | -430.9x | -125.6x | -78.1x  | -71.4x | -151.7x | 16.4x  |
| EV/EBIT                         | -396.7x | -121.5x | -77.7x  | -70.1x | -119.7x | 21.3x  |
| PER                             | -156.1x | -93.3x  | -149.7x | -50.7x | -39.4x  | 53.2x  |
| FCF yield                       | -0.3%   | -0.3%   | -0.7%   | -1.8%  | -2.7%   | -1.2%  |

Source: Company data, AlsterResearch; Fiscal year end: 30. June

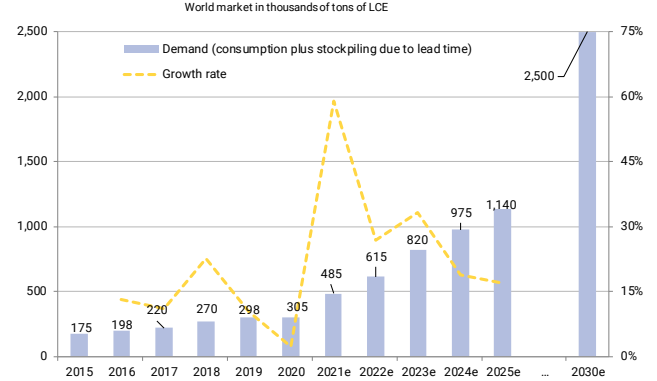
# Investment case in six charts

## Germany: Electric Vehicles (EV) & Battery Electric Vehicles



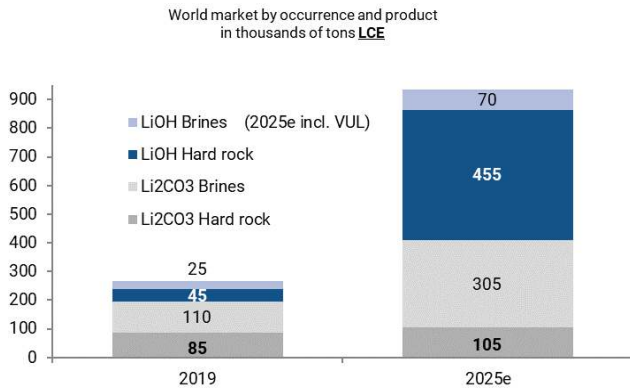
Source: Kraftfahrtbundesamt

## World market: Lithium demand



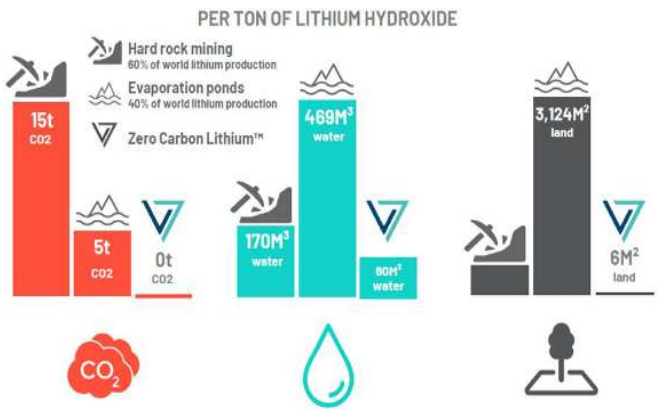
Source: Austral. Gov. (Resources and Energy Quarterly Sep 18 to Sep 21), Albemarle (graphic Sep 2021), Data processing: SRH AlsterResearch

## World market: Structure of Li supply



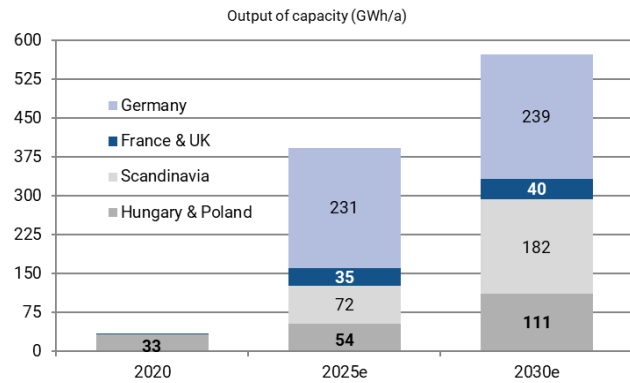
Source: Albemarle (graphic Dec 2019, reconfirmed Sep 2021), Note on VUL/Vulcan Energy Resources: SRH AlsterResearch

## Environmental Footprint



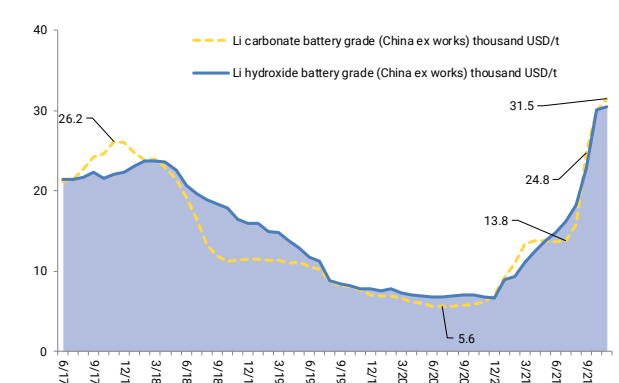
Source: Vulcan Energy Resources

## Europe: Lithium-ion battery cell factories



Source: Fraunhofer ISI (Jan 2020)

## Pricing performance Lithium



Source: Deutsche Rohstoffagentur (Preismonitor, data LC prices), Data processing LiOH prices: SRH AlsterResearch

# Company background

## Product

Battery grade lithium hydroxide from brine sources in Germany – the Australian exploration company has been on target for becoming a leading supplier of a material that is central to the electrification strategies of the automotive industry. And by operating its geothermal plant in Insheim, Vulcan will already have become a renewable energy producer, following the formal takeover on 1 January 2022.

Vulcan’s Zero Carbon Lithium™ Project – it rather is a portfolio of projects than one single – combines operations of extraction in the lithium-rich geothermal brine of the Upper Rhine Valley, of upgrading lithium to a high purity hydroxide (LiOH) as well as the production of hydrogeothermal energy (renewable electricity). Thermal water will be used as energy source, and thus the extraction of lithium contained in the brine will run without polluting the environment with emissions, waste material or toxic substances. With a CO<sub>2</sub> footprint of "zero", the project is predestined to mark the beginning of the decarbonization of the battery industry.

In Vulcan's project areas, a staged development will implement a process technology proven effective for more than 20 years in industrial lithium carbonate production, which is known as Direct Lithium Extraction (DLE). Vulcan’s first DLE pilot plant has been operating since April 2021 at the geothermal plant in Landau, using live geothermal brine from existing wells. Vulcan is partnering with DuPont Water Solutions to assist Vulcan with input and brine chemistry test work during the project’s Definitive Feasibility Study (DFS).

Estimated resources of Vulcan’s Upper Rhine Valley Project have reached a total of approx. 15.85 million t LCE in JORC-compliant terms (Inferred and Indicated Mineral Resource, probable Mineral Reserve: 1.12 million t LCE). A portion of 3.62 million t LCE has been classified as Indicated status. This puts Vulcan at the top of the rankings for the peer group of exploration projects in Europe – which are, with the exception of Cornish Lithium in Cornwall, all based on hard rock deposits.

## Upper Rhine Valley resource estimate

|                               |                 | Insheim<br>indicated | Taro<br>indicated | Taro<br>inferred | Ortenau<br>indicated | Ortenau<br>inferred | Upper Rhine Valley<br>indicated + inferred |
|-------------------------------|-----------------|----------------------|-------------------|------------------|----------------------|---------------------|--|
| Total Volume of Brine Aquifer | km <sup>3</sup> | 8,322                | 8,419             | 15,924           | 17,001               | 117,974             |  |
| Average Porosity              |                 | 9.000                | 10.227            | 9.400            | 12.600               | 9.500               |  |
| Average concentration         | mg/l            | 181                  | 181               | 181              | 181                  | 181                 |  |
| total elemental Li            | mg              | 13,556,538           | 15,584,136        | 27,092,171       | 38,772,481           | 202,856,293         |  |
| total elemental Li            | kt              | 136                  | 156               | 271              | 388                  | 2,029               |  |
| Lithium carbonate - LCE       | kt              | <b>722</b>           | <b>830</b>        | <b>1,442</b>     | <b>2,064</b>         | <b>10,798</b>       | <b>15,855</b>                              |
| thereof indicated             | kt              | <b>722</b>           | <b>830</b>        |                  | <b>2,064</b>         |                     | <b>3,615</b>                               |
| thereof inferred              | kt              |                      |                   | <b>1,442</b>     |                      | <b>10,798</b>       | <b>12,240</b>                              |
| Lithium hydroxide             | kt              | 820                  | 942               | 1,638            | 2,344                | 12,264              | 18,007                                     |
| Lithiumoxid                   | kt              | 292                  | 336               | 583              | 835                  | 4,367               | 6,413                                      |

