

# Rare Earth Sector Initiation

## Calm before the storm

We initiate on the Rare Earth Sector with LYC our preferred producer at a BUY and PT of A\$5.0/sh. HAS is our top pick among the developers with a Speculative Buy and PT of A\$0.30/sh. We think now is a good entry point back into equities, with prices having retreated c.30% since their June frenzied highs. Near term RE price fundamentals have weakened but appear to be stabilising, but note any escalation in geopolitical tensions could well see prices spike again, key known catalysts being China 2H production quotas (due end of July), and seasonal China EV demand uplift. Long term we find sector fundamentals as increasingly attractive due to a broader electrification demand trend as well as new supply barriers to entry remaining high as well as ongoing China SOE/Environmental reforms.

### Rare Earth Outlook: Good entry point

- **Attractive entry point:** We think now is a good entry point into rare earth equities, with prices retreating some c.30% since their June peaks as well as some key catalysts ahead. A frenzy broke out in May following Chinese President Xi's visit to a rare magnet factory, driving up NdPr prices and equities c.40% over 4 weeks.
- **Key Catalysts ahead (Quotas + Geopolitics):** Release of China's 2H19 production quota is due shortly, which could well exacerbate geopolitical concerns. Threats by China to weaponize (withholding) RE supply also looms large in our mind, but we query the practicality of implementation given the heavily fragmented RE supply chain.
- **Short term** – recent weakness of NdPr prices appear to be stabilising with permanent magnet exports out of China increasing to multi year highs in May, and supply from Inner Mongolia retreats due to a shortage of ore.
- **Long term - Bullish NdPr:** The broader electrification thematic remains increasingly strong and rare earths importance is under appreciated relative to other EV commodities (Li,Co,Ni,Mn etc). We expect market deficits for NdPr to compound from CY22 as demand takes off and new supply barriers to entry remain high.

### Initiate coverage: Lynas Corp - Buy PT \$5.0/sh

- **In the Global Spotlight:** as the only non-Chinese producer of scale (c.15% of world supply) it could continue capturing global headlines. Ann of a separation plant in Texas further emboldens the LYC's strategic importance.
- **Political Resolution within reach:** Malaysian political uncertainty continues to weigh on the stock, but we are confident of a resolution in the coming weeks prior to the Sept 2nd license renewal deadline, we expect PDF solution (cost neutral).
- **Valuation to Rerate:** We see LYC as materially undervalued relative to its fundamentals and expect the valuation to rerate following recently ann growth plans which adds +\$1.4/sh and further potential of +60¢/sh for Texas heavy rare earth JV.

### Initiate coverage: Hastings - Speculative Buy PT \$0.30/sh

- **Our top junior pick:** due to its high value orebody, low technical risk path to production, German backing, derisked ramp up and managements skin in the game.
- **Germany's RE Solution:** Similar to Japan Inc's backing of LYC in the 2000's, we see Germany backing HAS for its future RE needs, with offtake partners (Thyssenkrupp/Schaeffler) helping to secure low cost German G'ovt Debt (c.5%)
- **High Value Orebody:** HAS's hosts one of the worlds highest NdPr resource concentrations of 35%, boosting its basket price 2x higher than peers/ ROW producers.
- **Lower Technical Risk:** They aim to produce a mixed carbonate and not fully separate RE's, significantly reducing project technical risk and capex (A\$450m).

### Lynas Corp (LYC AU)

Last Price

**A\$2.55**

Target Price

**A\$5.00**

Recommendation

**Buy**

Risk

**Higher**

### Hastings Tech Metals (HAS AU)

Last Price

**A\$0.13**

Target Price

**A\$0.30**

Recommendation

**Speculative Buy**

Risk

**Higher**

### Dylan Kelly

Senior Research Analyst

02 8216 6417

dkelly@ords.com.au

## Contents

|  |           |
|--|-----------|
| Rare Earth Sector Initiation .....           | 3         |
| Supply & Demand.....                         | 4         |
| Price Forecast .....                         | 5         |
| Appendix: Rare Earth Market 101 .....        | 7         |
| <b>Lynas Corp (LYC AU).....</b>              | <b>11</b> |
| Investment Thesis.....                       | 13        |
| Risks .....                                  | 15        |
| Growth plans / 'Lynas 2025' .....            | 18        |
| Appendix: Company Overview & Forecasts ..... | 22        |
| <b>Hastings Tech Metals (HAS AU) .....</b>   | <b>28</b> |
| Investment Thesis.....                       | 30        |
| Risks .....                                  | 34        |
| Appendix: Company Summary & Forecasts .....  | 36        |

## Rare Earth Sector Initiation

We initiate on the Rare Earth Sector with a BUY on LYC and A\$5.0/sh target and is our preferred producer, whilst HAS is our top pick among juniors with a Speculative Buy and A\$0.30/sh target.

We think now present an attractive entry point into rare earth equities, with both stock and commodity prices retreating c.30% since their June frenzied highs. Near term RE price fundamentals have weakened but appear to be stabilising, but we note any escalation in geopolitical tensions could well see prices spike again (China 2H production quotas).

Longer term, the broader electrification thematic remains increasingly strong and rare earths importance is under appreciated relative to other EV commodities (Li,Co,Ni,Mn etc). We expect market deficits for NdPr to compound from CY22 as demand takes off and new supply barriers to entry remain high.

### Attractive entry point

We think now is a good entry point back into the equities, with prices having retreated c.30% since their June peaks as well as some key catalysts ahead,. A frenzy broke out following Chinese President Xi's visit to a rare magnet factory in May, driving up NdPr prices/equities +40% over 4 weeks.

Figure 1: Price Changes since May (Indexed)



Source: IRESS, SMM, Ord Minnett Estimates (6 Juniors include HAS, ARU, ALK, GGG, NTU, PEK)

### Key Catalysts

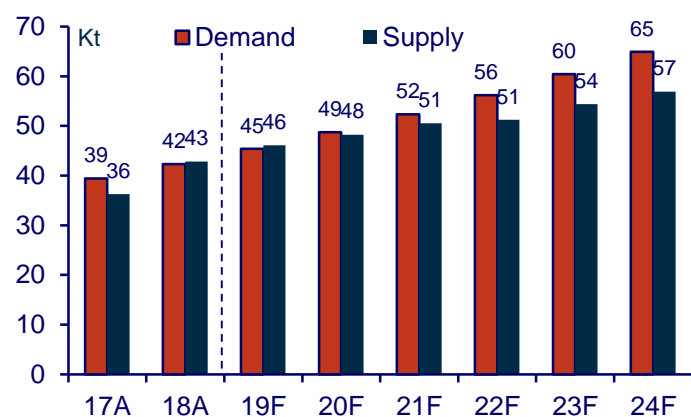
We are cautiously optimistic on the near term price outlook due to the multiple geopolitical catalysts on the horizon. Key catalysts we are looking for include:

- **China's 2H19 production quota:** typically released in late July, in our view, any material reduction from 1H19 levels (60kt mined, 57.5kt product) could be perceived negatively from geopolitical perspective.
- **Geopolitical Drama:** Threats by China to weaponize (withholding) RE supply also looms large in our mind, but we query the practicality of implementation given the heavily fragmented RE supply chain.
- **Seasonal demand tailwinds:** typically the Sep/Dec quarters are heavily skewed towards EV production (automobile/commercial vehicles).

## Supply & Demand Forecast

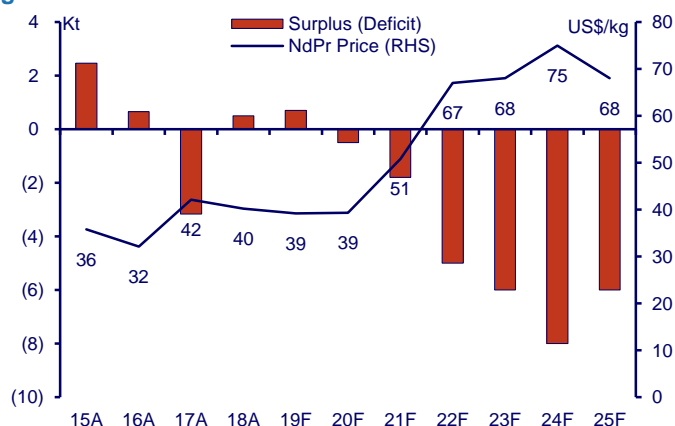
- In CY18 we estimated the market was in a slight surplus of 0.5kt, with supply at 42.8kt and demand at 42.3kt.
- Over the past 5 years we estimate the NdPr market has grown at an 8% CAGR, with the market being relatively balanced.
  - The majority of supply growth over the past 5 years has come from LYC which has added 3.8kt (35%) with unconventional sources from Myanmar adding 2.3kt, while the restart of Mountain Pass in California added a c.2.6kt.
- Between 2019 and 2021 we expect the NdPr market to remain relatively balanced with demand growing at 8%, met by increasing recycled magnets and efficiency gains from Chinese production as well as the tail end of LYC's project Next.
- In 2022, we expect the uptake in NdPr demand from EV production reaches an inflection point, which we expect will drive the market into deficit. We expect prices to rise until a supply response is incentivised.
  - We have become increasingly positive on the demand outlook, with key auto manufacturers bringing forward their targeted EV levels. For example Toyota has brought forward its 50% EV sales target by 5 years to 2025.

Figure 2: NdPr Oxide Supply & Demand Forecast



Source: Ord Minnett Estimates, SMM, Roskill, Adamas Intelligence, USGS

Figure 3: NdPr Market Balance & Price Forecast

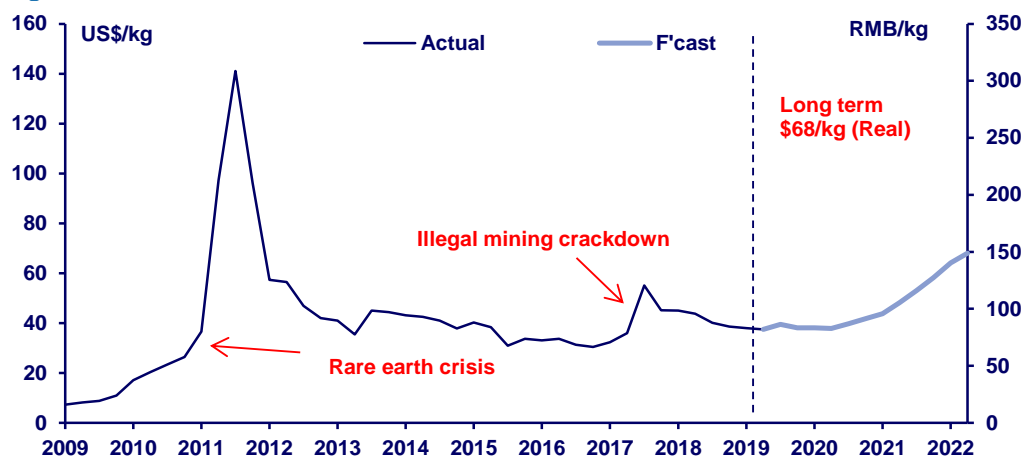


## Price Forecast

We forecast a long term real NdPr Oxide price of US\$68/kg on an FOB China basis excluding 16% VAT. Our forecast is based on an incentive price analysis of 5 advanced NdPr rich projects to realise a 15% IRR.

- Near term we expect prices to weaken a slight -3% to from spot to c.US\$35/kg in the SepQtr before recovering in the DecQ/MarQ to \$35/39/kg and to average FY20 at \$38/kg.
- For FY21 we expect prices to lift slightly higher from FY20 level at c.US\$43/kg, before reverting to our long term number of US\$68/kg as market deficits increase.

Figure 4: Historic & Forecast NdPr Oxide Prices 2009-2022



Source: SMM, Ord Minnett Estimates

We note that incentive pricing is an ineffective predictor of future pricing. Typically we forecast prices based on the marginal cost of production, but this measure is not possible due to the 15 other rare earths that are produced alongside NdPr as either by-products or co-products. However, we have a high degree of confidence that our US\$68/kg forecast is realistic as it implies c.50% Ebitda margin for LYC, which is consistent with the long run average of 1<sup>st</sup> quartile cost producers with a high industry concentrations.

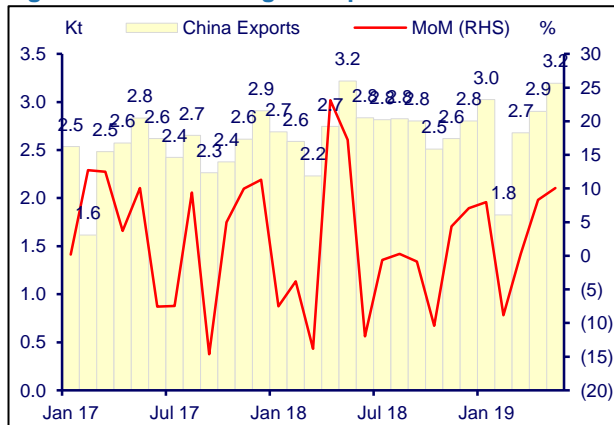
Further, visibility on NdPr market pricing is complex, opaque and highly illiquid with a very small market size of 43kt. Pricing is further complicated by reports that reported prices represent possibly as low as ~10% of trade volumes. This is worse than the Uranium spot market, which is known to represent as little as <20% of supply.

### Short term outlook: Stabilising

NdPr prices have been challenged in the past several weeks since peaking in early June. Market fundamentals appear to be showing signs of normalising:

- China RE Permanent Magnet exports in May at 3.2kt hitting a new 12 month high.
- Domestic NdPr market appears have returns to relative balance with recent production and sales data even at 2.3kt per month. This is further supported by NdPr holding steady at 4kt (but still remain at 5 year highs).
- China RE separation plant utilisation rates fell by 6% in May to 58% and maintained this slightly lower level into June. This appears driven by a shortage of domestic ore from Inner Mongolian.
- Myanmar's Last Gasp: Myanmar imports were zero in June, which gives the market a potential relief that the illicit supply has come to an end. This is an important development as we previously estimated it was 2-4% of world NdPr supply (others estimated as high as 10-15%).

Figure 5: China RE Magnet Exports



Source: China Customs, Asian Metals

Figure 6: NdPr Market Balance &amp; Price Forecast

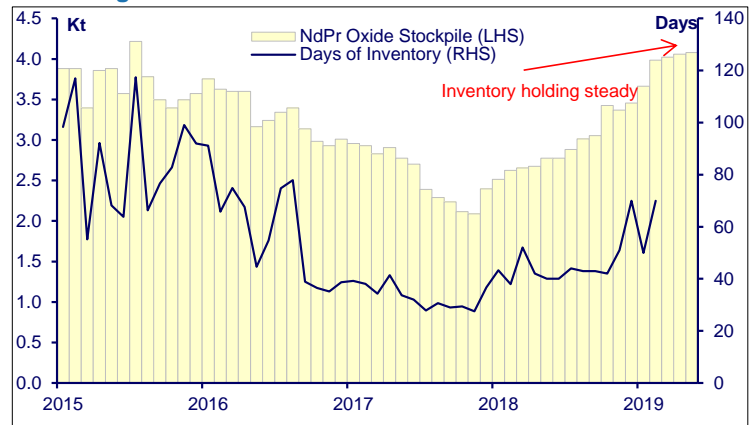
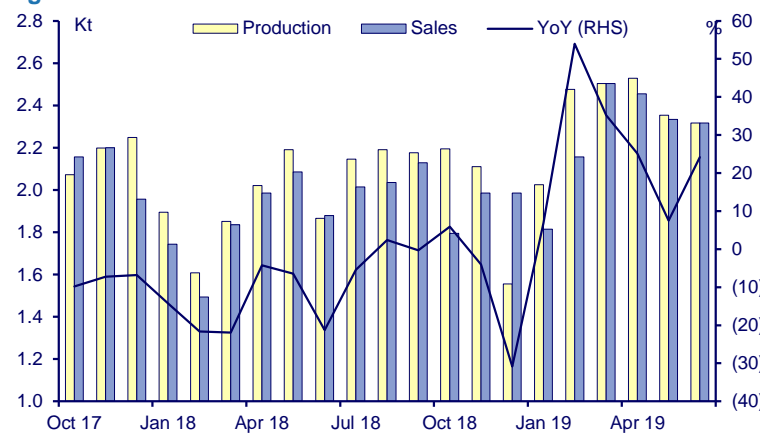