Sources: Vulcan Energy Resources, SRH AlsterResearch



Picture: Geothermal power plant in Insheim, Upper Rhine Valley, Germany

Lithium-ion batteries are classified based on the composition of the cathode and anode material used. Nickel-cobalt-manganese cathodes, in short: NMC cathodes, currently determine the market momentum. Within this group, low-cost nickel that is readily available in good quantities (here: "N") is replacing manganese (here: "M") and cobalt (here: "C") to a large extent. Whereas the ratio of the first NMC generation was 1:1:1 (NMC 111), the new NMC 622 cathode generation is currently proving increasingly popular. Technically, this requires the use of lithium hydroxide (LiOH) instead of lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>), insofar as cathode synthesis using lithium carbonate requires high temperatures, which in turn are incompatible with a nickel content of 60% and above (vs. 40% cobalt and manganese). Furthermore, the energy density (or specific energy, energy per mass) of lithium hydroxide exceeds that of lithium carbonate. According to Albemarle's estimate, LiOH production from hard rock deposits will have increased tenfold by 2025 and will account for 80% of lithium production from hard rock deposits (2019: 35%). LiOH production from brine is forecast to treble, meaning that its share of lithium production from brine will remain at 20%.

Due to the Pre-Feasibility Study (PFS), Vulcan's project reaches unparalleled dimension with an envisaged annual LiOH-production target of 39.4 thousand t (34.7 thousand t LCE p.a.).

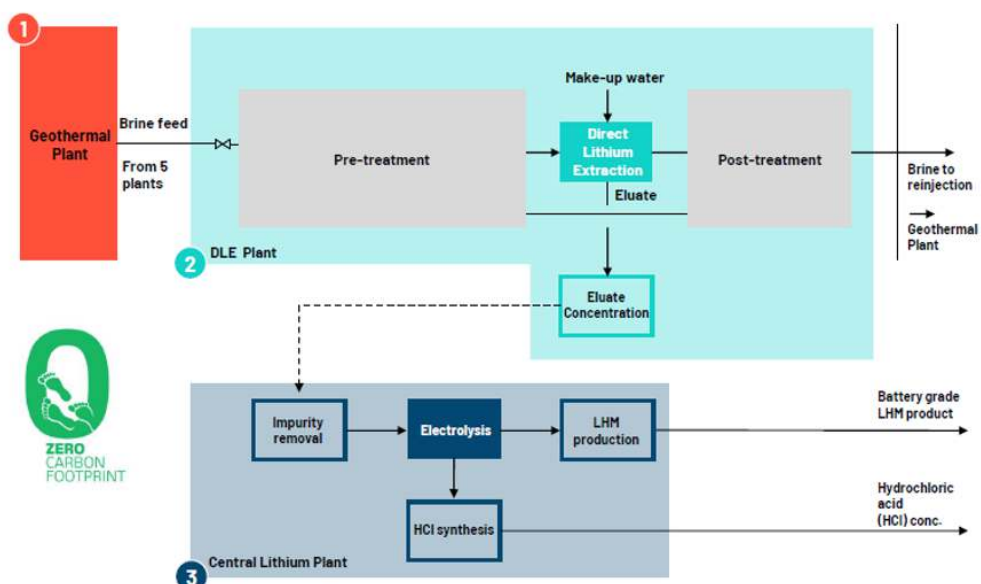
### Volume yield estimate Upper Rhine Valley (Taro, Ortenau)

|                                 |                   | Taro North (B1) | Taro South (B2) | Ortenau (C1) | Ortenau (C2, C3) | Taro & Ortenau |
|---------------------------------|-------------------|-----------------|-----------------|--------------|------------------|----------------|
| number of wells (doublets)      |                   | 3               | 2               | 3            | 6                | 14             |
| Flow rate per well              | m <sup>3</sup> /a | 3,153,600       | 3,784,320       | 3,153,600    | 3,153,600        |                |
| Approach: 8,760 h/anno          | l/d               | 8,640,000       | 10,368,000      | 8,640,000    | 8,640,000        |                |
|                                 | l/h               | 360,000         | 432,000         | 360,000      | 360,000          |                |
|                                 | l/s               | 100.000         | 120.000         | 100.000      | 100.000          |                |
| average concentration           | mg/l              | 181             | 181             | 181          | 181              |                |
| Day factor (7,842 h of 8,760 h) |                   | 0.90            | 0.90            | 0.90         | 0.90             |                |
| DLE plant recovery              |                   | 0.90            | 0.90            | 0.90         | 0.90             |                |
| Lithium refinery plant recovery |                   | 0.99            | 0.99            | 0.99         | 0.99             |                |
| Share VUL                       | mg/l              | 100%            | 100%            | 100%         | 100%             |                |
| Li/s                            | mg                | 43,126          | 34,501          | 43,126       | 86,253           |                |
| Li/h                            | kg                | 155.25          | 124.20          | 155.25       | 310.51           |                |
| Li/d                            | kg                | 3,726           | 2,981           | 3,726        | 7,452            |                |
| Li/a                            | kg                | 1,360,031       | 1,088,025       | 1,360,031    | 2,720,063        |                |
| Li/a                            | t                 | 1,360           | 1,088           | 1,360        | 2,720            | 6,528          |
| Lithium carbonate LCE/a         | t                 | 7,239           | 5,791           | 7,239        | 14,478           | 34,748         |
| Lithium hydroxide/a             | t                 | 8,222           | 6,578           | 8,222        | 16,444           | 39,466         |

Source: SRH AlsterResearch

### Simplified image of Zero Carbon Lithium™ Process

- Hot brine extracted from the ground and generates steam that powers turbines and produces renewable electricity
  - Standard geothermal production wells successfully implemented for decades on salars
- Brine flow is diverted, and lithium is extracted from the solution with a Direct Lithium Extraction (DLE) process.
  - Commercially used for decades
- Lithium chloride sent to lithium refining plant which will be converted LiCl to battery quality LiOH
  - Water is recycled, no toxic wastes, no gases are emitted, heat and power from renewable resources, no fossil fuels are burnt



## Growth

Advancement of the Zero Carbon Lithium™ Project is not dependent on securing further external funds before the stage is set for the final investment decision (FID), a juncture by which risk related discounts will have eased significantly. Even more, ample size of institutional funds (cash position end of September 2021: EUR 187.2m, then AUD 300.1m) gives leeway with which the management is able to act opportunistically, also to attract the ambitious and competent professionals the project will need, and thus to accelerate the process further.

Vulcan has grown through acquisitions of German geothermal consultancy and engineering businesses and has an unparalleled surface and sub-surface geothermal development team in house to execute deep geothermal projects. Consultancy company GeoT (GeoThermal Engineering), Karlsruhe, has been established and led to a world-leading consultancy for deep geothermal energy projects by Dr Kreuter. Its 12 team members form the core of Vulcan's energy business development team, together with 25 members of gec-co. Geothermal surface company gec-co (Global Engineering Consulting-Company), with technical teams in Augsburg, Bremen and Karlsruhe, has been focused on surface installations and drilling for electricity and heating plant projects in the deep thermal energy sector, involving profound experience in mechanical engineering (energy, environmental, process technology). gec-co supports investors, local authorities and clients throughout permitting, construction and operating phase.

While Dr Horst Kreuter coordinates public affairs and public relations of the Zero Carbon Lithium™ project, Thorsten Weimann, founder and managing director of gec-co, has become Chief Operating Officer of Vulcan in Germany, responsible for the combined geothermal energy and lithium operations.

Vulcan's in-house team for the development of lithium operations, comprising DLE (Direct Lithium Extraction) as well as the conversion of lithium chloride to lithium hydroxide in the Central Lithium Plant, currently consists of 8 world-leading experts of lithium chemistry and chemical engineering.

Besides counting on its in-house expertise, Vulcan is collaborating with DuPont Water Solutions to test DLE solutions similar to those commercially mature products which are already used in lithium industry. DuPont has several DLE products and assists Vulcan with input and test work during Vulcan's Zero Carbon Lithium™ project DFS. Implemented by a team of its engineers, DuPont has granted access to equipment and material (e.g. resin) at Vulcan's first pilot plant. This input is made available at no cost to Vulcan provided the parties enter into a supply agreement for DLE products following the completion of the DFS.