Figure 7: China NdPr Oxide Production &amp; Sales



Source: China Customs, Asian Metals

Figure 8: China RE Separation Plant Utilisation Rates

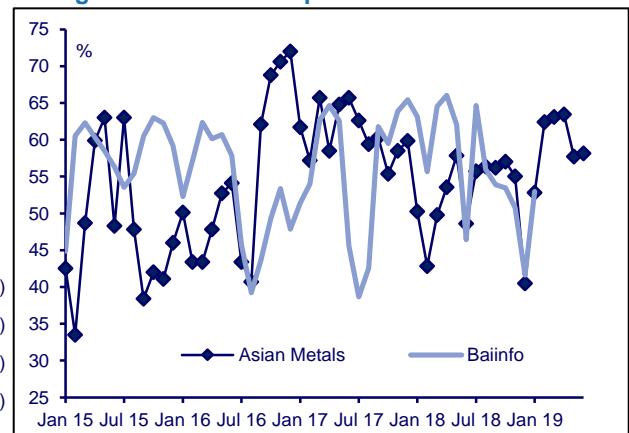
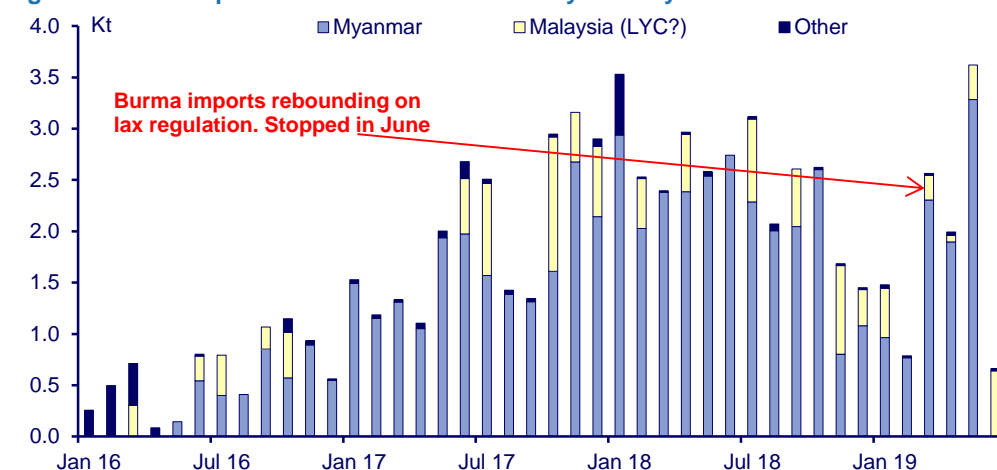


Figure 9: China Imports of Mixed RE Carbonate by Country



Source: China Customs,

## Appendix A: Rare Earth Market

*“The middle east has oil, China has rare earths. It is of extremely important strategic significance; we must be sure to handle the rare earth issue properly and make the fullest of our country’s advantage in rare earth resources...”*

- Deng Xiaoping 1992

Rare earths are collection 15 metallic elements known as the lanthanide series with a range of applications (see Appendix A). We are principally interested in only two of these elements, Neodymium ('Nd') and Praseodmium ('Pr') known collectively as 'NdPr' as it represents roughly c.80% of the total value of the sector. NdPr is also a key raw ingredient for permanent magnets used in electric vehicles and other green technologies such as wind turbines, and energy efficient appliance.

We are bullish on the rare earth sector and in particular NdPr seeing a combination of:

- Structural market changes curtailing supply from dominant supplier China
- Favourable demand outlook for NdPr
- Rare Earth Supply Weaponized for geopolitical reasons.

### Market structure

China dominates gold rare earth supply chain responsible for c.80% of world production and 60% of demand. Within China, the rare earth supply chain is highly concentrated upstream (mine to separation plants) with six SOE's being the only approved producers, whilst the downstream product market (oxide to magnet makers) is highly fragmented. We focus on the upstream market, which is both complex and undergoing significant change.

### Supply Outlook

We see China's historic rare earth dominance of supply undergoing a structural shift due to a combination of Beijing led industry wide reforms. We expect domestic production to continue to decline by forcing inefficient and illegal capacity to close as well as increasing costs to comply with strict new environmental regulations. We expect that ex China supply will have to dramatically increase in future years and must overcome historically high barriers to entry.

### Industry Costs Rising

The structural cost base of Chinese rare earth producers is increasing. For decades prices have been depressed to below the cost of production due to the heavy environmental cost borne by the country side. With Beautiful China a series of Beijing and provincial-led policies is enforcement of new environmental regulations regarding the rare earths industry.

### China Industry Reforms Cutting Supply

Since the 12<sup>th</sup> Five Year Plan (2011-2015) a significant reform agenda has been underway with a 2020 target of reducing rare earth capacity to c.140ktpa of TREO some 70% less than the c.450ktpa levels of 2013. China sees considerable strategic importance in its domestic rare earth industry as evidenced by it being the only commodity in China with its own five year plan, which compared to other large SOE dominated sectors like Steel, Coal, Aluminium. This reform was being achieved via:

1. Supply Side Reforms ('SSR'): China State Owned Enterprise (SOE) forcing:
  - a. Industry Consolidation,
  - b. Closing surplus capacity
2. Removal illicit/black market rare earth supply
3. 'Beautiful China' and environmental reforms curtailing production and rising costs.

## 1. SOE Industry Consolidation

Historically, outside of Inner Mongolia the Chinese rare earth market was highly fragmented across southern provinces. The industry was progressively consolidated into the hands of a select group six provincial SOE's and two smaller 'research' entities referred to as the '6+2'.

## 2. Removal of surplus capacity

Since 2013, surplus capacity of rare earth separation plants has been reduced from c.450ktpa to c.250ktpa by 2017. Production has been restricted by limiting output via official 6 monthly quotas to approved entities. Whilst the quota system is likely to be strictly enforced, it bears little resemblance to reality with the 2017 quota of c.100kt of product well below the c.150kt of estimated total production.

## 3. Illegal/Black market crackdown

A black market crackdown has been underway and Beijing's actions indicate that the impact is quite pronounced. In 2010 the Ministry of Industry and Information (MIIT) tabled a strict criteria for the rare earth industry to reform and comply with strict production quotas granted to only officially sanctioned '6+2' SOE's. Any producer not certified or approved under the quota system (ie non '6+2') has been effectively outlawed.

The size of market is difficult to quantify ranging with estimates ranging between 30-60kt (15-40%) of domestic output, complicated by its geographic spread and fragmentation for upstream mine supply. This quota system has been strictly enforced in recent years via large province wide police led crackdowns which effectively halted supply for months at a time. Surveys of rare earth separation plants' utilisation rates indicate this trend clearly, with production rates falling to zero in effected provinces. This was particularly the case in the 6 months leading up to the China Peoples Congress in 2017 when nationwide utilisation rates fell to 43%. This event had a dramatic impact on oxide supply, driving prices dramatically higher. Post the CPC illegal mining resumed and prices recovered.

## 4. Beautiful China/Environmental Reforms

We note environmental reforms within China are playing a central role in curtailing production and increasing costs. The clean-up has been a long time coming but enforcement has been lacking until only recently begun in the last 3 years. In 2010 the Ministry of Industry and Information (MIIT) tabled production criteria for the rare earth industry, which clearly stated the grim outlook for certain producers. Key points included:

- Mining of pure monazite minerals is banned due to the high-level of radioactive elements in them and the resulting environmental damage.
- The facilities for the processing of bastnasite and mixed minerals must be installed with a complete treatment system for waste water, waste gas, and solid waste.
- Ion-adsorption deposits, ponding and heap leaching are banned due to possibility of massive environmental damage
- The rehabilitation of plants and vegetation after mining of ion-adsorption deposits should cover at least 90% of the affected area.

The impact of recent crackdowns on each of these factors has indirectly resulted in an increase in supply of rare earth feed stocks from other countries. As seen in monthly customs since industry reforms commenced in 2014, imports of raw rare earth materials from non-traditional producers such as neighbouring Myanmar skyrocketed from zero in FY14 to over 28kt in CY17.



## Demand Outlook

Certain Rare Earth metals are essential ingredients for high performance magnets in electric motors as they:

- generate rotational force through magnetic power,
- their size is small relative to delivering high torque/power density
- require less maintenance

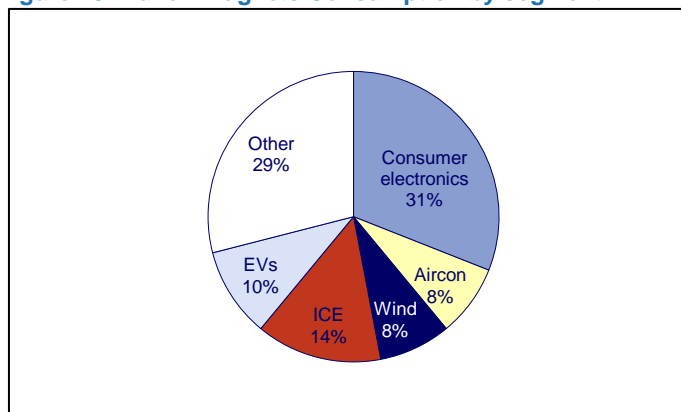
The dominant permanent magnets known as 'NdFeB' (Neodymium Iron Boron) contain c.30% NdPr Oxide and have a high intensity of use in electric motors:

- Electric Vehicles contain ~2kg of NdFeB per vehicle (Toyota Prius 1.5kg)
- Wind Turbines use 100-150kg of NdFeB per megawatt

Over the past 5 years global NdFeB demand has grown at a CAGR of 8% to reach around 171kt in 2018 and worth c.US\$12.2bn. China dominates world NdFeB supply at some 45% and its adoption rate has been far more pronounced than the ROW, particular for the EV market which has grown to

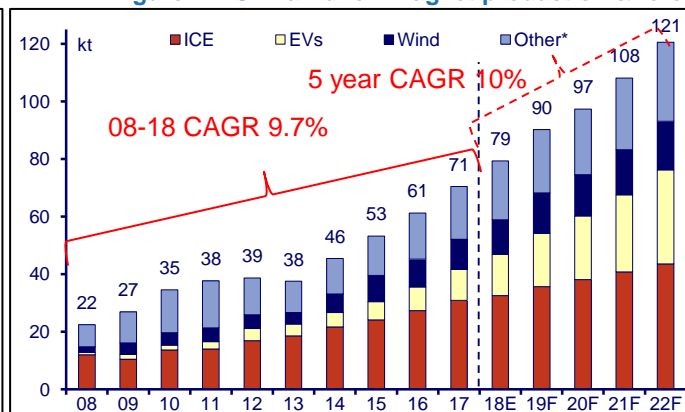
Forecast demand growth for NdFeB varies widely between 7-25% over the next decade. China-specific demand growth estimates are particularly bullish, at a 5 year Cagr of c.10% from 61kt in 2016 to 97kt by 2020, driven primarily by EV growth.

Figure 10: NdFeB Magnets Consumption by segment



Source: SMM & Ord Minnett Forecasts

Figure 11: China NdFeB magnet production & forecast

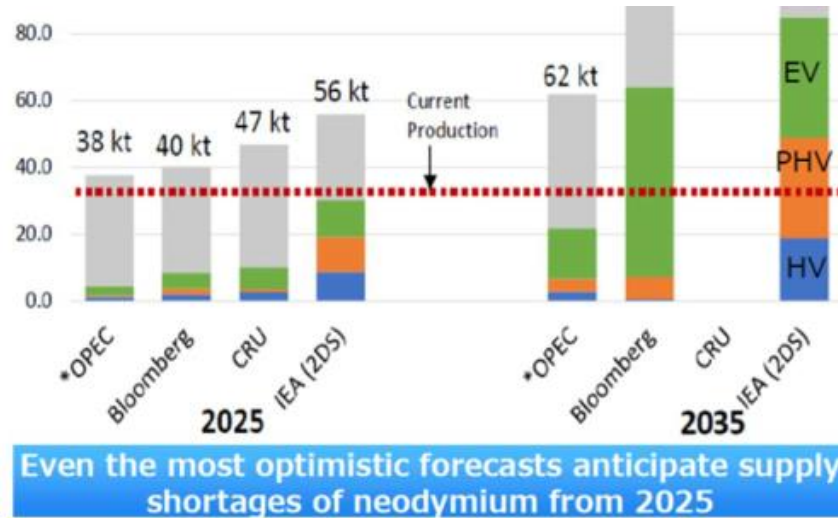


### Toyota backing NdFeB

In February 2018 a Toyota investor briefing announced the release of new rare earth magnet for electric motors with largely bullish implications for the NdFeB market. Of particular importance was its 2025 outlook for the NdPr market “even the most optimistic forecasts...[we] anticipate supply shortages of NdPr from 2025”. Other key points:

- By 2025 Toyota is targeting production one electrified version for each conventional vehicle sold.
- Toyota R&D created a new magnet which uses lower concentrations of heavy RE's Dy/Tb and use less NdPr and replace it with cheaper rare earth La/Ce.
- Accelerating development for mass production technologies for use in motors, inverters, and batteries but also robotics and a range of other applications

Figure 12: World NdPr Demand 2025 by source vs production (from Toyota)



Source: Toyota

# Lynas Corp (LYC AU)

Political resolution within reach/ Valuation rerate to follow

We initiate coverage on LYC with a BUY recommendation and A\$5.0/sh target price. We see LYC's as materially undervalued relative to its fundamentals, due to Malaysian political uncertainty, but we are confident this will be resolved by the Sep 2nd license renewal deadline. We expect the valuation to rerate soon after due to its recently ann growth plans combined with its near term cash generation potential.

## Initiate with BUY rec & A\$5.0/sh target price

- Our valuation is based on a forward NPV using a 8.4% WACC (Real) and long term assumptions of US\$68/kg NdPr (ex VAT) and 0.70 AUDUSD.
- We see LYC as materially undervalued relative to its fundamentals with the market pricing in significant supply disruption.
- As the worlds largest ex China producer it's strategic importance cannot be overstated. Numerous +ive catalysts ahead (operational, growth, M&A)

## Political resolution within reach

- Malaysia political uncertainty continues to weigh heavily on the share price. We remain confident that it receives its license renewal in August and the business suffers no future operational disruption.
- On May 30th the Malaysian Prime Minister explicitly stated that its license will be renewed (Due Sep 2<sup>nd</sup> 2019). In our view LYC's controversy is political (no scientific basis for concern), and the PM's support gives us confidence that a 'Win Win' deal can be struck before.
- A 'Win-Win' looks to us like a Permanent Storage Facility for the WLP (Cost Neutral) and to Crack in Leach in Aus by 2025 for "A\$500m".

## Valuation to rerate

- Recent Investor Day outlined a clear 5 year growth plan to lift NdPr output +44% (+A\$1.4/sh) + a Texas JV to separate Heavy RE's (+A\$0.6/sh).
- We think they can readily self-fund growth, but they have significant flexibility from the recently renegotiated Japanese debt facility (US\$145m over 10 years at 2.5%) which also now enables dividends.

## Key Financials

| Year-end June (A\$)   | FY17A  | FY18A   | FY19E | FY20E | FY21E |
|-----------------------|--------|---------|-------|-------|-------|
| Revenue (\$m)         | 257.0  | 374.1   | 368.6 | 489.0 | 521.7 |
| EBITDA (\$m)          | 31.9   | 127.0   | 121.2 | 209.9 | 240.6 |
| EBIT (\$m)            | (12.0) | 86.2    | 79.4  | 168.5 | 199.2 |
| Reported NPAT (\$m)   | (0.5)  | 53.1    | 62.8  | 165.4 | 199.1 |
| Reported EPS (c)      | (0.0)  | 8.3     | 8.8   | 23.0  | 27.7  |
| Normalised NPAT (\$m) | 23.6   | 53.8    | 83.7  | 165.4 | 199.1 |
| Normalised EPS (c)    | 0.7    | 11.0    | 12.6  | 24.8  | 29.8  |
| EPS Growth (%)        | -      | 1,511.2 | 14.3  | 96.6  | 20.4  |
| Dividend (c)          | -      | -       | -     | -     | -     |
| Net Yield (%)         | -      | -       | -     | -     | -     |
| EV/EBITDA (X)         | 42.8   | 14.7    | 15.2  | 8.1   | 6.2   |
| Normalised P/E (x)    | -      | 23.1    | 20.2  | 10.3  | 8.6   |
| Normalised ROE (%)    | -      | -       | -     | -     | -     |

Source: OML, Iress, Lynas Corporation Limited

## Last Price

**A\$2.55**

## Target Price

**A\$5.00**

## Recommendation

**Buy**

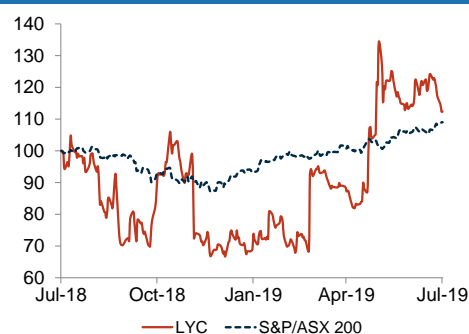
**Risk**

**Higher**

## Diversified Metals and Mining

|                               |             |
|-------------------------------|-------------|
| ASX Code                      | LYC         |
| 52 Week Range (A\$)           | 1.52 - 3.05 |
| Market Cap (\$m)              | 1,702.9     |
| Shares Outstanding (m)        | 667.8       |
| Av Daily Turnover (\$m)       | 0.0         |
| 3 Month Total Return (%)      | 28.8        |
| 12 Month Total Return (%)     | 12.3        |
| Benchmark 12 Month Return (%) | 9.0         |
| Net Debt FY19E (A\$m)         | 136.3       |

## Relative Price Performance



Source: FactSet

## Consensus Earnings

|                 | FY19E | FY20E |
|-----------------|-------|-------|
| NPAT (C) (\$m)  | -     | -     |
| NPAT (OM) (\$m) | 83.7  | 165.4 |
| EPS (C) (c)     | -     | -     |
| EPS (OM) (c)    | 12.6  | 24.8  |

Source: OML, Iress, Lynas Corporation Limited

## Production &amp; Valuation Summary

| Assumptions (Real) |         | 17A  | 18A  | 19F  | 20F  | 21F  | 22F  | LT   |
|--------------------|---------|------|------|------|------|------|------|------|
| AUD                |         | 0.75 | 0.78 | 0.71 | 0.66 | 0.68 | 0.70 | 0.70 |
| NdPr Oxide         | US\$/kg | 32.5 | 47.4 | 38.5 | 38.4 | 43.4 | 68.0 | 68.0 |
| Other REO          | US\$/kg | 2.8  | 2.8  | 3.3  | 2.5  | 2.5  | 2.5  | 2.5  |

## Key financial metrics

|                 |       | 17A   | 18A  | 19F  | 20F  | 21F  | 22F  |
|-----------------|-------|-------|------|------|------|------|------|
| <b>P&amp;L</b>  |       |       |      |      |      |      |      |
| Revenue         | A\$m  | 257   | 374  | 369  | 489  | 522  | 773  |
| EBITDA          | A\$m  | 32    | 127  | 121  | 210  | 241  | 502  |
| NPAT            | A\$m  | 24    | 54   | 84   | 165  | 199  | 352  |
| EPS - (Diluted) | A¢/sh | (0.0) | 8.3  | 8.8  | 23.0 | 27.7 | 49.0 |
| Ebitda Margin   | %     | 12    | 34   | 33   | 43   | 46   | 65   |
| EV/Ebitda       | x     | 25.6  | 13.6 | 15.3 | 8.8  | 6.8  | 2.7  |

## Cash flow

|                       |             |           |            |            |            |            |            |
|-----------------------|-------------|-----------|------------|------------|------------|------------|------------|
| Operating Cash Flow   | A\$m        | 34        | 118        | 104        | 210        | 241        | 502        |
| Capex                 | A\$m        | 2         | 24         | 32         | 30         | 35         | 196        |
| Security Bond Deposit | A\$m        | 5         | 30         | 11         | 12         |            |            |
| <b>Free Cash Flow</b> | <b>A\$m</b> | <b>34</b> | <b>118</b> | <b>104</b> | <b>210</b> | <b>241</b> | <b>502</b> |
| FCF Yield             | %           | 8.8       | 7.6        | 6.1        | 11.3       | 12.9       | 26.9       |

## Balance Sheet

|                   |      |       |       |       |      |      |      |
|-------------------|------|-------|-------|-------|------|------|------|
| Cash Balance      | A\$m | 64    | 42    | 90    | 140  | 241  | 546  |
| Net Debt / (Cash) | A\$m | (429) | (181) | (136) | 11   | 222  | 526  |
| Gearing (ND/E)    | %    | (383) | (42)  | (27)  | 2    | 26   | 43   |
| Interest Cover    | x    | 0.16  | 0.22  | 0.07  | 0.02 | 0.01 | 0.01 |

## Debt Facilities

|                          |              |            |            |            |           |           |           |
|--------------------------|--------------|------------|------------|------------|-----------|-----------|-----------|
| Convertible Bond         | US\$m        | 225        | 15         | 14         | 14        | 14        | 14        |
| Loan (JARE)              | US\$m        | 200        | 150        | 145        | 70        |           |           |
| <b>Total Debt (USD)</b>  | <b>US\$m</b> | <b>425</b> | <b>165</b> | <b>159</b> | <b>84</b> | <b>14</b> | <b>14</b> |
| Debt converted to equity | US\$m        |            | 210        | 2          |           |           |           |
| Total Debt (AUD)         | A\$m         | 493        | 223        | 226        | 129       | 20        | 20        |
| Debt Repayments          | A\$m         | 4          | 66         | 4          | 114       | 102       |           |

## Operational Summary

|   |     | 17A | 18A   | 19F   | 20F   | 21F   | 22F   |
|---|-----|-----|-------|-------|-------|-------|-------|
| <b>Production Run Rate (Tonnes Per Month)</b> |     |     |       |       |       |       |       |
| NdPr  | tpm | 435 | 454   | 492   | 595   | 610   | 620   |
| Other REO                                     | tpm | 898 | 1,026 | 1,153 | 1,191 | 1,191 | 1,200 |

## Production

|                           |           |             |             |             |             |             |             |
|---------------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| NdPr                      | kt        | 5.2         | 5.4         | 5.9         | 7.1         | 7.3         | 7.4         |
| Other REO                 | kt        | 10.8        | 12.3        | 13.8        | 14.3        | 14.3        | 14.4        |
| <b>Total REO Produced</b> | <b>kt</b> | <b>16.0</b> | <b>17.8</b> | <b>19.7</b> | <b>21.4</b> | <b>21.6</b> | <b>21.8</b> |

## Sales

|                    |           |             |             |             |             |             |             |
|--------------------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| NdPr               | kt        | 5.2         | 5.5         | 5.7         | 7.5         | 7.3         | 7.4         |
| Other REO          | kt        | 9.6         | 12.2        | 13.4        | 14.0        | 14.0        | 14.1        |
| <b>Total Sales</b> | <b>kt</b> | <b>14.8</b> | <b>17.7</b> | <b>19.2</b> | <b>21.5</b> | <b>21.3</b> | <b>21.6</b> |
| NdPr % of sales    | %         | 35.2        | 31.1        | 29.9        | 34.8        | 34.3        | 34.5        |

## Mt Weld Mining

|             |       |      |      |      |      |      |      |
|-------------|-------|------|------|------|------|------|------|
| Ore Mined   | kt    | 240  | 590  | 400  | 400  | 400  | 343  |
| Grade Mined | % REO | 17.8 | 16.5 | 14.0 | 14.0 | 14.0 | 13.0 |

## Mt Weld Concentrator

|                     |          |      |      |      |      |      |      |
|---------------------|----------|------|------|------|------|------|------|
| ROM Feed            | kt       | 255  | 299  | 323  | 329  | 385  | 395  |
| Headgrade           | %        | 18.0 | 16.5 | 16.5 | 16.5 | 14.0 | 13.0 |
| Recovery Rate       | %        | 70   | 70   | 70   | 72   | 73   | 75   |
| Concentrate Shipped | kt (wet) | 99   | 106  | 125  | 121  | 120  | 118  |

## Cash COGS

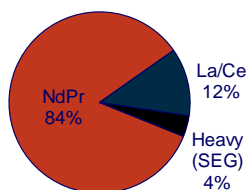
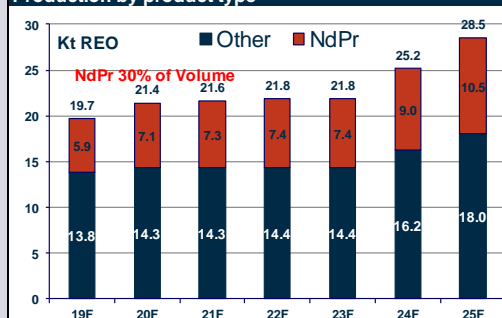
|                        |             |            |            |            |            |            |            |
|------------------------|-------------|------------|------------|------------|------------|------------|------------|
| Mt Weld                | A\$m        | 49         | 56         | 67         | 77         | 88         | 90         |
| LAMP                   | A\$m        | 115        | 131        | 157        | 176        | 173        | 168        |
| Staff Costs            | A\$m        | 19         | 22         | 38         | 38         | 33         | 33         |
| Royalties (2.5%)       | A\$m        | 6          | 8          | 9          | 12         | 13         | 19         |
| <b>Total Cash Cogs</b> | <b>A\$m</b> | <b>188</b> | <b>217</b> | <b>272</b> | <b>304</b> | <b>307</b> | <b>310</b> |

## Unit Margin (REO)

|                    |         |      |      |      |      |      |      |
|--------------------|---------|------|------|------|------|------|------|
| Unit Costs         | US\$/kg | 9.6  | 9.5  | 10.1 | 9.3  | 9.7  | 10.1 |
| Average Sale Price | US\$/kg | 13.4 | 16.8 | 13.9 | 15.0 | 16.5 | 25.1 |
| REO Margin         | US\$/kg | 3.8  | 7.3  | 3.8  | 5.7  | 6.8  | 15.0 |

## Production by product type

## Revenue Split by product (FY20)



## Base Case

| Valuation             | A\$m         | A\$/sh      |
|-----------------------|--------------|-------------|
| <b>NPV (FY20)</b>     |              |             |
| Mine & Malaysia       | 4,836        | 6.73        |
| Corporate             | (274)        | (0.38)      |
| Net Debt / (Cash)     | 11           | 0.02        |
| Tax                   | (962)        | (1.34)      |
| <b>Total</b>          | <b>3,611</b> | <b>5.03</b> |
| <b>Target Price</b>   |              | <b>5.00</b> |
| TSR (%)               |              | 79          |
| <b>Recommendation</b> |              | <b>Buy</b>  |
| FCF Yield - 20F (%)   |              | 11.3        |
| EV/Ebitda -20F (x)    |              | 8.8         |

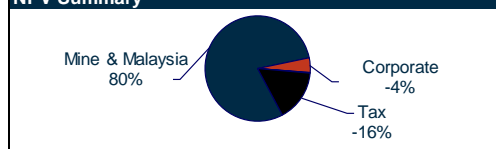
## Valuation Metrics

|                    |         |      |
|--------------------|---------|------|
| Price/NPV          | x       | 0.6  |
| NdPr Price Implied | US\$/kg | 51.8 |

## Discount Rate

|                |       |
|----------------|-------|
| WACC (Real)    | 8.6%  |
| WACC (Nominal) | 11.1% |

## NPV Summary



## Share Register

|                                  | mn           | Dilution  |
|----------------------------------|--------------|-----------|
| Shares on issue                  | 667.8        |           |
| Convertible Bonds @ 13.3¢        | 18.2         | 3%        |
| Warrants @ 50¢                   | 23.3         | 3%        |
| Performance Rights               | 11.3         | 2%        |
| <b>Fully Diluted Share Count</b> | <b>718.3</b> | <b>8%</b> |

## NPV Valuation Sensitivity (A\$/sh)

| AUDUSD | NdPr US\$/kg (Ex VAT) |     |     |     |     |  |
|--------|-----------------------|-----|-----|-----|-----|--|
|        | 45                    | 50  | 60  | 70  | 80  |  |
| 0.68   | 2.4                   | 3.2 | 4.9 | 6.5 | 8.2 |  |
| 0.70   | 2.2                   | 3.0 | 4.6 | 6.2 | 7.8 |  |
| 0.73   | 2.0                   | 2.8 | 4.3 | 5.9 | 7.4 |  |

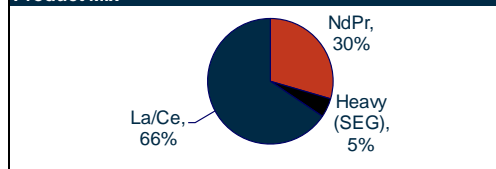
## Mineral Inventory

|               | Volume (mt) | Grade % |
|---------------|-------------|---------|
| Resource      | 55.4        | 5.4     |
| Reserve       | 19.7        | 8.6     |
| Mine Life     | +22         |         |
| Mine Life End | 2041        |         |

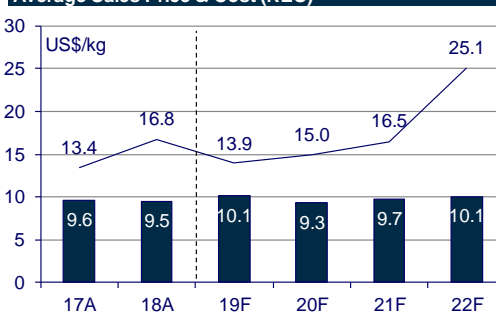
## Key Events

|                      |        |
|----------------------|--------|
| Reserve Update       | Aug 19 |
| LAMP Licence Renewal | Sep 19 |

## Product Mix



## Average Sales Price &amp; Cost (REO)



## LYC Investment Thesis

We initiate research coverage on Lynas Corp with a BUY recommendation and a A\$5.0/sh target price. We view LYC as materially undervalued due to ongoing Malaysian political uncertainty which is pricing in an overly bearish production disruption outlook. We expect the valuation to rerate due to the following catalysts:

- **Operating license renewal due by Sep 2<sup>nd</sup>.** We are confident they will receive an extension, but flag potential additional conditions for residue management which are likely to be cost neutral (see Risks section below).
- **Valuation Rerate:** Recently announced expansion plans lifting their primary product NdPr by c.44% (+A\$1.4/sh) and plan to separate Heavy Rare Earths in a Texas JV (+A\$0.6/sh) (see page 19).
- **Trade Tensions Beneficiary:** any escalation in the China/US trade tensions shines an international spotlight of the strategic importance of the business as they are the worlds only Ex China producer.
- **M&A target:** in our view WES has not lost interest in pursuing LYC since its highly conditional March 2019 takeover offer. In our view the offer appears to force negotiations back behind closed doors. Watch this space.

## Company Overview

Lynas is a vertically integrated producer of Rare Earth Oxides ('REO') and is the world's largest outside of China. The company owns and operates 100% of a mine and concentrator at Mt Weld in Western Australia which ships material for processing to a purpose built facility in Malaysia known as the Lynas Advanced Materials Plant ('LAMP').

## Valuation

We value LYC on a sum of the parts one year forward DCF of ~A\$3,611mn (A\$5.0/sh), which is based on a real WACC of 8.4% which assuming a Cost of Equity of 9.3% and a Cost of Debt of 2.5% (pre tax) based on a risk free rate of 4.5%, Equity Beta of 1.2 and Equity Risk Premium of 4%.

Figure 13: LYC Valuation

| Valuation             | A\$m         | A\$/sh      |
|-----------------------|--------------|-------------|
| <b>NPV (FY20)</b>     |              |             |
| Mine & Malaysia       | 4,836        | 6.73        |
| Corporate             | (274)        | (0.38)      |
| Net Debt / (Cash)     | 11           | 0.02        |
| Tax                   | (962)        | (1.34)      |
| <b>Total</b>          | <b>3,611</b> | <b>5.03</b> |
| <b>Target Price</b>   |              | <b>5.00</b> |
| TSR (%)               |              | 79          |
| <b>Recommendation</b> |              | <b>Buy</b>  |
| FCF Yield - 20F (%)   |              | 11.3        |
| EV/Ebitda - 20F (x)   |              | 8.8         |

Source: Ord Minnett Limited estimates

We value the Mine and Malaysia processing assets at a combined pre tax basis of A\$4,836mn (A\$6.73/sh). We forecast a mine life of 22 years ending in 2041 which is based on based on exhaustion of existing reserves only, but we expect that recent exploration activity may substantially extend the current mine life. The key forecast assumptions are our long term NdPr Price of US\$68/kg (ex VAT) and AUDUSD of 0.70.

Tax we model as a separate DCF line item worth -A\$961mn (-A\$1.34/sh) and we note that due to its Malaysian tax holiday and substantial existing deferred tax losses, means the business will not pay cash tax until FY26.

We include a provision for corporate items including overheads, admin, closure/rehab costs at -US\$274m (-A\$0.38/sh). We also include a forward Net Cash position of A\$27m (A\$0.03/sh).

Our valuation is most sensitive to the NdPr price and AUD with a  $\pm 1\%$  change in our forecasts adjusting our NPV by  $\pm 3\%$  and our FY20CL Ebitda by  $\pm 2\%$ .

Figure 14: LYC NPV Valuation Sensitivity (A\$/sh)

| AUDUSD      | NdPr US\$/kg (Ex VAT) |     |     |     |     |
|-------------|-----------------------|-----|-----|-----|-----|
|             | 45                    | 50  | 60  | 70  | 80  |
| <b>0.68</b> | 2.4                   | 3.2 | 4.9 | 6.5 | 8.2 |
| <b>0.70</b> | 2.2                   | 3.0 | 4.6 | 6.2 | 7.8 |
| <b>0.73</b> | 2.0                   | 2.8 | 4.3 | 5.9 | 7.4 |

Source: Ord Minnett Limited estimates

We estimate that the stock is pricing in an NdPr price of c.US\$51/kg, while at spot commodity prices and AUD, it's trading at relatively attractive FY20 EV/Ebitda of 9x with a FCF yield of 11%.