## Customers

Major automotive producing countries have to ramp up battery cell factory capacity within the coming years. The battery comprises as much as 30% to 40% of the vehicle cost. Ensuring that the demand for lithium-ion accumulators for the automotive industry is covered is a matter that has been assigned a high level of priority throughout Europe. Industrial policy ambitions are therefore aimed at establishing a consistently European supply chain. In Germany alone, there are plans to make investments running into the billions in factory complexes for battery cell production. In addition, industrial policy initiatives include the mining of the raw material lithium – which never occurs as a pure element in nature due to its high reactivity – and the processing of the ores/brines.

The need for electric drive systems to have a tolerable carbon footprint in the production phase, too, is a key aspect, and one that has the very highest priority. The supply security argument is also a top priority. For industrial and security policy reasons, Europe has to manage to break away from its current 100% reliance on raw material supplies from South America or Asia.

The Fraunhofer-Gesellschaft estimates European battery cell production to reach a capacity of 396 GWh/a by 2025 and of 576 GWh by 2030 (publication January 2020). Even higher capacity growth is expected by Ultima Media (part of

Süddeutscher Verlag, publication March 2021). Ultima Media predicts that Europe will more than double its plant capacity share from 13% in 2020 to 33% by 2030 and reach a capacity of 950 GWh/a, while capacity in Asia is expected to rise to 1,620 GWh/a (projected share of capacity worldwide: 57%).

In July 2021, LG Energy Solution secured annual supplies of up to 10 thousand t LiOH from Vulcan. LG Energy Solution is the largest producer of lithium-ion batteries for electric vehicles in the world and supplies its products to top global OEMs. The strategic partnership of Renault Group and Vulcan, announced in August and originally aiming at a volume of up to 17 thousand t LiOH annually, has eventually led to a binding offtake agreement to purchase 32 thousand t within six years (2026 to 2032). Due to the announcement in October 2021, Umicore is to purchase up to 42 thousand t over the five-year duration of the agreement (start of commercial delivery set for 2025)., With Stellantis, Vulcan has signed potentially the largest offtake agreement (November 2021). A minimum of 81 thousand t and a maximum of 99 thousand t of battery grade LiOH is to be allotted within five years, starting in 2026. Another highlight of Vulcan's customer acquisition process, if not its keystone, is the binding agreement with Volkswagen, signed in December 2021, for up to 42 thousand t LiOH over five years from 2026.

## Offtake Agreements

| date   |                    | start                     | min    | max    | term   | min           | max           | midpoint      |        |
|--|--------------------|---------------------------|--------|--------|--------|---------------|---------------|---------------|--------|
|  |                    |                           | t LiOH | t LiOH | years  | annual        | annual        | annual        |        |
|  |                    |                           |        |        |        | t LiOH        | t LiOH        | t LiOH        |        |
| 2021-10-18   | Umicore            | binding offtake agreement | 2025   | 28,000 | 42,000 | 5             | 5,600         | 8,400         | 7,000  |
| 2021-11-22   | Renault Group      | binding offtake agreement | 2026   | 26,000 | 32,000 | 6             | 4,333         | 5,333         | 4,833  |
| 2021-11-29   | Stellantis         | binding offtake agreement | 2026   | 81,000 | 99,000 | 5             | 16,200        | 19,800        | 18,000 |
| 2021-12-08   | Volkswagen         | binding offtake agreement | 2026   | 34,000 | 42,000 | 5             | 6,800         | 8,400         | 7,600  |
|  |                    |                           |        |        |        | <b>32,933</b> | <b>41,933</b> | <b>37,433</b> |        |
| 2021-07-19   | LG Energy Solution | term sheet                |        |        |        | 5             | 5,000         | 10,000        | 10,000 |
| production target (calculation: AlsterResearch)      |                    |                           |        |        |        |               |               |               | 39,466 |
| Sources: Vulcan Energy Resources, SRH AlsterResearch |                    |                           |        |        |        |               |               |               |        |

## Competition

Particularly in the south-west of Australia, the mineral spodumene ( $\text{LiAlSi}_2\text{O}_6$ ) is mined from hard rock deposits in the region's pegmatite fields (pegmatites belong to the group of magmatic dyke rocks). The majority of the quantities extracted are shipped as concentrate for processing to China, where they cover 75% of the country's lithium requirements; only China has the infrastructure required to break large quantities of concentrate down using metallurgical processes. Established production processes initially produce lithium carbonate ( $\text{Li}_2\text{CO}_3$ ). Lithium carbonate is the feedstock used for the production of lithium hydroxide (LiOH), and also for the production of other intermediates such as lithium chloride (LiCl). Processing in the battery industry requires lithium carbonate purities of 99.5% or more. The conversion factor LCE (Lithium Carbonate Equivalent), which is common in international trade, refers to lithium carbonate.

Even more significant on a global scale are the deposits of the light metal lithium in salt lakes in South America ("Lithium Triangle" in the Argentina-Bolivia-Chile border region), North America (Nevada, Utah, Searless Lake and Salton Sea/California) and China (Tibetan Plateau). Lithium carbonate and lithium hydroxide is produced from lithium chloride which is extracted from the brines. Other lithium deposits in Europe are hard rock deposits in pegmatite fields containing spodumene, or in which lithium is bound in certain mixed crystals, such as zinnwaldite and other mica. Another approach to lithium mining in Europe is the mining of the mineral jadarite. The drawback regarding the extraction of lithium from spodumene will be that the concentrate will first of all have to be transported for processing to China's large-scale spodumene conversion plants – a considerable disadvantage in view of the climate policy benefits of electromobility. There has been no industrial capacity for processing zinnwaldite to date.

Various cost advantages owing to geological factors point to the economic viability of Vulcan's lithium project in the Upper Rhine Valley; in addition to the lithium content and a high flow/production rate achieved there, the energy required

for the extraction process is significantly lower thanks to what is already a high starting temperature of over 120°C. The most important aspect, however, which also combines cost-effectiveness considerations with the aspect of minimising the "footprint" in terms of the environmental impact, is the immediate proximity to industrial customers. The transportation distance of a few hundred kilometres to existing or planned battery factories and the industrial mobility cluster in the south-west of Germany is a decisive argument that helps to underpin the advantages of Vulcan's battery grade lithium associated with the carbon footprint of the electric drive versus the combustion engine. From 2026, EU regulation requires that lithium-ion batteries will have to bear a carbon intensity performance class label and from July 2027, must comply with maximum carbon footprint thresholds.

### Key shareholders

|  |                                  | shares<br>(million) | % of issued<br>capital |
|--|----------------------------------|---------------------|------------------------|
| Dr Francis Wedin                                       | Managing Director & Founder, CEO | 13.03               | 10.52%                 |
| Hancock Prospecting Pty Ltd and Georgina Hope Rinehart |                                  | 8.17                | 6.60%                  |
| Gavin Rezos  | Chair                            | 6.08                | 4.91%                  |
| Top 20 shareholders                                    |                                  |                     | ~50%                   |

### Board

Dr Francis Wedin, Managing Director & Founder – CEO  
 Founder of Vulcan Zero Carbon Lithium™ Project, lithium industry executive since 2014.



Gavin Rezos, Chair  
 Executive Chair/CEO of two ASX 300-companies. Investment banking Director of HSBC



Dr Horst Kreuter, Board Advisor  
 Co-Founder of Vulcan Zero Carbon Lithium™ Project, successful geothermal project development and permitting in Germany and worldwide being CEO of Geothermal Group and GeoThermal Engineering (GeoT)



Annie Liu, Non-Executive Director  
 Battery expert. Former Tesla Head of Battery and Energy Supply Chain



Dr Heidi Grön, Non-Executive Director  
 Chemical engineer, since 2007 senior executive with Evonik, responsible for Global product safety, impact assessment and strategy development for sustainability as part of the EU Green Deal and management of Evonik's major investments



Josephine Bush, Non-Executive Director  
 Expert Renewable/Sustainable Businesses. Member of the EY Power and Utilities Board. Former senior EY Global Renewables Partner



Ranya Alkadamani, Non-Executive Director  
 Communications strategist, Founder of Impact Group International



Julia Poliscanova – Board Advisor  
 Electromobility expert, member of the board of the Global Battery Alliance



Rob Ierace, CFO  
 Chartered Accountant and Chartered Secretary with over 20 years of experience



Daniel Tydde, Company Secretary & In-House Legal Counsel  
 Corporate lawyer, experienced in commercial & finance areas, including IPO's, equity/debt raisings, regulatory compliance, corporate governance





## Key Executives

Thorsten Weimann – Chief Operating Officer in Germany  
Managing director of gec-co Global Engineering Consulting-Company, expert in geothermal and drilling technology



Markus Ritzauer – Chief Financial Officer of Vulcan Energie Ressourcen, Germany  
Previous Head of Finance at chemical park service provider Currenta, Leverkusen. CFO and other management positions of subsidiaries and affiliates within Bayer and Bayer Group