Earnings remains highly sensitive to the prevailing commodity price and currency forecasts. A  $\pm 20\%$  move in the NdPr price adjusts our FY20 Ebitda of \$200m by  $\pm$  A\$87m, while a  $\pm 0.02$  shift in the AUD moves it by  $\pm$  A\$12m.

Figure 15: Ebitda Sensitivity

|              | NdPr US\$/kg (Ex VAT) |      |      |     |
|--------------|-----------------------|------|------|-----|
|              | Spot                  | +20% | -20% | 2x  |
|              | 40                    | 48   | 32   | 80  |
| <b>0.675</b> | 208                   | 298  | 119  | 657 |
| <b>0.700</b> | 197                   | 283  | 110  | 629 |
| <b>0.725</b> | 186                   | 269  | 102  | 604 |

Source: Ord Minnett Limited estimates

## Risks

Political uncertainty in Malaysia continues to weigh heavily on the stock and it remains highly susceptible local news flow. Following the shock Malaysian election on May 9<sup>th</sup> 2018, the share price fell 45% over six months. In our view, the controversy is largely political despite strong scientific evidence and countless studies indicating the project is “inherently low risk”. Uncertainty over the renewal of its existing license (Due Sep 2<sup>nd</sup> 2019) looms large, but we remain confident LYC will negotiate a mutually agreeable outcome with the government with no operational disruption, but at a high, but not insurmountable cost.

Figure 16: LYC Share Price History



Source: IRESS, Company, Ord Minnett Limited estimates

## What's the problem? License expires Sep 2nd / New conditions

LYC's current Malaysian Operating License is due for renewal on September 2<sup>nd</sup> 2019. On the 4<sup>th</sup> of December 2018, the Malaysian Minister for the Environment made a statement ([here](#)) issuing several pre conditions required for LYC's license renewal. Principally this involved the removal of 1.5mt of solid processing residue known as 'WLP' and 'NUF' by the license expiry date. LYC has been steadfast in removing its critically that removal of 1.5mt of residue could not practically be completed in the time required.

## Legality in question / Negotiating an outcome

Multiple complications arise from these preconditions, but in our view it would appear that:

1. **Legality in Question:** The legality of the minister's preconditions is questionable as it appeared to:
  - a. Reflect the personal views of the minister, and;
  - b. Was contrary to expert advice and
  - c. Was not approved by parliamentary cabinet or Prime Minister.
2. **Preconditions appear negotiable:** on the 14th February 2019 when LYC announced ([here](#)) that they had reached an agreement regarding the disposal of 1.1mt of NUF, with effectively no change to the business. We believe this indicates that the ministers preconditions appear negotiable, and only the conditions of the WLP remain in question.

### ■ Prime Minister gave green light / Resolved by August

We are confident LYC will receive its license renewal, based on the explicit statement by the Malaysian Prime Minister on May 30<sup>th</sup> 2019 ([here](#)) that the current operating license will be renewed. On July 10<sup>th</sup> 2019 it was reported ([here](#)) in Malaysian parliament question time by deputy minister of environment that a decision on the licensing conditions will be made by August this year.



## What's the 'Win – Win' solution? = PDF + C&L in Aus

In our view LYC is negotiating with the government for a mutually agreeable 'win win' outcome. In our view a solution looks like:

**Short term:** Transferring 450kt of WLP currently stockpiled (plus future production of c.600kt) to a permanent storage facility ('PDF') at one of the multiple nearby pre-approved locations. We roughly estimate the cost to be c.A\$5m (c.A\$10/t), but we note that the financial impact is neutral as they can utilise their US\$50mn environmental rehab bond to pay for it.

**Long Term:** Cracking and Leach in Australia, no WLP sent to Malaysia. We think this can absolve the issue as it puts the final point of contention for opposition to rest.

The government seals a win, as it appears tough but fair on big business and appease local opposition. For LYC optically a 'win' in the eyes of the voting public to remain in business. But obviously they planned to do this anyway, and it removes a key thorn of contention and ensures ongoing social license to operate.

## Worst Case Scenario: Mt Weld still worth A\$2/sh

We remind investors that even in a worse-case scenario (Malaysian plant being closed) LYC does not cease to exist. Their Mt Weld mine produces a high grade rare earth concentrate which it currently ships to Malaysia, which could be sent to separation plants in China, Thailand, Vietnam, particularly China. On a stand alone basis we estimate Mt Weld's value to be c.A\$2.0/sh and generate c.A\$150m in Ebitda per year. The key consideration are the variables of the final product payabilities and separation cost.

Figure 17: LYC Mt Weld Valuation (A\$/sh) and

| Separation Cost (\$/kg) | NPV \$/sh | Payability (%) |     |     |
|-------------------------|-----------|----------------|-----|-----|
|                         |           | 30%            | 40% | 50% |
| 1.5                     |           | 2.0            | 3.2 | 4.3 |
| 2.0                     |           | 1.5            | 2.7 | 3.8 |
| 3.0                     |           | 1.0            | 2.2 | 3.3 |

Figure 18: Mt Weld Ebitda Sensitivity (A\$m)

| Separation Cost (\$/kg) | Ebitda | Payability (%) |     |     |
|-------------------------|--------|----------------|-----|-----|
|                         |        | 30%            | 40% | 50% |
| 1.5                     |        | 128            | 202 | 276 |
| 2.0                     |        | 64             | 138 | 212 |
| 3.0                     |        | (0)            | 74  | 149 |

Source: Ords Estimates

## Problem background:

LYC's Malaysian operations faced a difficult start to life due (in our view) to a failure of local stakeholder engagement and an unrelated incident at a nearby plant in the 80's. In the intervening years LYC has successfully overcome initial localised opposition via educating/informing locals of low risk posed by the plant.

Today, LYC is overwhelmingly supported by the local community, regulators, state/federal politicians as well as local royalty. However, a small number of politicians linked to local environmentalists continue to use LYC as a political football for their own means.

- **Initial outset:** At the initial outset, LYC's Malaysian plant generated considerable controversy due to a number of factors, which in our view the key ones were:
  1. Incident in the 1980's involving Mitsubishi Chemical recovering rare earths from tin tailings in central Malaysia at Bukit Merah (article [here](#)).
  2. Failure in initial stakeholder engagement

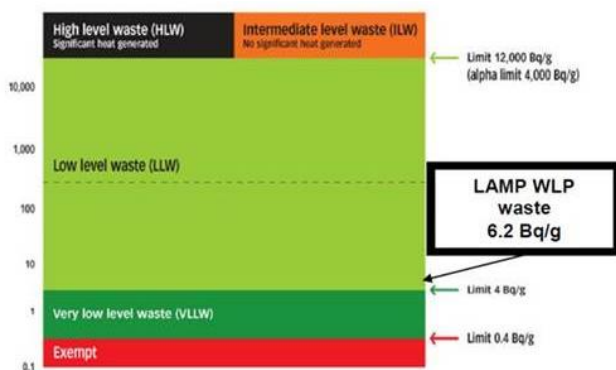


### What's the problem? WLP

LYC's Malaysian plant produces a residue known as 'Waste Leach Purification' ('WLP') of which 450kt is currently stored on site. This material has slightly higher level of radioactivity and is considered a 'Naturally Occurring Radioactive Material' ('NORM'). There are two primary measures of radioactivity:

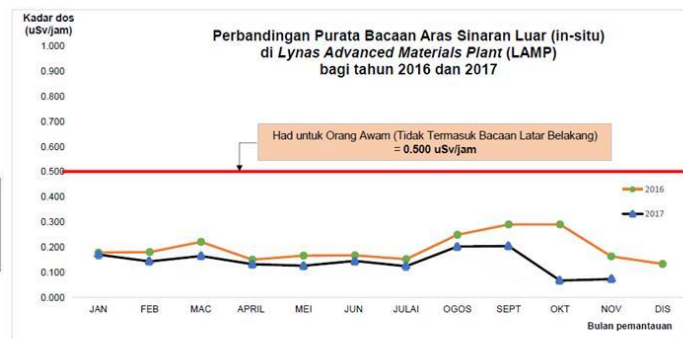
- **Becquerels:** (units 'Bq/g' per gram) is a single unit of radioactivity. WLP has ~6Bq/g, compared to background typically at 1Bq/g (but can range between 0-4). According to the UK classification systems this is deemed 'low level waste', just above 'very low level waste threshold of 4Bq/g.
- **Millisievert:** (units: 'mSV') is the accumulated background radiation dose to an individual for 1 year:
  - Malaysian OH&S legal limit of workers is 20mSV, LYC workers are exposed to 5.61mSV
  - The Malaysian community limit is 0.5mSV, since inception LYC's has averaged 0.15mSV.
  - Flight crew/pack a day smoker exposure is ~200mSV,

Figure 19: UK Radioactive Waste Classification system



Source: Hong (2011), Malaysian Atomic Energy Licensing Board

Figure 20: Mt Weld Ebitda Sensitivity (A\$m)



Graf 3: Perbandingan Purata Bacaan Aras Sinaran Luar (in-situ) di Lynas Advanced Materials Plant (LAMP) bagi tahun 2016 dan 2017

### Science is clear: Its inherently low risk

The key point to make is that the science is clear, there is no risk posed by LYC's operations to the environment, workforce or community. Countless studies and reviews have all reached the the same conclusion, the most recent and notable include:

- 2015 UN International Atomic Energy Agency (IAEA) independent study stated that WLP is "inherently low risk" ([here](#))
- December 2018 Malaysian Review Committee Findings report ([here](#) in Malaysian) gives a resounding positive review of the safety and handling of the WLP.

## Growth plans / 'Lynas 2025'

On the 21st May 2019 Lynas Corp hosted a well attended Investor Day which revealed its long awaited growth strategy and plans to 'future proof' the business from Malaysian political risk. We estimate the valuation uplift from the expansion is highly accretive with the NdPr uplift adding A\$934m (A\$1.4/sh) to our NPV. While not included in our valuation, our rough estimate for the Heavy Rare Earth JV in Texas potentially adds a further A\$400m to our NPV (A\$0.6/sh).

Overall we found the scale of the expansion to be highly value accretive, but we were underwhelmed by the lack of detail behind the A\$500m capital works program. In our view there were three key takeaways from the investor day:

- 1. NdPr production to grow +44% to 10.5ktpa by 2025
- 2. Plans to separate high value Heavy Rare Earths via a customer Joint Venture in Texas.
- 3. Plans to build a Cracking and Leaching facility in WA

Figure 21: Lynas 2025 Growth Plans



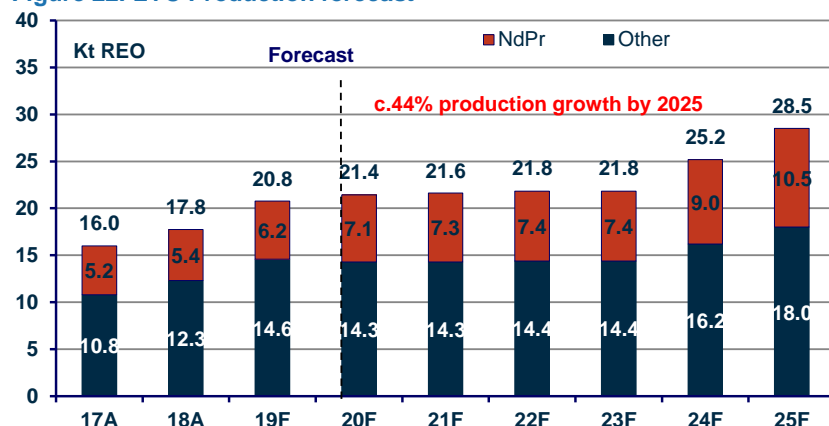
Source: Company

### Key Takeaway # 1: NdPr +44% by 2025

The company plans to lift its critical NdPr production by +44% to 10.5ktpa by 2025. This could lift the current 600 tonnes per month (TPM) production run rate to 875tpm via optimising the existing Solvent Extraction (SX) and Product Finishing (PF) circuits.

We were frustrated by the lack of detail relating to how this was to be achieved, at what exact cost. But overall we find the valuation impact to be highly value accretive adding c.A\$1.4/sh to our NPV.

Figure 22: LYC Production forecast



Source: Company, Ords Estimates

## Key Takeaway # 2: Heavy Rare Earth Production

We did not expect plans to enhance its Heavy Rare Earth product offering. However, after some analysis we see this strategy as logical as well as highly value accretive, potentially adding A\$430m (A\$0.6/sh) to our NPV, contributing an additional c.US\$70mn (A\$100mn) in revenue and US\$70m (A\$85m) in Ebitda. We do not currently this scenario in our valuation and await further details.

LYC's approach toward enhancing the value of its heavy RE's appears targeted across the business, with both the upstream ore feed sequence changing in addition to constructing downstream separation capacity. We have analysed the opportunity via comparing to three production scenarios:

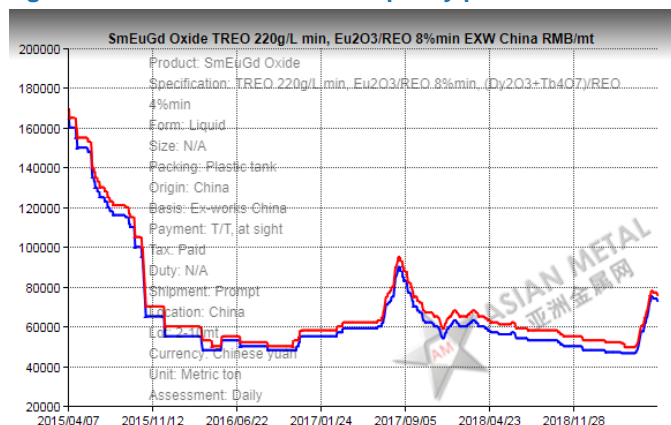
### ■ Scenario 1 (Current): selling low value SEG sporadically

Currently Lynas produces 1,200 tonnes (c.5% of output) of a product known as 'SEG' carbonate, which contains a mixture of six heavy rare earth elements; Samarium, Europium, Gadolinium, Dysprosium, Terbium.

LYC currently sells 100% of this product into the Chinese market but sales in recent years have been sporadic, due to the significant long term price decline, seeing inventory stockpiled rather than sold at a loss. We note that a domestic market price for a similar product is referenced by Asian Metals for around US\$8/kg (Ex VAT). If all 1,200 tonnes were sold at spot prices we estimate this would contribute c.US\$10m or 4% of FY19 revenue, which would be slightly loss making vs a group production cost of US\$10/kg.

We note that the SEG price has rallied in recent months following China supply constraints due to a stop to imports from nearby Myanmar.

**Figure 23: SEG Price & Product Split by price**



Source: Asia Metals

### ■ Scenario 2: Texas JV to separate products

On the 20<sup>th</sup> of May LYC announced a MOU to form a Joint Venture with a private US customer 'Blue Line Corp' (not rated) located in Hondo, Texas. While details were limited, it would appear that the JV plans to construct a heavy rare earth separation facility that would be designed to treat the 1,200 tonnes of Malaysian SEG Oxide.

If separated into its six individual products the realised value of the 1,200 tonnes increases almost 3 fold to c.US\$25/kg. As spot prices this implies an annual generation of US\$30m in revenue US\$18m in Ebitda and on an NPV basis A\$90mn (A\$0.13/sh) based on the following rough assumptions:

- 70% Equity Share at a 8.5% WACC (real)
- US\$30mn Capex and US\$10/kg (REO) Opex
- Spot commodity prices (ex VAT) and 0.70 AUDUSD

### Scenario3: JV + High Grade Duncan

At the investor day the company made specific mention of plans to begin processing of Duncan ore from the end of 2019 through to 2022 (see Figure 8). In our view, such a strategy has the ability to dramatically increase the value of the downstream heavy rare earth product mix, as Duncan ore contains 2-4x higher concentrations of the higher value Dysprosium (c.US\$200/kg) and Terbium (US\$430/kg).

Based on the same assumptions listed in scenario 2, we roughly estimate at spot this could shift realised prices to c.US\$61/kg contributing an additional c.US\$70mn (A\$100mn) in revenue and US\$70m (A\$85m) in Ebitda and some A\$430m (A\$0.6/sh) to our NPV.