Dr Stephen Harrison – Chief Technical Officer  
Diverse multi-industry background in electrochemistry and lithium extraction, as CTO of Simbol Materials led to develop a process to extract lithium from geothermal brine, recognised as lowest cost production method to lithium hydroxide. CEO of Rakehill Technology, consulted industry on various lithium extraction technologies



Vincent Ledoux Pedailles – Vice President – Business Development  
Previously Executive Director at Infinity, also worked at IHS Markit, where he led the lithium and battery materials research team



# SWOT Analysis

## Strength

- Location: Close proximity to the European battery industry which is currently being established, short transportation distance (carbon footprint, 1st aspect)
- Largest JORC-compliant lithium resource in Europe (Inferred and Indicated Mineral Resource)
- Carbon footprint, 2nd aspect: Lithium production using geothermal energy, without polluting the environment with emissions, waste material or toxic substances.
- Cash position of EUR 187m (~AUD 300m, ~USD 220m) is sufficient for accelerated project development, including extensive test work and development of pilot plants. Advancement of the Zero Carbon Lithium™ Project is not dependent on securing further external funds before the stage is set for the final investment decision (FID), a juncture by which risk related discounts will have eased significantly.
- Lithium is separated within a matter of hours, eliminating external interference factors
- Lithium marketing has not only started, but per December 2021, the orderbook for the first six years of production has already been filled: LG Energy Solution has secured annual supplies of up to 10 thousand t LiOH from Vulcan. Umicore is to purchase up to 42 thousand t of battery grade LiOH over a five-year term. Renault Group signed a binding offtake agreement to purchase 32 thousand t battery grade LiOH within six years (2026 to 2032). Stellantis will purchase a minimum of 81 thousand t and a maximum of 99 thousand t of battery grade LiOH within five years, starting in 2026. Volkswagen will purchase up to 42 thousand t LiOH over five years from 2026.

## Weaknesses

- Further funds required for project implementation have yet to be raised
- Investment lead time will take more than two years

## Opportunities

- Headstart in the race to commercialize Lithium within Central Europe: Preliminary Feasibility Study (PFS) brings about the leading and – for the time being – a unique position
- Rapid growth in lithium demand among the European battery industry
- Contribution to an independent European lithium supply chain (supply aspect, short transportation distances) creates an incentive for the battery industry to pay a premium over the lithium reference price
- Low-cost asset: Opportunity for operating costs at the lower end/in the lower quartile of the global peer group cost curve
- Income from electricity feed-in as a second source of revenue besides lithium sales

## Threats

- The reference price for lithium based on imports in China/Korea/ Japan could come under pressure – as occurred in 2018 and 2019 – and put a damper on investor sentiment
- Approval procedures, in particular legal action against authorisations granted, could delay implementation

## Valuation

**By using a 25% risk weighting on Equity value, the DCF model results in a fair value of AUD 26.20 per share.**

Vulcan is retaining 25.85% of Kuniko. Market capitalization of Kuniko is currently (December 2021) close to AUD 75m, but since it is highly volatile, we do not explicitly include the stake in Kuniko into our valuation model.

Key model assumptions:

- WACC. We model a weighted average cost of capital of 8.5%, consisting of a 6.0% risk premium beta of 1.1x and 2.0% risk free rate.
- The forecast model is based on revenues at USD 17.50 thousand/t for lithium hydroxide, which encompasses a potential price premium (25%) to a reference price of USD 14.00 thousand/t.

| DCF (AUD m)<br>(except per share data and beta) | 2022E | 2023E  | 2024E    | 2025E  | 2026E  | 2027E  | 2028E  | 2029E  | Terminal value |
|---|-------|--------|----------|--------|--------|--------|--------|--------|----------------|
| NOPAT   | -9.9  | -10.0  | -9.6     | 70.0   | 324.9  | 529.1  | 656.2  | 672.3  |                |
| Depreciation & Amort.                           | 0.1   | 0.2    | 2.9      | 30.0   | 81.1   | 102.6  | 117.9  | 117.9  |                |
| Change in working capital                       | -0.7  | 0.3    | -5.7     | -16.9  | -31.0  | -21.3  | -11.4  | -1.0   |                |
| Chg. in long-term provisions                    | 0.0   | 0.0    | 0.0      | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |                |
| Capex   | -18.4 | -590.6 | -1,219.5 | -546.0 | -114.8 | -114.8 | -114.8 | -114.8 |                |
| Cash flow                                       | -29.0 | -600.1 | -1,231.9 | -462.9 | 260.2  | 495.6  | 647.8  | 674.5  | 10,544.7       |
| Present value                                   | -27.7 | -528.8 | -1,000.2 | -346.4 | 179.4  | 315.0  | 379.5  | 364.1  | 5,684.5        |
| WACC  | 8.4%  | 8.5%   | 8.5%     | 8.5%   | 8.5%   | 8.5%   | 8.5%   | 8.5%   | 8.5%           |

| DCF per share derived from                            |                         |
|---|-------------------------|
| Total present value                                   | 5,019.3                 |
| Mid-year adj. total present value                     | 5,228.1                 |
| Net debt / cash at start of year                      | -300.1                  |
| Financial assets                                      | 0.0                     |
| Provisions and off b/s debt                           | na                      |
| Equity value  | 5,528.2                 |
| No. of shares outstanding                             | 161.1                   |
| <b>Discounted cash flow / share upside/(downside)</b> | <b>26.20<br/>127.8%</b> |

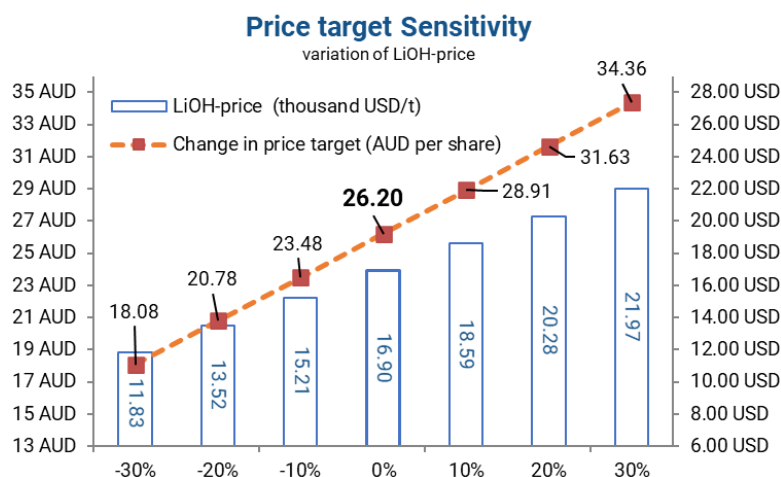
| DCF avg. growth and earnings assumptions             |       |
|--|-------|
| Planning horizon avg. revenue growth (2022E - 2029E) | n.a.% |
| Terminal value growth (2029E - infinity)             | 2.0%  |
| Terminal year ROCE                                   | 22.6% |
| Terminal year WACC                                   | 8.5%  |

| Terminal WACC derived from           |       |
|--------------------------------------|-------|
| Cost of borrowing (before taxes)     | 6.0%  |
| Long-term tax rate                   | 25.0% |
| Equity beta                          | 1.10  |
| Unlevered beta (industry or company) | 1.07  |
| Target debt / equity                 | 0.2   |
| Relevered beta                       | 1.19  |
| Risk-free rate                       | 2.0%  |
| Equity risk premium                  | 6.0%  |
| Cost of equity                       | 9.2%  |

|                    |              |
|--------------------|--------------|
| <b>Share price</b> | <b>11.50</b> |
|--------------------|--------------|

| Sensitivity analysis DCF     |  |                  |      |      |      |      |                        |        |
|------------------------------|--|------------------|------|------|------|------|------------------------|--------|
| Change in WACC<br>(%-points) |  | Long term growth |      |      |      |      | Share of present value |        |
|                              |  | 0.0%             | 1.0% | 2.0% | 3.0% | 4.0% |                        |        |
| 2.0%                         |  | 13.1             | 14.8 | 16.9 | 19.6 | 23.1 | 2022E - 2025E          | -37.9% |
| 1.0%                         |  | 15.8             | 18.1 | 20.9 | 24.6 | 29.6 | 2026E - 2029E          | 24.7%  |
| 0.0%                         |  | 19.3             | 22.3 | 26.2 | 31.5 | 39.1 | terminal value         | 113.3% |
| -1.0%                        |  | 23.8             | 27.9 | 33.5 | 41.6 | 54.3 |                        |        |
| -2.0%                        |  | 29.8             | 35.7 | 44.3 | 57.7 | 81.8 |                        |        |