**Figure 24: Heavy Rare Earth Production Scenario Analysis**

| Product                          |         | Production Scenario |              |                     | Spot Price<br>US\$/kg | Resource Split % |        |
|----------------------------------|---------|---------------------|--------------|---------------------|-----------------------|------------------|--------|
|                                  |         | 1: Current          | 2: Separated | 3: Separated+Duncan |                       | CLD              | Duncan |
| Mixed SEG Oxide                  | tonnes  | 1,200               |              |                     | 8.3                   |                  |        |
| Samarium (Sm)                    | tonnes  |                     | 673          | 477                 | 1.3                   | 2.5%             | 2.8%   |
| Europium (Eu)                    | tonnes  |                     | 155          | 130                 | 23.7                  | 0.6%             | 0.8%   |
| Gadolinium (Gd)                  | tonnes  |                     | 301          | 335                 | 20.4                  | 1.10%            | 1.99%  |
| Dysprosium (Dy)                  | tonnes  |                     | 50           | 214                 | 205                   | 0.29%            | 1.27%  |
| Terbium (Tb)                     | tonnes  |                     | 20           | 44                  | 432                   | 0.11%            | 0.26%  |
| <b>Project Scenario Analysis</b> |         |                     |              |                     |                       |                  |        |
| Realised Price (Spot)            | US\$/kg | 8.3                 | 24.6         | 61.0                |                       |                  |        |
| Revenue                          | US\$m   | 9.9                 | 29.5         | 73.2                |                       |                  |        |
| Unit Costs (REO)                 | US\$/kg | 9.7                 | 10.0         | 10.0                |                       |                  |        |
| Ebitda                           | US\$m   | (1.7)               | 18           | 61                  |                       |                  |        |
| Initial Capex                    | US\$m   |                     | (30)         | (30)                |                       |                  |        |
| NPV 70% Share*                   | A\$/m   | 90                  | 429          |                     |                       |                  |        |
| NPV 70% Share*                   | A\$/sh  |                     | 0.13         | 0.60                |                       |                  |        |

Source: Company, SMM, Asia Metals, Ords Estimates (\*8.5% WACC and 0.7 AUDUSD)

### Key Takeaway # 3: Key Crack & Leach in Australia

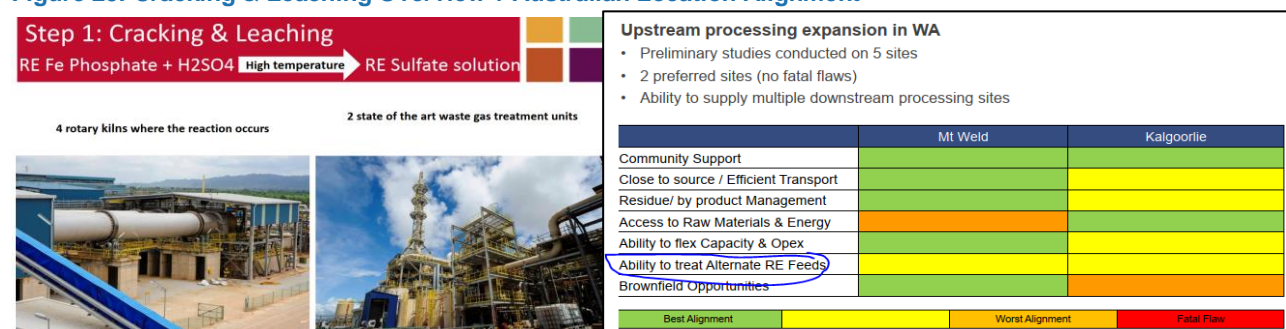
The investor day also provided detailed plans to build a Cracking and Leaching ('C&L') facility in Australia. This was heralded as a means to 'future proof' the business from Malaysian political risk via leaving the WLP residue in Australia.

LYC has for some time indicated that this was the preferred long term option for the business. But public release had to be brought forward, following the WES takeover announcement which coincided with the Malaysian PM stating WES assured to build facility in Kwinana WA at a cost of c.A\$375m.

We were frustrated by the lack of detail behind the headline "A\$500m" capital cost for 'Lynas 2025' and what portion would be attributable to the C&L plant. If built in Kalgoorlie, we very roughly estimate to be around half the current project headline.

A key criticism levelled at the company is that this project is duplicating existing plant capacity. We don't disagree, as when complete, certain parts of the Malaysian plant front end may be effectively redundant/impaired. However, we consider this to be prudent as it puts an end to the political uncertainty in Malaysia. We also think there is further upside from such a facility having the 'Ability to treat Alternate RE Feeds', which we understand to be treating third party concentrate.

**Figure 25: Cracking & Leaching Overview + Australian Location Alignment**



Source: Company

## Quarterly Result Review

Overall LYC's JunQtr production on the 29<sup>th</sup> of July ([here](#)) result was mixed with production missing our estimates while cash flow beat on working capital movements. As expected there was no incremental insight on the Malaysian political front and they are waiting on cabinet decision for additional license conditions, expected mid August.

### Highlights:

- Production Missed with 1,505t of NdPr Oxide (502tpm run rate)
  - Down -5% QoQ and -18% vs our bullish estimates
  - Indicated this was flagged in letter update on 21st June ([here](#))
    - We clearly missed it, suspect other may have also
- ASP of A\$18.5/kg was a 4% beat on what we suspect is higher heavy rare earth (SEG sales).
- Operating CF \$34m beat by 14% and was +31% QoQ
  - Appears to gain a \$18m working capital shift
  - Free cash flow of A\$25mn was 10% higher than our estimates,
- They paid down a touch of debt to A\$225m
- Cash at y/e was A\$89.7m with net debt now A\$136m

**Figure 26: June Quarterly Production & Annual Summary**

|                             |               | Quarterly    |              |              |              |               |             |             |             | Annual        |               |             |
|-----------------------------|---------------|--------------|--------------|--------------|--------------|---------------|-------------|-------------|-------------|---------------|---------------|-------------|
|                             |               | Jun 18       | Sep 18       | Dec 18       | Mar 19       | Actual Jun 19 | A/Ords      | QoQ         | YoY         | FY18          | FY19          | YoY         |
| <b>Production</b>           |               |              |              |              |              |               |             |             |             |               |               |             |
| NdPr Run Rate               | tpm           | 482          | 526          | 408          | 530          | 502           | (15)        | (5)         | 4           | 1,814         | 1,966         | 8           |
| NdPr Production             | tonnes        | 1,447        | 1,579        | 1,223        | 1,591        | 1,505         | (18)        | (5)         | 4           | 5,443         | 5,898         | 8           |
| Other REO Produced          | tonnes        | 3,357        | 3,641        | 3,199        | 3,853        | 3,146         | (24)        | (18)        | (6)         | 12,310        | 13,839        | 12          |
| <b>Total Production</b>     | <b>tonnes</b> | <b>4,804</b> | <b>5,220</b> | <b>4,422</b> | <b>5,444</b> | <b>4,651</b>  | <b>(22)</b> | <b>(15)</b> | <b>(3)</b>  | <b>17,753</b> | <b>19,737</b> | <b>11</b>   |
| Total Sales (REO)           | tonnes        | 4,312        | 3,896        | 5,522        | 5,030        | 4,723         | (13)        | (6)         | 10          | 17,685        | 19,171        | 8           |
| <b>Realised Price/Costs</b> |               |              |              |              |              |               |             |             |             |               |               |             |
| NdPr (Market Price)         | US\$/kg       | 43.7         | 40.8         | 38.6         | 38.5         | 39.1          | 4           | 2           | (11)        | 47.6          | 39.2          | (18)        |
| Other REO ASP               | US\$/kg       | 3.6          | 3.9          | 1.8          | 3.2          | 4.2           | 41          | 34          | 19          | 2.8           | 3.3           | 17          |
| ASP (REO)                   | US\$/kg       | 16.1         | 19.8         | 10.3         | 14.3         | 13.0          | 4           | (10)        | (20)        | 16.8          | 14.0          | (17)        |
| <b>ASP (REO)</b>            | <b>A\$/kg</b> | <b>21.3</b>  | <b>27.1</b>  | <b>14.5</b>  | <b>20.1</b>  | <b>18.5</b>   | <b>4</b>    | <b>(8)</b>  | <b>(13)</b> | <b>21.7</b>   | <b>19.6</b>   | <b>(9)</b>  |
| Unit Cost (REO Sold)        | A\$/kg        | (14.2)       | (16.7)       | (13.8)       | (12.4)       | (14.5)        | 7           | 17          | 2           | 12.3          | 14.2          | 16          |
| Unit Margin                 | A\$/kg        | 7.0          | 10.4         | 0.7          | 7.8          | 4.0           | (8)         | (49)        | (43)        | 9.4           | 5.5           | (42)        |
| <b>Cash Flows</b>           |               |              |              |              |              |               |             |             |             |               |               |             |
| Revenue (Cash)              | A\$m          | 98.6         | 105.2        | 77.0         | 88.2         | 106.0         | 1           | 20          | 8           | 383.2         | 376.4         | (2)         |
| COGS                        | A\$m          | (61.4)       | (64.9)       | (76.0)       | (62.2)       | (68.5)        | (5)         | 10          | 12          | 216.9         | 271.6         | 25          |
| Interest Expense            | A\$m          | (4.2)        | (0.5)        | (3.7)        |              | (3.4)         |             |             | (19)        | 26.7          | 7.3           | (73)        |
| <b>Operating CF</b>         | <b>A\$m</b>   | <b>33.0</b>  | <b>39.8</b>  | <b>(2.7)</b> | <b>26.0</b>  | <b>34.1</b>   | <b>14</b>   | <b>31</b>   | <b>3</b>    | <b>139.6</b>  | <b>97.5</b>   | <b>(30)</b> |
| Capex                       | A\$m          | 8.9          | 9.5          | 6.1          | 7.6          | 9.0           | 28          | 18          | 1           | 21.5          | 32.2          | 50          |
| Security Payment (AEA)      | A\$m          | (1.9)        | (0.0)        | 10.7         |              |               |             |             |             | 29.8          | 10.7          | (64)        |
| Investing CF                | A\$m          | (7.0)        | (9.5)        | (16.8)       | (7.6)        | (9.0)         | 28          | 18          | 28          | (51.3)        | (42.9)        | (16)        |
| Free Cash Flow              | A\$m          | 26.0         | 30.3         | (19.5)       | 18.4         | 25.1          | 10          | 36          | (4)         | 88.3          | 54.6          | (38)        |
| <b>Balance Sheet</b>        |               |              |              |              |              |               |             |             |             |               |               |             |
| Cash                        | A\$m          | 42.3         | 65.8         | 53.7         | 67.1         | 89.7          | (15)        | 34          | 112         | 42.3          | 89.7          | 112         |
| Debt                        | A\$m          | 218.3        | 226.0        | 234.8        | 236.5        | 225.9         | (1)         | (4)         | 3           | 218.3         | 228.6         | 5           |
| Net Debt                    | A\$m          | (176.0)      | (160.2)      | (181.1)      | (169.4)      | (136.2)       | 8           | (20)        | (23)        | (176.0)       | (139.0)       | (21)        |

Source: Company, Ords Estimates

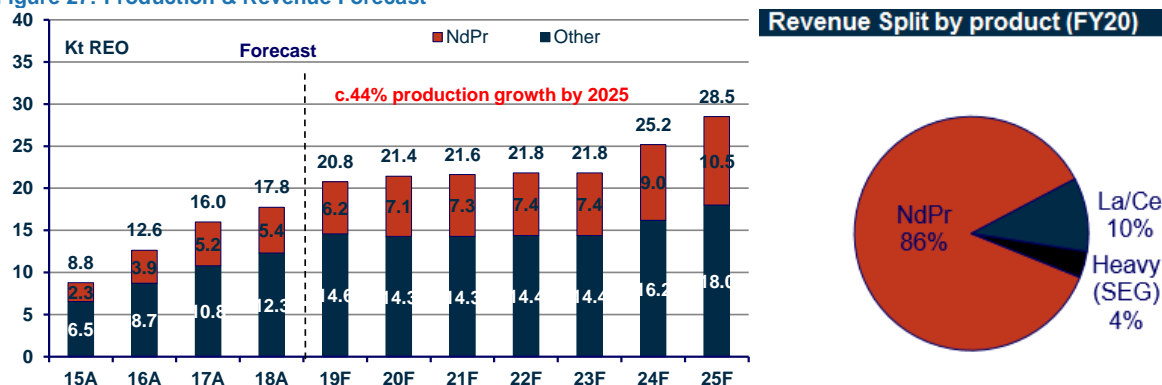


## Appendix: Company Overview & Forecasts

### Production Forecast

FY18 production was 17.8kt of REO which included 5.4kt of 'NdPr' oxide which stands for combination of the chemical symbols for Neodymium ('Nd') and Praseodymium ('Pr'). Despite representing only a third of production, NdPr is considerably higher value than the other products, generating ~90% of its revenue. NdPr is a key raw ingredient for permanent magnets used in electric vehicles and other green technologies such as wind turbines, and energy efficient appliances.

Figure 27: Production & Revenue Forecast



Source: Ord Minnett Limited estimates

The LAMP production continues to expand following the low cost A\$35m 'Next' project which lifted output by:

- Gross REO output by ~60% from FY17 levels to 24.4ktpa REO by Sep18.
- NdPr output lifted incrementally from 435 tonnes per month ('tpm') in FY17 to 500tpm from April 2018 and 600tpm in September 2018.

Beyond FY19 we assume NdPr production will continue to creep over time to c.6150tpm through a combination of recovery improvements, small low cost expansions and debottlenecking projects.

The next incremental step in production is dependant upon the 'Lynas 2025' expansion plans outlined at the May 2019 Investor Day which indicated NdPr production to lift +44% to 10.5ktpa some 875tpm. We assume production comes online slightly earlier, hitting the revised run rate in FY25.

### Price forecast

Between now and 2022 we forecast the NdPr market deficit to grow and expect prices to rise until a supply response is incentivised. We forecast NdPr Oxide prices on an FOB China basis excluding 16% VAT to rise from spot of c.US\$40/kg and increase to our long-term real price of US\$68/kg by June 2022 which is based on an incentive price basis for advanced NdPr rich projects.

Figure 28: Commodity Price forecast

|                     |         | 17A  | 18A  | 19F  | 20F  | 21F  | 22F  | Long Term |
|---------------------|---------|------|------|------|------|------|------|-----------|
| AUDUSD              | x       | 0.75 | 0.78 | 0.71 | 0.66 | 0.68 | 0.70 | 0.70      |
| NdPr Oxide          | US\$/kg | 32.5 | 47.4 | 38.5 | 38.4 | 43.4 | 68.0 | 68.0      |
| Other REO           | US\$/kg | 2.8  | 2.8  | 3.3  | 2.5  | 2.5  | 2.5  | 2.5       |
| Average Sales Price | US\$/kg | 13   | 17   | 14   | 15   | 17   | 25   | 25        |

Source: Ord Minnett Limited estimates

As the non NdPr production represents <15% of group revenue we have forecast an arbitrary US\$2.5/kg for the remaining 70% of REO production. This material consists of:

- 16,000 tonnes (c.66%) of production is Lanthanum and Cerium products, which are low value US\$1-2/kg, or c.10% of group revenue.
- 1,200 tonnes (c.5%) of Mixed Heavy Rare Earth 'SEG' carbonate which is worth c.US\$8/kg or c.4% of group revenue. Sales has been sporadic in recent years, with most production temporarily stockpiled rather than sold due to low prices.

### Operating and capital costs Forecast

We forecast an annual operating cost base of c.A\$300m over FY20/21 which implies a cost of ~US\$10/kg REO based on the following assumptions:

- Variable Production costs of c.A\$270m pa consisting of:
  - LAMP – 70% -US\$4.0/kg of REO produced
  - Mt Weld - 30% - A\$200/t of Ore feed and A\$95/t freight
- Fixed Labour cost of A\$33mn, based on a US\$7.5mn per quarter cost base.
- Royalty of 2.5% of sales receipts (~A\$12m pa)
- Corporate/Admin costs of A\$33m pa
- Sustaining Capex we assume A\$18m annually as per guidance of A\$1.5m per month.

Mining development costs are capitalised and irregular due to the campaign style/as needed basis. We roughly estimate a mining costs of A\$12m pa and increasing after FY22 as Mt Weld grades decline, material movements increase due to higher mill throughput requirements.

We also note the company needs to make US\$7.8m (~A\$12m) security bond deposits to the Malaysian Energy Licence Agency in December 2019. Once complete they would have met their fixed US\$50m rehabilitation obligation with no further payment required. We note that this fund can be utilised to pay for remediation of the WLP residues.

Figure 5: Opex & Capex

|                         |             | 17A        | 18A        | 19F        | 20F        | 21F        | 22F        | 23F        |
|-------------------------|-------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Opex</b>             |             |            |            |            |            |            |            |            |
| Production              | A\$m        | 164        | 187        | 224        | 253        | 261        | 258        | 259        |
| Royalties               | A\$m        | 6          | 8          | 9          | 12         | 13         | 19         | 19         |
| Corporate/Admin         | A\$m        | 30         | 38         | 56         | 62         | 59         | 72         | 72         |
| <b>Total Opex</b>       | <b>A\$m</b> | <b>188</b> | <b>217</b> | <b>272</b> | <b>304</b> | <b>307</b> | <b>310</b> | <b>311</b> |
| <b>Capex</b>            |             |            |            |            |            |            |            |            |
| Mine Development        | A\$m        | 2          | 13         | 6          | 12         | 12         | 12         | 12         |
| PP&E (LAMP)             | A\$m        |            | 19         | 13         |            | 5          | 167        | 167        |
| Other / Sustaining Cost | A\$m        | 0          | 1          | 10         | 18         | 18         | 18         | 18         |
| Security Bond Deposit   | A\$m        | 5          | 30         | 11         | 12         |            |            |            |
| <b>Total Capex</b>      | <b>A\$m</b> | <b>7</b>   | <b>62</b>  | <b>40</b>  | <b>42</b>  | <b>35</b>  | <b>196</b> | <b>196</b> |

Source: Ord Minnett Limited estimates

## Capital Structure

Currently there are 668m shares on issue and 716mn on a fully diluted basis consisting of Warrants (23m), Convertible Bonds (18m). and performance rights (11m). In recent years LYC's capital structure has changed materially due to:

- In FY18 US\$205m of convertible bonds into equity which almost doubled the share count by c.280m shares.
- 10:1 stock split in 2017

Figure 29: Capital Structure

|                             |          | 15A        | 16A        | 17A        | 18A        | 19F        | 20F        | 21F        | 22F        |
|-----------------------------|----------|------------|------------|------------|------------|------------|------------|------------|------------|
| Shares on issue             | m        | 337        | 349        | 368        | 663        | 668        | 668        | 668        | 668        |
| Convertible Bonds           | m        | 300        | 300        | 300        | 20         | 18         | 18         | 18         | 18         |
| Warrants                    | m        |            | 174        | 367        | 23         | 23         | 23         | 23         | 23         |
| Performance Rights          | m        | 29         | 98         | 95         | 11         | 9          | 9          | 9          | 9          |
| <b>Fully Diluted Shares</b> | <b>m</b> | <b>344</b> | <b>405</b> | <b>428</b> | <b>656</b> | <b>716</b> | <b>718</b> | <b>718</b> | <b>718</b> |

Source: Ord Minnett Limited estimates

## P&L

We estimate FY20 revenue of A\$485mn, Ebitda of A\$205m and earnings of A\$161m, some 60% higher than FY19, due to a 8% lift in sales volumes, and 7% fall in the AUD with prices largely unchanged YoY. This implies a healthy Ebitda margin of 41% and +20% ROE/ROIC metrics.

Figure 30: P&L Summary

|                                |             | 17A         | 18A        | 19F        | 20F        | 21F        | 22F        |
|--------------------------------|-------------|-------------|------------|------------|------------|------------|------------|
| Revenue                        | A\$m        | 257         | 374        | 369        | 489        | 522        | 773        |
| Cost of Sales                  | A\$m        | (242)       | (253)      | (237)      | (283)      | (289)      | (390)      |
| G&A                            | A\$m        | (26)        | (34)       | (32)       | (38)       | (33)       | (33)       |
| <b>Operating Profit / Ebit</b> | <b>A\$m</b> | <b>(11)</b> | <b>87</b>  | <b>100</b> | <b>168</b> | <b>199</b> | <b>350</b> |
| Net Finance Expense            | A\$m        | (10)        | (28)       | (14)       | (3)        | (0)        | 2          |
| FX Gain/(Loss)                 | A\$m        | (4)         | (5)        | 1          |            |            |            |
| Profit before tax              | A\$m        | (24)        | 53         | 63         | 165        | 199        | 352        |
| Tax expense / (Benefit)        | A\$m        | (24)        |            |            |            |            |            |
| <b>Net Profit (Reported)</b>   | <b>A\$m</b> | <b>(1)</b>  | <b>53</b>  | <b>63</b>  | <b>165</b> | <b>199</b> | <b>352</b> |
| Abnormals                      | A\$m        | (3)         | 1          | 21         |            |            |            |
| <b>Net Profit (Underlying)</b> | <b>A\$m</b> | <b>24</b>   | <b>54</b>  | <b>84</b>  | <b>165</b> | <b>199</b> | <b>352</b> |
| Underlying EBIT                | A\$m        | (12)        | 86         | 79         | 168        | 199        | 350        |
| Depreciation                   | A\$m        | 44          | 41         | 42         | 41         | 41         | 151        |
| <b>Underlying EBITDA</b>       | <b>A\$m</b> | <b>32</b>   | <b>127</b> | <b>121</b> | <b>210</b> | <b>241</b> | <b>502</b> |
| Ebitda Margin                  | %           | 12          | 34         | 33         | 43         | 46         | 65         |
| EV/Ebitda                      | x           | 25.6        | 13.6       | 15.3       | 8.8        | 6.8        | 2.7        |
| ROE                            | %           | 21          | 12         | 17         | 25         | 23         | 29         |
| ROA                            | %           | (1)         | 11         | 12         | 19         | 20         | 25         |
| ROIC                           | %           | (4)         | 8          | 9          | 23         | 27         | 45         |

Source: Ord Minnett Limited estimates



## Balance sheet

Significant changes to the capital structure over the past 18 month has transformed the balance sheet. At the end of FY17 LYNAS had debt of US\$425mn implying a debt/equity of 3.8x. Mt Kellet Capital was the majority holder of the US\$225mn convertible bond debt, which over the course of FY18 converted 93%, which halved its debt to US\$165mn and flipped gearing (ND/E) to an investible 23%.

As at 30th March 2019, Lynas had debt of A\$227mn (US\$160mn; US\$147m from JARE and US\$13.6mn of convertibles) and cash of A\$67mn. We expect by June year end the cash balance will have increased slightly to A\$112mn implying net debt of A\$117mn and gearing (ND/E) of 23%

On July 27th LYC indicated their senior debt facility with Japan's JARE was renegotiated. Overall we were positively surprised by the details which makes for a highly flexible facility. Highlights included:

- 10 year extension from 2020 to 2030
- Interest rate reduced from 2.5%, down from 3.75%
- Removed key onerous restrictions such as the cash sweep mechanism as well as enabled dividend payments (previously not allowed).
- Reserved 7.2kt of future NdPr production (68%) exclusively for Japanese customers, up from 3.6kt previously.

Figure 31: Balance Sheet

|                                |             | 17A        | 18A        | 19F        | 20F        | 21F          | 22F          |
|--------------------------------|-------------|------------|------------|------------|------------|--------------|--------------|
| Cash                           | A\$m        | 64         | 42         | 90         | 140        | 241          | 546          |
| Receivables                    | A\$m        | 5          | 12         | 13         | 17         | 19           | 54           |
| Inventories                    | A\$m        | 37         | 52         | 9          | 12         | 13           | 39           |
| Other                          | A\$m        | 4          | 2          | 57         | 57         | 57           | 57           |
| <b>Current assets</b>          | <b>A\$m</b> | <b>110</b> | <b>109</b> | <b>169</b> | <b>225</b> | <b>330</b>   | <b>695</b>   |
| Plant & Equipment              | A\$m        | 538        | 594        | 594        | 582        | 576          | 621          |
| Exploration, Evaluation        | A\$m        | 42         | 19         | 23         | 23         | 23           | 23           |
| Inventories                    | A\$m        | 1          | 4          | 6          | 7          | 8            | 23           |
| AELB Deposit                   | A\$m        | 23         | 39         | 48         | 60         | 60           | 60           |
| Other                          | A\$m        | 3          |            | 3          | 3          | 3            | 3            |
| <b>Non-current assets</b>      | <b>A\$m</b> | <b>608</b> | <b>656</b> | <b>674</b> | <b>676</b> | <b>671</b>   | <b>731</b>   |
| <b>Total assets</b>            | <b>A\$m</b> | <b>718</b> | <b>765</b> | <b>843</b> | <b>901</b> | <b>1,001</b> | <b>1,426</b> |
| <b>Liabilities</b>             |             |            |            |            |            |              |              |
| Payables                       | A\$m        | 47         | 35         | 31         | 36         | 36           | 97           |
| Interest bearing liabilities   | A\$m        | 20         | 0          | 45         | 26         | 4            | 4            |
| Deferred Tax Liabilities       | A\$m        | 2          | 3          |            |            |              |              |
| <b>Current liabilities</b>     | <b>A\$m</b> | <b>69</b>  | <b>38</b>  | <b>76</b>  | <b>62</b>  | <b>39</b>    | <b>101</b>   |
| Debt                           | A\$m        | 474        | 225        | 181        | 103        | 16           | 16           |
| Provisions                     | A\$m        |            |            | 70         | 70         | 70           | 70           |
| Other                          | A\$m        | 63         | 67         | 11         | (4)        | 7            | 18           |
| <b>Non-current liabilities</b> | <b>A\$m</b> | <b>535</b> | <b>292</b> | <b>262</b> | <b>169</b> | <b>92</b>    | <b>103</b>   |
| <b>Total liabilities</b>       | <b>A\$m</b> | <b>604</b> | <b>330</b> | <b>338</b> | <b>231</b> | <b>132</b>   | <b>205</b>   |
| <b>NET ASSETS</b>              | <b>A\$m</b> | <b>114</b> | <b>434</b> | <b>505</b> | <b>671</b> | <b>870</b>   | <b>1,221</b> |
| <b>Equity</b>                  |             |            |            |            |            |              |              |
| Contributed equity             | A\$m        | 1,094      | 1,395      | 1,395      | 1,395      | 1,395        | 1,395        |
| Reserves                       | A\$m        | 7          | (25)       | (17)       | (17)       | (17)         | (17)         |
| Retained profits               | A\$m        | (989)      | (936)      | (874)      | (708)      | (509)        | (157)        |
| <b>EQUITY</b>                  | <b>A\$m</b> | <b>112</b> | <b>434</b> | <b>505</b> | <b>671</b> | <b>870</b>   | <b>1,221</b> |
| Gearing (ND/E)                 | %           | (383)      | (42)       | (27)       | 2          | 26           | 43           |
| Gearing (ND/(E+ND))            | %           | 135        | (71)       | (37)       | 2          | 20           | 30           |

Source: Ord Minnett Limited estimates

## Cash Flow

We estimate LYC to be highly cash generative over the next two years due to limited capex and increasing scale which enables it to pay down its current US\$145m debt facility and self fund the required A\$500m Lynas 2025 project. Over the next three years we forecast the following key changes :

- Operating Cash Flow of c.A\$200m in FY20/21, spiking to A\$500m in FY22 on higher NdPr Prices.
- Investing Cash Flow of at a relatively low c.A\$35m in FY21/21 with only sustaining/mining development capex. This jumps to c.A\$200m in FY22 of which A\$167m is for the Lynas 2025 project.
- Free Cash flow: increases from A\$157m in FY20 to A\$196m in FY21 implying a c.12% FCF Yield. Despite the \$200m jump in capex in FY22 the business is still highly cash generative at c.A\$314mn implying a 38% FCF yield.
  - We note that in FY22 at spot prices the business is still cash flow neutral in FY22 despite the \$200m capex bill.
- Financing Cash Flow: we expect LYC to rapidly pay down its existing US\$145m (A\$160m) senior facility rapidly over next two years with US\$77m (A\$110m) in FY20 and the US\$70m (A\$100m) balance in FY21. Financing costs are relatively small in terms of interest at c.A\$5m pa due to the low 2.5% interest rate.
- Cash Balance we expect to consistently build from A\$112m in FY19 to A\$153m in FY20 and roughly net cash A\$19m.

Figure 32: Cash Flow Summary

|                     |             | 17A        | 18A         | 19F         | 20F          | 21F          | 22F          |
|---------------------|-------------|------------|-------------|-------------|--------------|--------------|--------------|
| Underlying EBITDA   | A\$m        | 32         | 127         | 121         | 210          | 241          | 502          |
| Other               | A\$m        | 2          | (1)         | (8)         |              |              |              |
| <b>Operating CF</b> | <b>A\$m</b> | <b>34</b>  | <b>118</b>  | <b>104</b>  | <b>210</b>   | <b>241</b>   | <b>502</b>   |
| Capex               | A\$m        | 2          | 24          | 32          | 30           | 35           | 196          |
| Security Bond       | A\$m        | 5          | 30          | 11          | 12           |              |              |
| <b>Investing CF</b> | <b>A\$m</b> | <b>(7)</b> | <b>(55)</b> | <b>(43)</b> | <b>(42)</b>  | <b>(35)</b>  | <b>(196)</b> |
| Interest Received   | A\$m        | 0          | 1           | 1           | 1            | 2            | 2            |
| Interest Cost       | A\$m        | (5)        | (28)        | (9)         | (5)          | (4)          | (3)          |
| New Equity          | A\$m        | 6          | 7           |             |              |              |              |
| Debt Repayment      | A\$m        | (4)        | (66)        | (4)         | (114)        | (102)        |              |
| <b>Financing CF</b> | <b>A\$m</b> | <b>(3)</b> | <b>(86)</b> | <b>(15)</b> | <b>(118)</b> | <b>(104)</b> | <b>(1)</b>   |
| Net CF              | A\$m        | 24         | (22)        | 47          | 50           | 102          | 304          |
| FX Impact           | A\$m        | (4)        | 0           | 1           |              |              |              |
| Cash at End Period  | A\$m        | 64         | 42          | 90          | 140          | 241          | 546          |
| Net Cash/(Debt)     | A\$m        | (429)      | (181)       | (136)       | 11           | 222          | 526          |
| Free Cash Flow      | A\$m        | 27         | 64          | 61          | 168          | 206          | 305          |
| FCF Yield           | A\$m        | 9          | 8           | 6           | 11           | 13           | 27           |

Source: Ord Minnett Limited estimates

## Lynas Corporation Limited

| PROFIT & LOSS (A\$m)        | 2017A         | 2018A        | 2019E        | 2020E        | 2021E        |
|-----------------------------|---------------|--------------|--------------|--------------|--------------|
| Revenue                     | 257.0         | 374.1        | 368.6        | 489.0        | 521.7        |
| <b>Operating EBITDA</b>     | <b>31.9</b>   | <b>127.0</b> | <b>121.2</b> | <b>209.9</b> | <b>240.6</b> |
| <b>EBIT</b>                 | <b>(12.0)</b> | <b>86.2</b>  | <b>79.4</b>  | <b>168.5</b> | <b>199.2</b> |
| Net interest                | (9.8)         | (27.6)       | (13.9)       | (3.1)        | (0.1)        |
| <b>Pre-tax profit</b>       | <b>(24.3)</b> | <b>53.4</b>  | <b>62.9</b>  | <b>165.4</b> | <b>199.1</b> |
| Net tax (expense) / benefit | 23.7          | (0.3)        | (0.1)        | -            | -            |
| Significant items/Adj.      | (2.6)         | 0.7          | 20.9         | -            | -            |
| Associate NPAT              | 23.6          | 53.8         | 83.7         | 165.4        | 199.1        |
| <b>Normalised NPAT</b>      | <b>23.6</b>   | <b>53.8</b>  | <b>83.7</b>  | <b>165.4</b> | <b>199.1</b> |
| <b>Reported NPAT</b>        | <b>(0.5)</b>  | <b>53.1</b>  | <b>62.8</b>  | <b>165.4</b> | <b>199.1</b> |
| Normalised dil. EPS (cps)   | 0.7           | 11.0         | 12.6         | 24.8         | 29.8         |
| Reported EPS (cps)          | (0.0)         | 8.3          | 8.8          | 23.0         | 27.7         |
| DPS (cps)                   | -             | -            | -            | -            | -            |
| DPS (cps)                   | -             | -            | -            | -            | -            |
| Dividend yield (%)          | -             | -            | -            | -            | -            |
| Payout ratio (%)            | -             | -            | -            | -            | -            |
| Diluted # of shares (m)     | 428.0         | 655.5        | 715.7        | 718.3        | 718.3        |

| CASH FLOW (A\$m)           | 2017A        | 2018A         | 2019E         | 2020E          | 2021E          |
|----------------------------|--------------|---------------|---------------|----------------|----------------|
| EBITDA incl. adjustments   | 31.9         | 127.0         | 121.2         | 209.9          | 240.6          |
| Income tax paid            | (0.1)        | 0.1           | (0.1)         | -              | -              |
| Other operating items      | 2.2          | (8.7)         | (17.0)        | -              | -              |
| <b>Operating Cash Flow</b> | <b>34.0</b>  | <b>118.5</b>  | <b>104.1</b>  | <b>209.9</b>   | <b>240.6</b>   |
| Other investing items      | (4.6)        | (30.4)        | (10.5)        | (11.8)         | -              |
| <b>Investing Cash Flow</b> | <b>(6.9)</b> | <b>(54.7)</b> | <b>(42.7)</b> | <b>(41.9)</b>  | <b>(35.0)</b>  |
| Other financing items      | (5.0)        | (26.6)        | (10.5)        | (4.1)          | (1.8)          |
| <b>Financing Cash Flow</b> | <b>(3.0)</b> | <b>(85.6)</b> | <b>(14.8)</b> | <b>(117.9)</b> | <b>(104.0)</b> |
| FX adjustment              | (3.5)        | 0.2           | 0.8           | -              | -              |
| Net Inc/(Dec) in Cash      | 24.1         | (21.8)        | 46.6          | 50.1           | 101.6          |

| BALANCE SHEET (A\$m)          | 2017A        | 2018A        | 2019E        | 2020E        | 2021E          |
|-------------------------------|--------------|--------------|--------------|--------------|----------------|
| Cash                          | 63.9         | 42.3         | 89.7         | 139.8        | 241.4          |
| Receivables                   | 4.5          | 12.4         | 13.2         | 16.6         | 18.9           |
| Inventory                     | 37.4         | 51.7         | 9.4          | 11.9         | 13.5           |
| PP & E                        | 580.4        | 613.1        | 617.0        | 605.6        | 599.3          |
| Other non-current assets      | 3.7          | 4.1          | 9.0          | 10.5         | 11.5           |
| <b>Total Assets</b>           | <b>717.7</b> | <b>764.6</b> | <b>843.4</b> | <b>901.2</b> | <b>1,001.3</b> |
| Short term debt               | 19.5         | 0.5          | 45.2         | 25.7         | 3.9            |
| Payables                      | 47.1         | 35.0         | 30.9         | 35.8         | 35.5           |
| Long term debt                | 473.8        | 225.1        | 180.7        | 103.0        | 15.6           |
| Other non-current liabilities | 61.4         | 67.0         | 11.5         | (3.7)        | 6.7            |
| <b>Total Liabilities</b>      | <b>604.2</b> | <b>330.2</b> | <b>338.2</b> | <b>230.7</b> | <b>131.6</b>   |
| <b>Total Equity</b>           | <b>112.2</b> | <b>434.5</b> | <b>505.2</b> | <b>670.5</b> | <b>869.7</b>   |
| Net debt (cash)               | 429.4        | 180.8        | 136.3        | (11.1)       | (221.9)        |