- The cash position of close to EUR 187m (~AUD 300m, ~USD 220m) is sufficient for accelerated project development in 2021 and beyond. With Vulcan formerly taking over the Insheim Plant from 1 January 2022, a purchase price of EUR 31.5m (around AUD 50m) will be paid. Another AUD 50m (around USD 40m) will be used for project development, for permitting and feasibility study costs (completion of Definitive Feasibility Study scheduled for the second half of 2022). This includes extensive text work and the development of pilot plants. AUD 30m (around USD 25m) will be allocated for land access costs and the purchase of long lead drilling items in Germany. Following the ramp-up phase (2022 to 2025), which will be characterized by high capex, with a five-year payback period, we have modelled surpluses in operational cash inflows until 2027e which would cover capex of USD 1,865m (AUD 2,400m).
- By discounting our modelled cash flow projection, we have derived the appropriate enterprise value (NPV) at AUD 5,019 (mid-year adjusted: AUD 5,228) and the equity value at AUD 5,528m. We then have put a 25% risk weighting on our valuation (ex net cash).
- The project's advancement is not dependent on securing further external funds before the stage is set for the final investment decision (FID), a juncture by which risk related discounts will have eased significantly. Then, further fundraising remains a key aspect of the implementation of the Upper Rhine Valley project.
- Assuming further dilution (max. number of shares in our model: 161.1 million), which will occur in the course of the process involved in raising the additional equity required, we derive AUD 34.31 (or EUR 21.71) as a "fair" value per share based on the discounting model. At this juncture (December 2021, after the announcement of the Insheim acquisition), we have used a risk related discount of 0.25x (Equity value ex net cash), which has brought us to an appropriate valuation per share of AUD 26.20 (or EUR 16.57). Valuation of such a project (or even a portfolio of projects) is not exact science, let there be the possibility of a delayed implementation in course of approval procedures, in particular legal action.
- Two geothermal engineering companies that were acquired, GeoT as well as gec-co, are already generating revenues with external customers. For now, our model omits this cash contribution.
- Our cash flow projection ends 2054e.



Source: AlsterResearch

Due to the fact that companies rarely bear sufficient resemblance to peers in terms of geographical exposure, size or competitive strength and in order to adjust for the pitfalls of weak long-term visibility, an Adjusted Free Cash Flow analysis (Adjusted FCF) has been conducted.

**The adjusted Free Cash Flow Yield results in a fair value of AUD 39.53 per share on 2026 estimates.** It has to be kept in mind that FCF yield methodology does not factor in expansion capex.

The main driver of this model is the level of return available to a controlling investor, influenced by the cost of that investors' capital (opportunity costs) and the purchase price – in this case the enterprise value of the company. Here, the adjusted FCF yield is used as a proxy for the required return and is defined as EBITDA less minority interest, taxes and investments required to maintain existing assets (maintenance capex).

| FCF yield in AUD m                 | 2022E          | 2023E          | 2024E          | 2025E          | 2026E          |
|------------------------------------|----------------|----------------|----------------|----------------|----------------|
| <b>EBITDA</b>                      | <b>-14.1</b>   | <b>-14.0</b>   | <b>-10.8</b>   | <b>130.0</b>   | <b>545.2</b>   |
| - Maintenance capex                | 0.1            | -2.9           | 0.1            | 70.0           | 78.8           |
| - Minorities                       | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| - tax expenses                     | -4.1           | -13.3          | -19.2          | 14.9           | 124.1          |
| <b>= Adjusted Free Cash Flow</b>   | <b>-10.1</b>   | <b>2.2</b>     | <b>8.3</b>     | <b>45.1</b>    | <b>342.3</b>   |
| <b>Actual Market Cap</b>           | <b>1,430.1</b> | <b>1,430.1</b> | <b>1,430.1</b> | <b>1,430.1</b> | <b>1,430.1</b> |
| + Net debt (cash)                  | -331.7         | -434.3         | 202.8          | 701.0          | 476.0          |
| + Pension provisions               | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| + Off B/S financing                | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| - Financial assets                 | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| - Acc. dividend payments           | 0.0            | 0.0            | 0.0            | 0.0            | 0.0            |
| <i>EV Reconciliations</i>          | -331.7         | -434.3         | 202.8          | 701.0          | 476.0          |
| <b>= Actual EV'</b>                | <b>1,098.4</b> | <b>995.8</b>   | <b>1,632.9</b> | <b>2,131.0</b> | <b>1,906.0</b> |
| <b>Adjusted RW_FCF yield</b>       | <b>-0.9%</b>   | <b>0.2%</b>    | <b>0.5%</b>    | <b>2.1%</b>    | <b>18.0%</b>   |
| base hurdle rate                   | 6.0%           | 6.0%           | 6.0%           | 6.0%           | 6.0%           |
| ESG adjustment                     | 1.0%           | 1.0%           | 1.0%           | 1.0%           | 1.0%           |
| adjusted hurdle rate               | 5.0%           | 5.0%           | 5.0%           | 5.0%           | 5.0%           |
| <b>Fair EV</b>                     | <b>-201.5</b>  | <b>44.4</b>    | <b>166.6</b>   | <b>902.4</b>   | <b>6,845.4</b> |
| - <i>EV Reconciliations</i>        | -331.7         | -434.3         | 202.8          | 701.0          | 476.0          |
| <b>Fair Market Cap</b>             | <b>130.2</b>   | <b>478.7</b>   | <b>-36.2</b>   | <b>201.5</b>   | <b>6,369.5</b> |
| No. of shares (million)            | 124.7          | 137.1          | 153.4          | 161.1          | 161.1          |
| <b>Fair value per share in AUD</b> | <b>1.04</b>    | <b>3.49</b>    | <b>-0.24</b>   | <b>1.25</b>    | <b>39.53</b>   |

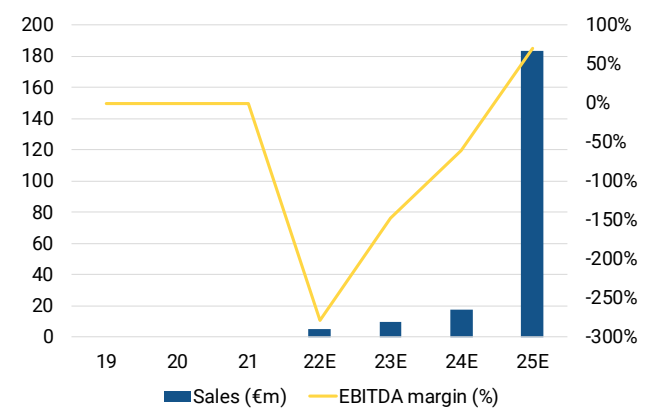
| Sensitivity analysis FV     |             |            |            |             |            |             |
|-----------------------------|-------------|------------|------------|-------------|------------|-------------|
|                             | 3.0%        | -0.0       | 3.7        | 0.5         | 5.0        | 67.9        |
| <b>Adjusted hurdle rate</b> | <b>4.0%</b> | <b>0.6</b> | <b>3.6</b> | <b>0.0</b>  | <b>2.7</b> | <b>50.2</b> |
|                             | <b>5.0%</b> | <b>1.0</b> | <b>3.5</b> | <b>-0.2</b> | <b>1.3</b> | <b>39.5</b> |
|                             | 6.0%        | 1.3        | 3.4        | -0.4        | 0.3        | 32.4        |
|                             | 7.0%        | 1.5        | 3.4        | -0.5        | -0.3       | 27.4        |

Source: Company data; AlsterResearch

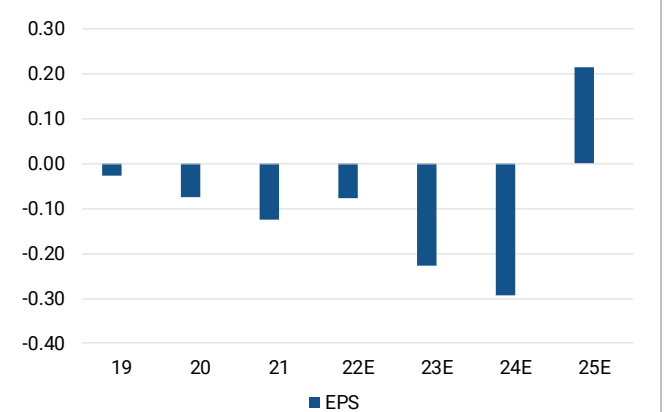
Simply put, the model assumes that investors require companies to generate a minimum return on the investor's purchase price. The required after-tax return equals the model's hurdle rate of 6%. Anything less suggests the stock is expensive; anything more suggests the stock is cheap. **ESG adjustments might be applicable, based on the overall Leeway ESG Score. A high score indicates high awareness for environmental, social or governance issues and thus might lower the overall risk an investment in the company might carry. A low score on the contrary might increase the risk of an investment and might therefore trigger a higher required hurdle rate.**

# Financials in six charts

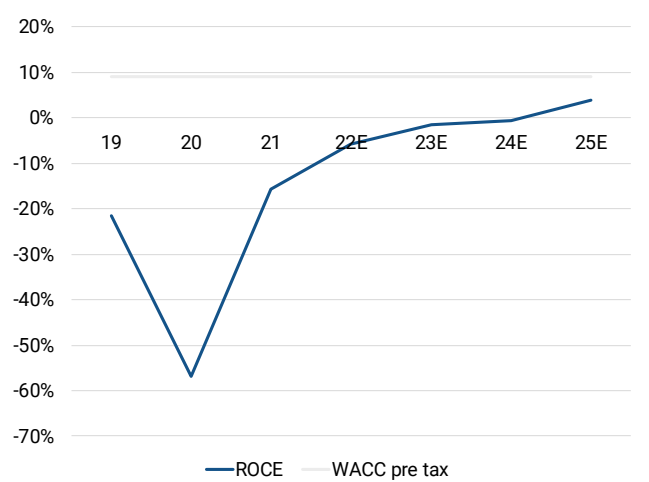
**Sales vs. EBITDA margin development**



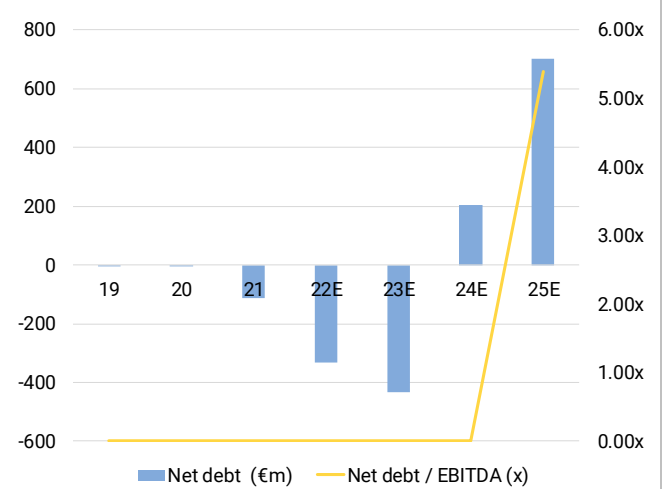
**EPS in AUD**



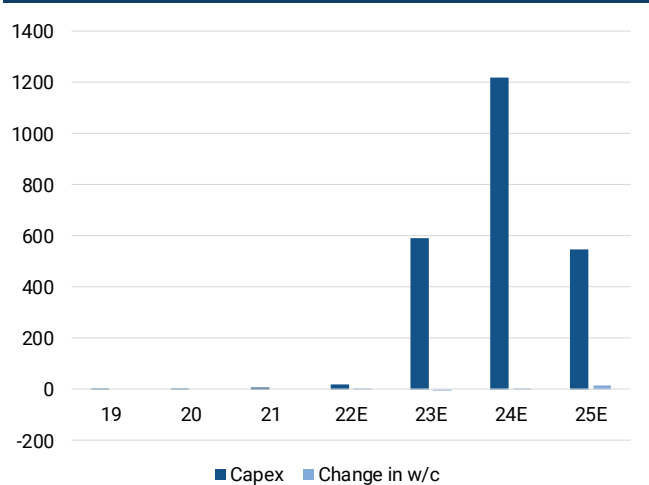
**ROCE vs. WACC (pre tax)**



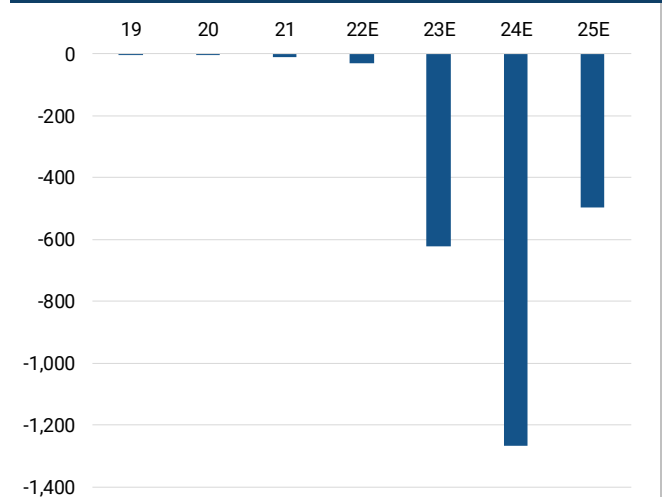
**Net debt and net debt/EBITDA**



**Capex & chgn in w/c requirements in AUDm**



**Free Cash Flow in AUDm**



## Financials

| Profit and loss (AUD m)                            | 2020         | 2021         | 2022E        | 2023E        | 2024E        | 2025E        |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| <b>Sales</b>                                       | <b>0.0</b>   | <b>0.0</b>   | <b>5.1</b>   | <b>9.5</b>   | <b>17.8</b>  | <b>183.4</b> |
| Sales growth                                       | na           | na           | Infinity%    | 87.5%        | 87.2%        | 932.9%       |
| Cost of sales                                      | 0.0          | 0.0          | 2.4          | 4.7          | 10.4         | 61.3         |
| <b>Gross profit</b>                                | <b>0.0</b>   | <b>0.0</b>   | <b>2.7</b>   | <b>4.7</b>   | <b>7.3</b>   | <b>122.0</b> |
| SG&A expenses                                      | 3.4          | 11.1         | 16.9         | 19.0         | 21.0         | 22.0         |
| Research and development                           | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Other operating expenses (income)                  | -0.0         | -0.6         | 0.0          | 0.0          | 0.0          | 0.0          |
| <b>EBITDA</b>                                      | <b>-3.3</b>  | <b>-10.5</b> | <b>-14.1</b> | <b>-14.0</b> | <b>-10.8</b> | <b>130.0</b> |
| Depreciation                                       | 0.3          | 0.4          | 0.1          | -2.9         | 0.1          | 27.5         |
| EBITA  | -3.6         | -10.9        | -14.2        | -11.1        | -10.9        | 102.6        |
| Amortisation of goodwill and intangible assets     | 0.0          | 0.0          | 0.0          | 3.2          | 2.8          | 2.5          |
| <b>EBIT</b>  | <b>-3.6</b>  | <b>-10.9</b> | <b>-14.2</b> | <b>-14.3</b> | <b>-13.7</b> | <b>100.0</b> |
| Financial result                                   | 0.0          | 0.1          | 0.5          | -30.2        | -50.3        | -50.3        |
| Recurring pretax income from continuing operations | -3.6         | -10.7        | -13.7        | -44.4        | -64.0        | 49.7         |
| Extraordinary income/loss                          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Earnings before taxes                              | -3.6         | -10.7        | -13.7        | -44.4        | -64.0        | 49.7         |
| Taxes  | 0.0          | 0.0          | -4.1         | -13.3        | -19.2        | 14.9         |
| Net income from continuing operations              | -3.6         | -10.7        | -9.6         | -31.1        | -44.8        | 34.8         |
| Result from discontinued operations (net of tax)   | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| <b>Net income</b>                                  | <b>-3.6</b>  | <b>-10.7</b> | <b>-9.6</b>  | <b>-31.1</b> | <b>-44.8</b> | <b>34.8</b>  |
| Minority interest                                  | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          | 0.0          |
| Net profit (reported)                              | -3.6         | -10.7        | -9.6         | -31.1        | -44.8        | 34.8         |
| Average number of shares                           | 48.23        | 87.20        | 124.69       | 137.12       | 153.43       | 161.13       |
| <b>EPS reported</b>                                | <b>-0.07</b> | <b>-0.12</b> | <b>-0.08</b> | <b>-0.23</b> | <b>-0.29</b> | <b>0.22</b>  |