## Buy

| DIVISIONS              | 2017A        | 2018A        | 2019E        | 2020E        | 2021E        |
|------------------------|--------------|--------------|--------------|--------------|--------------|
| <b>KEY METRICS (%)</b> | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b> |
| Revenue growth         | 34.6         | 45.6         | (1.5)        | 32.7         | 6.7          |
| EBITDA growth          | -            | 298.0        | (4.6)        | 73.2         | 14.6         |
| EBIT growth            | -            | -            | (7.8)        | 112.2        | 18.2         |
| Normalised EPS growth  | -            | 1,511.2      | 14.3         | 96.6         | 20.4         |
| EBITDA margin          | 12.4         | 34.0         | 32.9         | 42.9         | 46.1         |
| EBIT margin            | -            | 23.0         | 21.5         | 34.5         | 38.2         |

| VALUATION RATIOS (x)    | 2017A | 2018A | 2019E | 2020E | 2021E |
|-------------------------|-------|-------|-------|-------|-------|
| Reported P/E            | -     | 30.7  | 29.1  | 11.1  | 9.2   |
| Normalised P/E          | -     | 23.1  | 20.2  | 10.3  | 8.6   |
| Price To Free Cash Flow | 40.3  | 26.2  | 29.7  | 10.9  | 8.9   |
| EV / EBITDA             | 42.8  | 14.7  | 15.2  | 8.1   | 6.2   |
| EV / EBIT               | -     | 21.7  | 23.2  | 10.0  | 7.4   |

| VALUATION RATIOS (x)    | 2017A | 2018A | 2019E | 2020E | 2021E |
|-------------------------|-------|-------|-------|-------|-------|
| Reported P/E            | -     | 31.5  | 28.4  | 11.7  | 9.4   |
| Normalised P/E          | -     | 23.8  | 20.0  | 10.9  | 8.8   |
| Price To Free Cash Flow | 41.4  | 26.9  | 25.9  | 11.5  | 9.2   |
| EV / EBITDA             | 43.6  | 15.1  | 15.0  | 8.4   | 6.3   |
| EV / EBIT               | -     | 22.2  | 22.5  | 10.6  | 7.6   |

| LEVERAGE                  | 2017A   | 2018A | 2019E | 2020E | 2021E   |
|---------------------------|---------|-------|-------|-------|---------|
| ND / (ND + Equity) (%)    | 79.3    | 29.4  | 21.2  | (1.7) | (34.3)  |
| Net Debt / EBITDA (%)     | 1,345.6 | 142.3 | 112.4 | (5.3) | (92.2)  |
| EBIT Interest Cover (x)   | -       | 3.1   | 5.7   | 53.8  | 1,633.6 |
| EBITDA Interest Cover (x) | 3.3     | 4.6   | 8.7   | 67.0  | 1,973.1 |

| SUBSTANTIAL HOLDERS | m    | %    |
|---------------------|------|------|
| Greencape           | 61.9 | 9.3% |
| Ausbil              | 44.9 | 6.7% |
| FIL                 | 41.7 | 6.3% |

| VALUATION                        |                |
|----------------------------------|----------------|
| Cost of Equity (%)               | 9.3            |
| Cost of debt (after tax) (%)     | 2.5            |
| <b>WACC (%)</b>                  | <b>8.6</b>     |
| Forecast cash flow (\$m)         | 3,611.4        |
| Terminal value (\$m)             | 13,365.0       |
| <b>Equity NPV (\$m)</b>          | <b>3,611.4</b> |
| <b>Equity NPV Per Share (\$)</b> | <b>5.03</b>    |

|  |      |
|--|------|
| Target Price Method                          | NPV  |
| Target Price (\$)                            | 5.00 |
| Valuation disc. / (prem.) to share price (%) | 96.1 |

# Hastings Tech Metals (HAS AU)

## Germany's rare earth solution

We initiate research coverage on HAS with a Speculative BUY and A\$0.30/sh target price. HAS is our top pick among rare earth developers due to its high value orebody and the low technical risk path to production. Similar to Japan Inc's backing of LYC in the 2000's, we see Germany backing HAS for its future RE needs, with offtake partners (Thyssenkrupp/Schaeffler) helping to secure low cost German G'ovt loans. Key risks include project financing, ramp up and NdPr prices. We value HAS on a sum of the parts DCF using a 9.5% WACC (real) and LT NdPr Price of US\$68/kg & 0.70 AUD.

### Investment Thesis: Our top project pick

- **High Value Orebody:** high NdPr endowment of 35% enables a US\$20/kg basket price (key project economic determinate) almost double its peers/existing world producers.
- **German Backed:** Similar to Japan inc backing of Lynas in the 2000's, we see Germany supporting HAS for its future RE needs. Signed 2x 10 year offtake MOU's with German industrial stalwarts Thyssenkrupp and Schaeffler AG (auto manufacturer). Their support helped secure US\$140m (A\$200m) of low cost German G'ovt Debt.
- **Shortcut to market:** aims to produce a mixed carbonate and not fully separate RE's, significantly reducing project technical risk and capex.
- **Skin in the game:** added certainty of seeing project through to completion is Exec Chairman Charles Lew, who owns 11.5% and has self-funded most development to date.

### Company Overview

- Hastings Technology Metals ('HAS') is a rare earth development company that owns 100% of the Yangibana project in the Gascoyne Region of WA.
- The ~A\$450m project is expects commercial production to commence by mid-2021 and quickly ramp-up to a nameplate of 15kt of Mixed Rare Earth Carbonate ('MREC') containing ~3.5kt of 'NdPr' (some 90% of revenue).
- Key risks for developing projects apply (permitting, funding, project execution/construction) as well as our NdPr, AUD forecasts.

#### Key Financials

| Year-end June (A\$)   | FY17A | FY18A | FY19E | FY20E | FY21E  |
|-----------------------|-------|-------|-------|-------|--------|
| Revenue (\$m)         | -     | -     | -     | -     | -      |
| EBITDA (\$m)          | (1.7) | (3.2) | (3.2) | (3.0) | (3.0)  |
| EBIT (\$m)            | (1.7) | (3.2) | (3.2) | (3.0) | (3.0)  |
| Reported NPAT (\$m)   | (1.5) | (2.9) | (2.9) | (7.6) | (13.8) |
| Reported EPS (c)      | (0.3) | (0.4) | (0.3) | (0.6) | (1.0)  |
| Normalised NPAT (\$m) | (1.4) | (2.5) | (2.9) | (7.6) | (13.8) |
| Normalised EPS (c)    | (0.3) | (0.4) | (0.3) | (0.7) | (1.1)  |
| Dividend (c)          | -     | -     | -     | -     | -      |
| Net Yield (%)         | -     | -     | -     | -     | -      |
| Normalised ROE (%)    | -     | -     | -     | -     | -      |

Source: OML, Iress, Hastings Technology Metals Limited

#### Last Price

**A\$0.13**

#### Target Price

**A\$0.30**

#### Recommendation

**Speculative Buy**

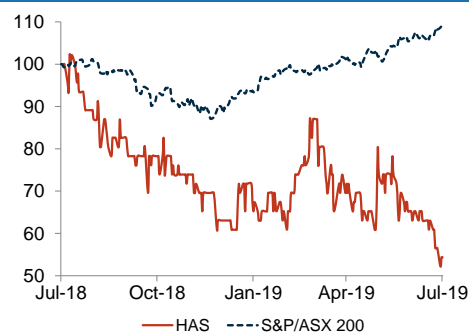
#### Risk

**Higher**

#### Metals and Mining

|                               |             |
|-------------------------------|-------------|
| ASX Code                      | HAS         |
| 52 Week Range (A\$)           | 0.12 - 0.24 |
| Market Cap (\$m)              | 114.6       |
| Shares Outstanding (m)        | 916.9       |
| Av Daily Turnover (\$m)       | 0.0         |
| 3 Month Total Return (%)      | -24.2       |
| 12 Month Total Return (%)     | -45.7       |
| Benchmark 12 Month Return (%) | 9.0         |
| Net Cash FY19E (A\$m)         | 18.0        |

#### Relative Price Performance



Source: FactSet

#### Consensus Earnings

|                 | FY19E | FY20E |
|-----------------|-------|-------|
| NPAT (C) (\$m)  | -     | -     |
| NPAT (OM) (\$m) | (2.9) | (7.6) |
| EPS (C) (c)     | -     | -     |
| EPS (OM) (c)    | (0.3) | (0.7) |

Source: OML, Iress, Hastings Technology Metals Limited

#### Dylan Kelly

Senior Research Analyst

02 8216 6417

dkelly@ords.com.au

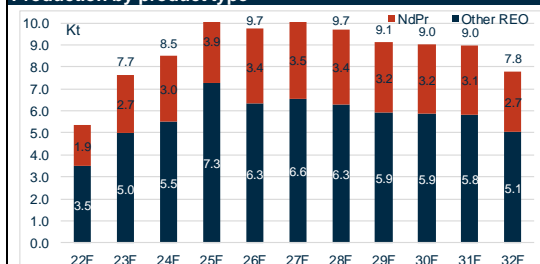
## Production &amp; Valuation Summary

| Key financial metrics       |             | 18A        | 19A        | 20F          | 21F          | 22F          | 23F          |
|-----------------------------|-------------|------------|------------|--------------|--------------|--------------|--------------|
| <b>P&amp;L</b>              |             |            |            |              |              |              |              |
| Revenue                     | A\$m        |            |            |              |              | 164          | 274          |
| EBITDA                      | A\$m        | (3)        | (3)        | (3)          | (3)          | 49           | 128          |
| NPAT                        | A\$m        | (3)        | (3)        | (8)          | (14)         | (8)          | 53           |
| EPS - (Diluted)             | A¢/sh       | (0.4)      | (0.3)      | (0.7)        | (1.0)        | (0.6)        | 4.1          |
| Ebitda Margin               | %           |            |            |              |              | 30           | 47           |
| <b>Cash flow</b>            |             |            |            |              |              |              |              |
| Operating CF                | A\$m        | (3)        | (3)        | (12)         | (25)         | 22           | 119          |
| Capex                       | A\$m        | (14)       | (38)       | (74)         | (252)        | (108)        | (1)          |
| Free CF                     | A\$m        | (15)       | (41)       | (86)         | (227)        | (86)         | 117          |
| Financing CF                | A\$m        |            |            |              |              |              |              |
| <b>Balance Sheet</b>        |             |            |            |              |              |              |              |
| Cash Balance                | A\$m        | 21         | 18         | 48           | 35           | 30           | 48           |
| Net Debt / (Cash)           | A\$m        | (21)       | (18)       | 43           | 243          | 320          | 202          |
| Gearing (ND/E)              | %           | (30)       | (20)       | 41           | 209          | 295          | 125          |
| Interest Cover              | x           |            |            |              |              |              | 0.11         |
| <b>Debt Facility Draw</b>   |             |            |            |              |              |              |              |
| German Govt (US\$140m)      | US\$m       |            |            | 60           | 100          | 140          | 140          |
| German C'mrcl (US\$35m)     | US\$m       |            |            |              | 35           | 35           | 35           |
| NAIF (A\$150mn)             | A\$m        |            |            |              | 53           | 70           |              |
| <b>Total Debt Drawn</b>     | <b>A\$m</b> |            |            | <b>91</b>    | <b>278</b>   | <b>350</b>   | <b>250</b>   |
| Debt Repayments             | A\$m        |            |            | 5            | 11           | 14           | 14           |
| <b>Capital Structure</b>    |             |            |            |              |              |              |              |
| Shares on issue             | m           | 532        | 712        | 917          | 1,117        | 1,317        | 1,317        |
| Options                     | m           | 18         |            | 69           | 69           | 69           | 69           |
| Performance Rights          | m           | 18         | 15         | 20           | 20           | 20           | 20           |
| New Equity                  | m           | 58         | 179        | 116          | 200          | 200          |              |
| <b>Fully Diluted Shares</b> | <b>m</b>    | <b>568</b> | <b>727</b> | <b>1,006</b> | <b>1,206</b> | <b>1,406</b> | <b>1,406</b> |

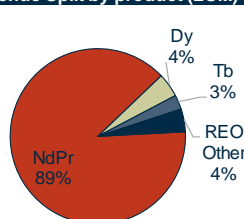
| Assumptions (Real) |         | 21F | 22F  | 23F  | 24F  | 25F  | 26F  | LOM  |
|--------------------|---------|-----|------|------|------|------|------|------|
| AUD                |         |     | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| NdPr               | US\$/kg |     | 61   | 68   | 68   | 68   | 68   | 68   |
| Basket Value       | US\$/kg |     | 22.6 | 27.6 | 27.1 | 26.3 | 26.9 | 26.6 |

|                             |                |      |            |             |            |             |            |             |
|-----------------------------|----------------|------|------------|-------------|------------|-------------|------------|-------------|
| <b>Mining</b>               |                |      |            |             |            |             |            |             |
| Ore Mined                   | Mt             | 0.01 | 0.9        | 1.6         | 0.7        | 0.8         | 0.9        | 0.94        |
| NdPr Grade                  | %              |      | 0.41       | 0.35        | 0.39       | 0.52        | 0.45       | 0.43        |
| Other REO Grade             | %              |      | 0.77       | 0.66        | 0.73       | 0.96        | 0.84       | 0.81        |
| Total Grade                 | %              |      | 1.18       | 1.01        | 1.12       | 1.48        | 1.29       | 1.24        |
| <b>Processing</b>           |                |      |            |             |            |             |            |             |
| Ore Milled                  | Mt             |      | 0.6        | 1.0         | 1.0        | 1.0         | 1.0        | 1.0         |
| NdPr Recovery               | %              |      | 75.6       | 75.6        | 75.6       | 75.6        | 75.6       | 75.6        |
| Total REO Recovery          | %              |      | 75.7       | 75.7        | 75.7       | 75.7        | 75.7       | 75.7        |
| Concentrate Produced (MREC) | kt             |      | 9.3        | 13.2        | 14.6       | 19.2        | 16.8       | 15.2        |
| <b>Production/Sales</b>     |                |      |            |             |            |             |            |             |
| NdPr                        | kt             |      | 1.9        | 2.7         | 3.0        | 3.9         | 3.4        | 3.1         |
| Other REO                   | kt             |      | 3.5        | 5.0         | 5.5        | 7.3         | 6.3        | 5.0         |
| <b>REO In Concentrate</b>   | <b>kt</b>      |      | <b>5.4</b> | <b>7.7</b>  | <b>8.5</b> | <b>11.2</b> | <b>9.7</b> | <b>8.1</b>  |
| NdPr % of Production        | %              |      | 35         | 35          | 35         | 35          | 35         | 38          |
| <b>Revenue</b>              |                |      |            |             |            |             |            |             |
| NdPr                        | US\$m          |      | 114        | 182         | 202        | 265         | 231        | 209         |
| Other REO                   | US\$m          |      | 14         | 29          | 28         | 29          | 31         | 27          |
| Separation Fee \$2.5/kg     | US\$m          |      | (13)       | (19)        | (21)       | (28)        | (24)       | (22)        |
| <b>Total Revenue</b>        | <b>A\$m</b>    |      | <b>164</b> | <b>274</b>  | <b>298</b> | <b>380</b>  | <b>339</b> | <b>305</b>  |
| <b>Cash COGS</b>            |                |      |            |             |            |             |            |             |
| Fixed Costs                 | A\$m           |      | 42         | 42          | 42         | 42          | 42         | 42          |
| Variable Costs              | A\$m           |      | 64         | 92          | 102        | 134         | 117        | 106         |
| Royalties (3.2%)            | A\$m           |      | 5          | 9           | 10         | 12          | 11         | 10          |
| <b>Total Cash COGS</b>      | <b>A\$m</b>    |      | <b>112</b> | <b>143</b>  | <b>153</b> | <b>188</b>  | <b>170</b> | <b>158</b>  |
| <b>Unit Margin (REO)</b>    |                |      |            |             |            |             |            |             |
| Unit Costs                  | US\$/kg        |      | 17         | 16          | 15         | 14          | 15         | 15          |
| Average Sale Price          | US\$/kg        |      | 23         | 28          | 27         | 26          | 27         | 27          |
| <b>REO Margin</b>           | <b>US\$/kg</b> |      | <b>5.5</b> | <b>12.0</b> | <b>12</b>  | <b>12</b>   | <b>12</b>  | <b>11.6</b> |