| Profit and loss (common size)                      | 2020      | 2021      | 2022E        | 2023E        | 2024E        | 2025E       |
|--|-----------|-----------|--------------|--------------|--------------|-------------|
| <b>Sales</b>                                       | <b>na</b> | <b>na</b> | <b>100%</b>  | <b>100%</b>  | <b>100%</b>  | <b>100%</b> |
| Cost of sales                                      | na        | na        | 47%          | 50%          | 59%          | 33%         |
| <b>Gross profit</b>                                | <b>na</b> | <b>na</b> | <b>53%</b>   | <b>50%</b>   | <b>41%</b>   | <b>67%</b>  |
| SG&A expenses                                      | na        | na        | 333%         | 200%         | 118%         | 12%         |
| Research and development                           | na        | na        | 0%           | 0%           | 0%           | 0%          |
| Other operating expenses (income)                  | na        | na        | 0%           | 0%           | 0%           | 0%          |
| <b>EBITDA</b>                                      | <b>na</b> | <b>na</b> | <b>-279%</b> | <b>-148%</b> | <b>-61%</b>  | <b>71%</b>  |
| Depreciation                                       | na        | na        | 1%           | -31%         | 0%           | 15%         |
| EBITA  | na        | na        | -280%        | -117%        | -61%         | 56%         |
| Amortisation of goodwill and intangible assets     | na        | na        | 0%           | 33%          | 16%          | 1%          |
| <b>EBIT</b>  | <b>na</b> | <b>na</b> | <b>-280%</b> | <b>-150%</b> | <b>-77%</b>  | <b>55%</b>  |
| Financial result                                   | na        | na        | 10%          | -318%        | -283%        | -27%        |
| Recurring pretax income from continuing operations | na        | na        | -270%        | -468%        | -360%        | 27%         |
| Extraordinary income/loss                          | na        | na        | 0%           | 0%           | 0%           | 0%          |
| Earnings before taxes                              | na        | na        | -270%        | -468%        | -360%        | 27%         |
| Taxes  | na        | na        | -81%         | -141%        | -108%        | 8%          |
| Net income from continuing operations              | na        | na        | -189%        | -328%        | -252%        | 19%         |
| Result from discontinued operations (net of tax)   | na        | na        | 0%           | 0%           | 0%           | 0%          |
| <b>Net income</b>                                  | <b>na</b> | <b>na</b> | <b>-189%</b> | <b>-328%</b> | <b>-252%</b> | <b>19%</b>  |
| Minority interest                                  | na        | na        | 0%           | 0%           | 0%           | 0%          |
| <b>Net profit (reported)</b>                       | <b>na</b> | <b>na</b> | <b>-189%</b> | <b>-328%</b> | <b>-252%</b> | <b>19%</b>  |

Source: Company data; AlsterResearch

| Balance sheet (AUD m)                                     | 2020       | 2021         | 2022E        | 2023E          | 2024E          | 2025E          |
|---|------------|--------------|--------------|----------------|----------------|----------------|
| <b>Intangible assets (excl. Goodwill)</b>                 | <b>2.6</b> | <b>14.4</b>  | <b>15.8</b>  | <b>14.0</b>    | <b>12.6</b>    | <b>11.5</b>    |
| Goodwill  | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Property, plant and equipment                             | 0.0        | 1.5          | 18.4         | 610.5          | 1,828.6        | 2,345.7        |
| Financial assets  | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| <b>FIXED ASSETS</b>                                       | <b>2.6</b> | <b>15.8</b>  | <b>34.2</b>  | <b>624.6</b>   | <b>1,841.2</b> | <b>2,357.2</b> |
| Inventories   | 0.0        | 0.0          | 0.0          | 0.0            | 6.5            | 26.8           |
| Accounts receivable                                       | 0.1        | 1.2          | 0.2          | 0.4            | 0.7            | 7.5            |
| Other current assets                                      | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Liquid assets   | 6.4        | 114.7        | 331.7        | 945.3          | 644.2          | 146.0          |
| Deferred taxes  | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Deferred charges and prepaid expenses                     | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| <b>CURRENT ASSETS</b>                                     | <b>6.5</b> | <b>115.9</b> | <b>331.9</b> | <b>945.7</b>   | <b>651.4</b>   | <b>180.4</b>   |
| <b>TOTAL ASSETS</b>                                       | <b>9.1</b> | <b>131.7</b> | <b>366.1</b> | <b>1,570.3</b> | <b>2,492.6</b> | <b>2,537.6</b> |
| <b>SHAREHOLDERS EQUITY</b>                                | <b>8.9</b> | <b>129.0</b> | <b>365.6</b> | <b>1,058.3</b> | <b>1,643.5</b> | <b>1,678.3</b> |
| MINORITY INTEREST   | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Long-term debt  | 0.0        | 0.5          | 0.0          | 511.0          | 847.0          | 847.0          |
| Provisions for pensions and similar obligations           | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Other provisions  | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| <b>Non-current liabilities</b>                            | <b>0.0</b> | <b>0.5</b>   | <b>0.0</b>   | <b>511.0</b>   | <b>847.0</b>   | <b>847.0</b>   |
| short-term liabilities to banks                           | 0.0        | 0.1          | 0.0          | 0.0            | 0.0            | 0.0            |
| Accounts payable  | 0.2        | 2.1          | 0.5          | 0.9            | 2.1            | 12.3           |
| Advance payments received on orders                       | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Other liabilities (incl. from lease and rental contracts) | 0.0        | 0.1          | 0.0          | 0.0            | 0.0            | 0.0            |
| Deferred taxes  | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| Deferred income   | 0.0        | 0.0          | 0.0          | 0.0            | 0.0            | 0.0            |
| <b>Current liabilities</b>                                | <b>0.2</b> | <b>2.3</b>   | <b>0.5</b>   | <b>0.9</b>     | <b>2.1</b>     | <b>12.3</b>    |
| <b>TOTAL LIABILITIES AND SHAREHOLDERS EQUITY</b>          | <b>9.1</b> | <b>131.7</b> | <b>366.1</b> | <b>1,570.3</b> | <b>2,492.6</b> | <b>2,537.6</b> |

| Balance sheet (common size)                               | 2020        | 2021        | 2022E       | 2023E       | 2024E       | 2025E       |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Intangible assets (excl. Goodwill)</b>                 | <b>28%</b>  | <b>11%</b>  | <b>4%</b>   | <b>1%</b>   | <b>1%</b>   | <b>0%</b>   |
| Goodwill  | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Property, plant and equipment                             | 0%          | 1%          | 5%          | 39%         | 73%         | 92%         |
| Financial assets  | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| <b>FIXED ASSETS</b>                                       | <b>28%</b>  | <b>12%</b>  | <b>9%</b>   | <b>40%</b>  | <b>74%</b>  | <b>93%</b>  |
| Inventories   | 0%          | 0%          | 0%          | 0%          | 0%          | 1%          |
| Accounts receivable                                       | 1%          | 1%          | 0%          | 0%          | 0%          | 0%          |
| Other current assets                                      | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Liquid assets   | 71%         | 87%         | 91%         | 60%         | 26%         | 6%          |
| Deferred taxes  | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Deferred charges and prepaid expenses                     | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| <b>CURRENT ASSETS</b>                                     | <b>72%</b>  | <b>88%</b>  | <b>91%</b>  | <b>60%</b>  | <b>26%</b>  | <b>7%</b>   |
| <b>TOTAL ASSETS</b>                                       | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> |
| <b>SHAREHOLDERS EQUITY</b>                                | <b>98%</b>  | <b>98%</b>  | <b>100%</b> | <b>67%</b>  | <b>66%</b>  | <b>66%</b>  |
| MINORITY INTEREST   | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Long-term debt  | 0%          | 0%          | 0%          | 33%         | 34%         | 33%         |
| Provisions for pensions and similar obligations           | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Other provisions  | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| <b>Non-current liabilities</b>                            | <b>0%</b>   | <b>0%</b>   | <b>0%</b>   | <b>33%</b>  | <b>34%</b>  | <b>33%</b>  |
| short-term liabilities to banks                           | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Accounts payable  | 2%          | 2%          | 0%          | 0%          | 0%          | 0%          |
| Advance payments received on orders                       | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Other liabilities (incl. from lease and rental contracts) | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Deferred taxes  | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| Deferred income   | 0%          | 0%          | 0%          | 0%          | 0%          | 0%          |
| <b>Current liabilities</b>                                | <b>2%</b>   | <b>2%</b>   | <b>0%</b>   | <b>0%</b>   | <b>0%</b>   | <b>0%</b>   |
| <b>TOTAL LIABILITIES AND SHAREHOLDERS EQUITY</b>          | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> |

Source: Company data; AlsterResearch



| Cash flow statement (AUD m)                     | 2020        | 2021         | 2022E        | 2023E          | 2024E           | 2025E         |
|---|-------------|--------------|--------------|----------------|-----------------|---------------|
| Net profit/loss                                 | -3.6        | -10.7        | -9.6         | -31.1          | -44.8           | 34.8          |
| Depreciation of fixed assets (incl. leases)     | 0.0         | 0.0          | 0.1          | -2.9           | 0.1             | 27.5          |
| Amortisation of goodwill                        | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| Amortisation of intangible assets               | 0.0         | 0.0          | 0.0          | 3.2            | 2.8             | 2.5           |
| Others  | 0.1         | 0.6          | 0.0          | 0.0            | 0.0             | 0.0           |
| Cash flow from operations before changes in w/c | -1.3        | -2.8         | -9.5         | -30.8          | -41.9           | 64.8          |
| Increase/decrease in inventory                  | 0.0         | 0.0          | 0.0          | 0.0            | -6.5            | -20.3         |
| Increase/decrease in accounts receivable        | 0.0         | 0.0          | 1.0          | -0.2           | -0.3            | -6.8          |
| Increase/decrease in accounts payable           | 0.0         | 0.0          | -1.6         | 0.5            | 1.1             | 10.2          |
| Increase/decrease in other w/c positions        | 0.0         | 0.0          | -0.1         | 0.0            | 0.0             | 0.0           |
| Increase/decrease in working capital            | 0.0         | 0.0          | -0.7         | 0.3            | -5.7            | -16.9         |
| <b>Cash flow from operating activities</b>      | <b>-1.3</b> | <b>-2.8</b>  | <b>-10.3</b> | <b>-30.6</b>   | <b>-47.7</b>    | <b>47.9</b>   |
| CAPEX   | -1.2        | -7.1         | -18.4        | -590.6         | -1,219.5        | -546.0        |
| Payments for acquisitions                       | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| Financial investments                           | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| Income from asset disposals                     | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| <b>Cash flow from investing activities</b>      | <b>-1.2</b> | <b>-7.1</b>  | <b>-18.4</b> | <b>-590.6</b>  | <b>-1,219.5</b> | <b>-546.0</b> |
| Cash flow before financing                      | -2.6        | -10.0        | -28.6        | -621.2         | -1,267.2        | -498.1        |
| Increase/decrease in debt position              | 0.0         | -0.0         | -0.6         | 511.0          | 336.0           | 0.0           |
| Purchase of own shares                          | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| Capital measures                                | 5.6         | 118.3        | 246.2        | 723.8          | 630.0           | 0.0           |
| Dividends paid                                  | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| Others  | 0.0         | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| Effects of exchange rate changes on cash        | -0.0        | 0.0          | 0.0          | 0.0            | 0.0             | 0.0           |
| <b>Cash flow from financing activities</b>      | <b>5.6</b>  | <b>118.3</b> | <b>245.6</b> | <b>1,234.8</b> | <b>966.0</b>    | <b>0.0</b>    |
| Increase/decrease in liquid assets              | 3.1         | 108.3        | 217.0        | 613.6          | -301.2          | -498.1        |
| <b>Liquid assets at end of period</b>           | <b>6.4</b>  | <b>114.7</b> | <b>331.7</b> | <b>945.3</b>   | <b>644.2</b>    | <b>146.0</b>  |

Source: Company data; AlsterResearch

| Regional sales split (AUDm) | 2020       | 2021       | 2022E      | 2023E      | 2024E       | 2025E        |
|-----------------------------|------------|------------|------------|------------|-------------|--------------|
| Domestic                    | 0.0        | 0.0        | 5.1        | 9.5        | 17.8        | 183.4        |
| Europe (ex domestic)        | 0.0        | 0.0        | 0.0        | 0.0        | 0.0         | 0.0          |
| The Americas                | 0.0        | 0.0        | 0.0        | 0.0        | 0.0         | 0.0          |
| Asia                        | 0.0        | 0.0        | 0.0        | 0.0        | 0.0         | 0.0          |
| Rest of World               | 0.0        | 0.0        | 0.0        | 0.0        | 0.0         | 0.0          |
| <b>Total sales</b>          | <b>0.0</b> | <b>0.0</b> | <b>5.1</b> | <b>9.5</b> | <b>17.8</b> | <b>183.4</b> |

| Regional sales split (common size) | 2020      | 2021      | 2022E       | 2023E       | 2024E       | 2025E       |
|------------------------------------|-----------|-----------|-------------|-------------|-------------|-------------|
| Domestic                           | na        | na        | 100.0%      | 100.0%      | 100.0%      | 100.0%      |
| Europe (ex domestic)               | na        | na        | 0.0%        | 0.0%        | 0.0%        | 0.0%        |
| The Americas                       | na        | na        | 0.0%        | 0.0%        | 0.0%        | 0.0%        |
| Asia                               | na        | na        | 0.0%        | 0.0%        | 0.0%        | 0.0%        |
| Rest of World                      | na        | na        | 0.0%        | 0.0%        | 0.0%        | 0.0%        |
| <b>Total sales</b>                 | <b>na</b> | <b>na</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> |

Source: Company data; AlsterResearch

| Ratios                            | 2020    | 2021    | 2022E   | 2023E   | 2024E    | 2025E   |
|-----------------------------------|---------|---------|---------|---------|----------|---------|
| <b>Per share data</b>             |         |         |         |         |          |         |
| Earnings per share reported       | -0.07   | -0.12   | -0.08   | -0.23   | -0.29    | 0.22    |
| Cash flow per share               | -0.03   | -0.04   | -0.08   | -0.20   | -0.31    | -0.14   |
| Book value per share              | 0.18    | 1.48    | 2.93    | 7.72    | 10.71    | 10.42   |
| Dividend per share                | 0.00    | 0.00    | 0.00    | 0.00    | 0.00     | 0.00    |
| <b>Valuation</b>                  |         |         |         |         |          |         |
| P/E                               | -156.1x | -93.3x  | -149.7x | -50.7x  | -39.4x   | 53.2x   |
| P/CF                              | -342.8x | -313.3x | -139.0x | -57.0x  | -37.0x   | -83.8x  |
| P/BV                              | 62.4x   | 7.8x    | 3.9x    | 1.5x    | 1.1x     | 1.1x    |
| Dividend yield (%)                | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%     | 0.0%    |
| FCF yield (%)                     | -0.3%   | -0.3%   | -0.7%   | -1.8%   | -2.7%    | -1.2%   |
| EV/Sales                          | na      | na      | na      | na      | 92.2x    | 11.6x   |
| EV/EBITDA                         | -430.9x | -125.6x | -78.1x  | -71.4x  | -151.7x  | 16.4x   |
| EV/EBIT                           | -396.7x | -121.5x | -77.7x  | -70.1x  | -119.7x  | 21.3x   |
| <b>Income statement (AUDm)</b>    |         |         |         |         |          |         |
| Sales                             | 0.0     | 0.0     | 5.1     | 9.5     | 17.8     | 183.4   |
| yoy chg in %                      | na      | na      | na      | na      | 87.2%    | 932.9%  |
| Gross profit                      | 0.0     | 0.0     | 2.7     | 4.7     | 7.3      | 122.0   |
| Gross margin in %                 | na      | na      | na      | na      | 41.3%    | 66.6%   |
| EBITDA                            | -3.3    | -10.5   | -14.1   | -14.0   | -10.8    | 130.0   |
| EBITDA margin in %                | na      | na      | na      | na      | -60.8%   | 70.9%   |
| EBIT                              | -3.6    | -10.9   | -14.2   | -14.3   | -13.7    | 100.0   |
| EBIT margin in %                  | na      | na      | na      | na      | -77.0%   | 54.6%   |
| Net profit                        | -3.6    | -10.7   | -9.6    | -31.1   | -44.8    | 34.8    |
| <b>Cash flow statement (AUDm)</b> |         |         |         |         |          |         |
| CF from operations                | -1.3    | -2.8    | -10.3   | -30.6   | -47.7    | 47.9    |
| Capex                             | -1.2    | -7.1    | -18.4   | -590.6  | -1,219.5 | -546.0  |
| Maintenance Capex                 | 0.3     | 0.4     | 0.1     | -2.9    | 0.1      | 70.0    |
| Free cash flow                    | -2.6    | -10.0   | -28.6   | -621.2  | -1,267.2 | -498.1  |
| <b>Balance sheet (AUDm)</b>       |         |         |         |         |          |         |
| Intangible assets                 | 2.6     | 14.4    | 15.8    | 14.0    | 12.6     | 11.5    |
| Tangible assets                   | 0.0     | 1.5     | 18.4    | 610.5   | 1,828.6  | 2,345.7 |
| Shareholders' equity              | 8.9     | 129.0   | 365.6   | 1,058.3 | 1,643.5  | 1,678.3 |
| Pension provisions                | 0.0     | 0.0     | 0.0     | 0.0     | 0.0      | 0.0     |
| Liabilities and provisions        | 0.0     | 0.6     | 0.0     | 511.0   | 847.0    | 847.0   |
| Net financial debt                | -6.4    | -114.1  | -331.7  | -434.3  | 202.8    | 701.0   |
| w/c requirements                  | -0.1    | -0.9    | -0.3    | -0.6    | 5.2      | 22.1    |
| <b>Ratios</b>                     |         |         |         |         |          |         |
| ROE                               | -40.0%  | -8.3%   | -2.6%   | -2.9%   | -2.7%    | 2.1%    |
| ROCE                              | -40.5%  | -8.4%   | -3.9%   | -0.9%   | -0.5%    | 4.0%    |
| Net gearing                       | -72.3%  | -88.5%  | -90.7%  | -41.0%  | 12.3%    | 41.8%   |
| Net debt / EBITDA                 | 1.9x    | 10.9x   | 23.5x   | 31.0x   | -18.8x   | 5.4x    |

Source: Company data; AlsterResearch

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