## Production by product type



## Revenue Split by product (LOM)

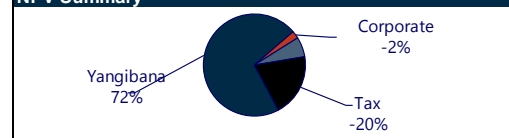


| Base Case                  |            |                        |
|----------------------------|------------|------------------------|
| Valuation                  | A\$m       | A\$/sh                 |
| <b>NPV (FY20)</b>          |            |                        |
| Yangibana                  | 492        | 0.49                   |
| Corporate                  | (16)       | (0.02)                 |
| Net Debt                   | (43)       | (0.04)                 |
| Tax                        | (137)      | (0.14)                 |
| <b>Total</b>               | <b>296</b> | <b>0.29</b>            |
| <b>Target Price A\$/sh</b> |            | <b>0.30</b>            |
| <b>TSR (%)</b>             |            | <b>140%</b>            |
| <b>Recommendation</b>      |            | <b>Speculative Buy</b> |

|                        |  |       |
|------------------------|--|-------|
| <b>WACC</b>            |  |       |
| Cost Of Equity         |  | 12.8% |
| Cost Of Debt (pre tax) |  | 5.0%  |
| WACC (Real)            |  | 9.3%  |

| Share Register            | mn    | % Diltuion |
|---------------------------|-------|------------|
| Shares on issue           | 916.9 |            |
| Options                   | 69.2  | 7%         |
| Performance Rights        | 19.5  | 2%         |
| Fully Diluted Share Count | 1,006 |            |

## NPV Summary



| Sensitivity ±1% | NPV |
|-----------------|-----|
| NdPr            | 5.7 |
| AUDUSD          | 5.7 |
| Opex            | 3.3 |
| Recovery        | 5.7 |
| Headgrade       | 5.7 |

## NPV A\$/sh Valuation Sensitivity

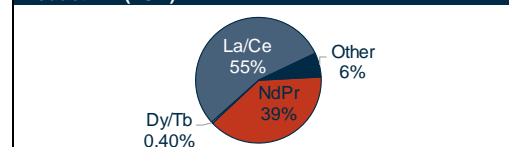
| NdPr US\$/kg (Ex VAT) |      |      |      |      |
|-----------------------|------|------|------|------|
| AUDUSD                | 60   | 70   | 80   | 90   |
| 0.675                 | 0.19 | 0.41 | 0.64 | 0.86 |
| 0.700                 | 0.15 | 0.36 | 0.57 | 0.79 |
| 0.725                 | 0.10 | 0.31 | 0.51 | 0.72 |

| Mineral Inventory | Volume (mt) | REO % | NdPr % |
|-------------------|-------------|-------|--------|
| Resource          | 21.7        | 1.10  | 0.39   |
| Reserve           | 10.4        | 1.22  | 0.43   |
| Mine Life         | +11 years   |       |        |

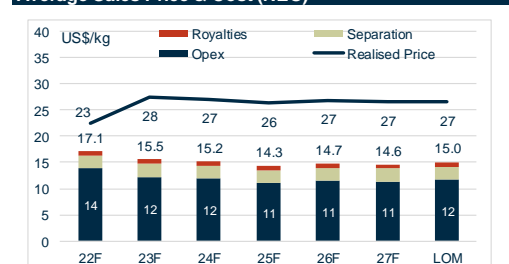
## Key Events

|                                     |        |
|-------------------------------------|--------|
| WA Government Approval              | Aug 19 |
| NAIF - Debt Funding                 | Oct 19 |
| German Debt Facility Financial Clos | Nov 19 |

## Product Mix (LOM)



## Average Sales Price &amp; Cost (REO)



## HAS Investment Thesis

We initiate research coverage on Hastings Technology Metals ('HAS') with a SPECULATIVE BUY recommendation and a A\$0.30/sh target price. We value HAS on a sum of the parts DCF using a 9.5% WACC (real) and LT NdPr Price of US\$68/kg & 0.70 AUD. We view HAS as having the most attractive rare earth project in development with the following key attributes to be successfully developed:

1. **High value orebody:** project hosts highest NdPr concentrations, which enables sector leading basket price (highest value material).
2. **Shortcut to market:** aims to produce a mixed carbonate and not fully separate rare earths, significantly reducing project technical risk and costs.
3. **German Backed:** Similar to Japan's backing of Lynas, we see Germany backing HAS for its future Automotive/Industrial needs.
4. **Skin in the game:** added certainty of seeing project through to completion is Exec Chairman Charles Lew, who owns 11.5% and has self-funded most development to date.

In our view the company appears undervalued relative to its fundamentals and we expect the valuation to re-rate following a series of upcoming catalysts (debt financing, Key risks for HAS span across three key categories of project development, commodity price/exchange rate and operational.

## Company Overview

Hastings Technology Metals ('HAS') is a rare earth development company that owns 100% of the Yangibana project, located in the Upper Gascoyne Region of Western Australia. Yangibana hosts the one of the world's highest concentrations of the highly strategic rare earth 'NdPr' and is the world's most advanced project (studies, permitting, offtake, EPC).

The A\$450m project is expected to commence commercial production by mid-2021 and quickly ramp-up to a nameplate of 15kt of Mixed Rare Earth Carbonate ('MREC') containing c.3.5kt of 'NdPr' oxide that generates c.90% of its revenue.

## Valuation

We value HAS on a sum of the parts one year forward DCF of ~A\$298m (A\$0.30/sh), which is based on a WACC of 9.5% real assuming a Cost of Equity of 12.8%, based on a risk free rate of 4.5%, Equity Beta of 1.5 and Equity Risk Premium of 10% and a Cost of Debt of 4.8% (pre tax).

Figure 1: HAS Valuation

| Valuation                  | A\$m  | A\$/sh                 |
|----------------------------|-------|------------------------|
| <b>NPV (FY20)</b>          |       |                        |
| Yangibana                  | 492   | 0.49                   |
| Corporate                  | (16)  | (0.02)                 |
| Net Debt                   | (43)  | (0.04)                 |
| Tax                        | (137) | (0.14)                 |
| Total                      | 296   | 0.29                   |
| <b>Target Price A\$/sh</b> |       | <b>0.30</b>            |
| TSR (%)                    |       | 140%                   |
| <b>Recommendation</b>      |       | <b>Speculative Buy</b> |

Source: Ord Minnett Limited estimates



We value Yangibana on a pre tax basis of A\$492mn (A\$0.49/sh). The key forecast assumptions are our long term NdPr Price of US\$68/kg (ex VAT) and AUDUSD of 0.70. We forecast a mine life of 11 years commencing FY22 ending in FY32 which is based on the existing reserves at Yangibana of 10.4mt at 1.2% TREO containing 0.43% NdPr. With a resource of 21.7mt we expect the mine life can be substantially extended, which is highly value accretive to the valuation. We do not ascribe any value to their Brockman resource.

We include a provision for corporate items including overheads, admin, closure/rehab costs at A\$16m (A\$0.02/sh). We also include a forward Net Debt position of A\$43m (A\$0.04/sh). Tax we model as a separate DCF line item worth - A\$135mn (-A\$0.13/sh).

Figure 2: HAS NPV Valuation Sensitivity (A\$/sh)

| AUDUSD | NdPr US\$/kg (Ex VAT) |      |      |      |
|--------|-----------------------|------|------|------|
|        | 60                    | 70   | 80   | 90   |
| 0.675  | 0.19                  | 0.41 | 0.64 | 0.86 |
| 0.700  | 0.15                  | 0.36 | 0.57 | 0.79 |
| 0.725  | 0.10                  | 0.31 | 0.51 | 0.72 |

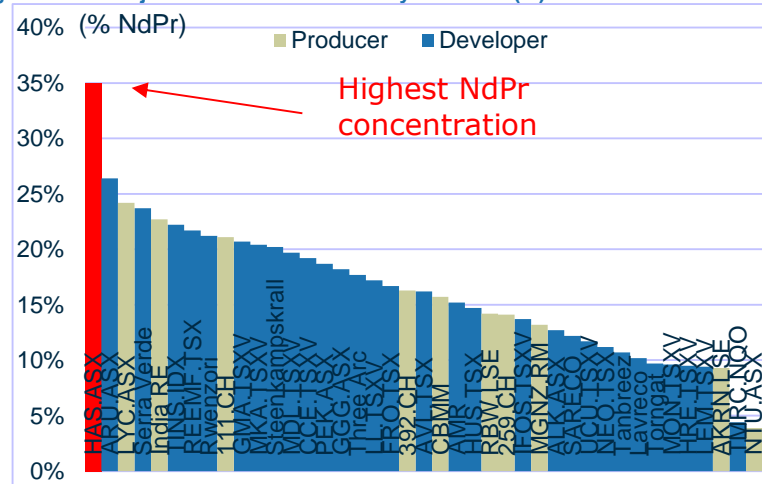
Source: Ord Minnett Limited estimates

### Thesis Key Point 1: High value orebody

Yangibana hosts a resource of 21.7mt at 1.1% REO and Reserve of 1.4mt at 1.2% REO. On a grade basis, this doesn't compare favourably to the other rare earth deposits in the world which typically average c.1% TREO. However, what sets this project apart is that it contains one of the highest value rare earth product mixes.

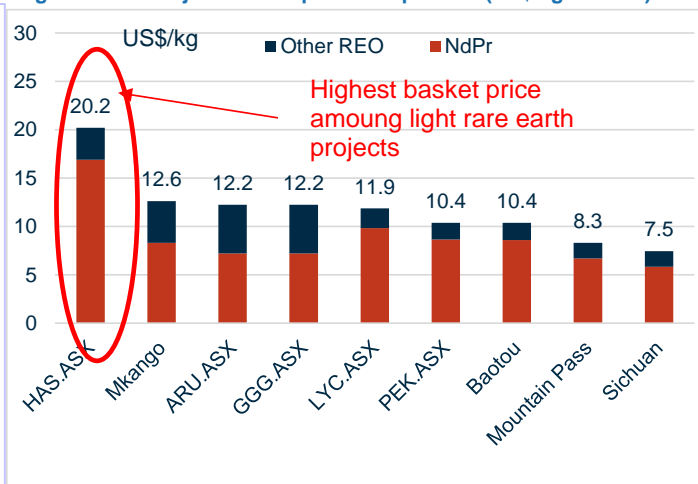
Yangibana contains one of the world's highest concentrations of the highly sought rare earth 'NdPr' which represents around 35% of the resource and ultimately 40% of its future production, generating c.90% of its revenue.

Figure 3: RE Project NdPr concentration by resource (%)



Source: SMM, Asian Metals, Company Resource Statements, Extractive Metallurgy of Rare Earths 2nd Edition, Ord Minnett Limited, Roskill, Argus, Adamas Intelligence

Figure 4: RE Project Basket price comparison (US\$/kg Ex VAT)



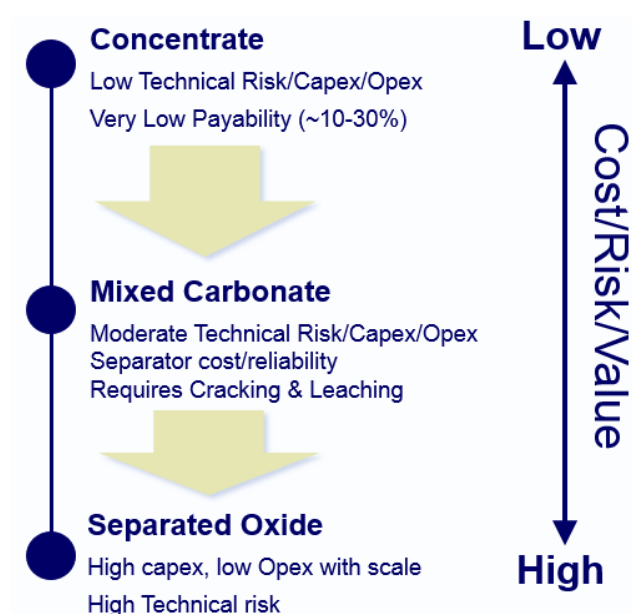
Along with other high value heavy rare earths (Dy/Tb), this enables the project to have an extremely high 'basket price' of some US\$20/kg at spot (21<sup>st</sup> July 2019), which is almost double existing producers at \$9.5/kg and its developer peers group at \$12/kg. Basket prices are a critical economic consideration for project development.

### Thesis Key Point 2: Shortcut to market:

Barriers to entry for new rare earth producers remains very high. Broadly speaking there are three stages of processing in the initial rare earth supply chain of Concentrate, Mixed Carbonate, Separated Oxides. In our view, each stage down the supply chain increases a project technical risk as well as capital cost while also targeting significant value upside.

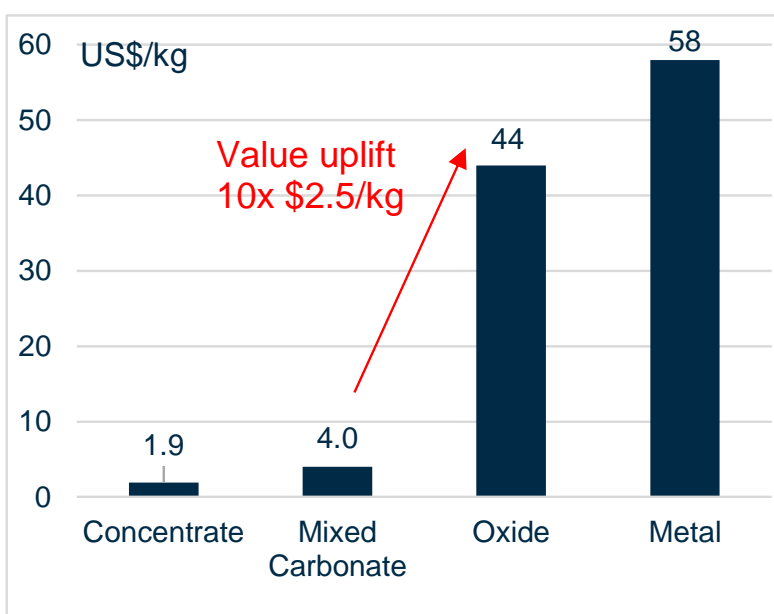
Historically new rare earth projects have had a chequered history, particularly for vertically integrated producers (eg mine to separated RE products). Typically capital costs exceed US\$1bn and take lengthy periods to commission (LYC took 6 years). There have also been spectacular failures when economic design rates are not achieved. Case in point is MolyCorp and its redevelopment of Mountain Pass in California, which after a 5 year restart process, failed to achieve design rates and filed for Chapter 11 bankruptcy protection in mid 2015 with debts of US\$1.7bn.

Figure 5: Rare Earth Value Chain



Source: Ord Minnett Limited, SMM, Rainbow Rare Earth

Figure 6: Rare Earth Value Chain by product price



Aversion to such risk is why we like the Yangibana project and HAS approach to development. HAS plans to only progress partially down the value chain to the second stage of producing a mixed intermediary product. This product is then sent from the mine to the customers designated separation facilities in either China, Thailand and Vietnam which have tremendous surplus separation capacity.

We note that Since 2014, China has curtailed or removed around 70% of its rare earth separation capacity from c.450ktpa to c.250ktpa by 2017. With official production quotas currently running at c.120ktpa and current utilisation rates of c.60% or there is ample outright idle or simply closed capacity due to a complete elimination of upstream raw material feedstocks. Further China separation plants can legal process raw carbonate material as it circumvents their strict production quota system.

The offsetting factor is the separation cost of US\$2.5-3/kg of REO contained which effectively adds a material 20-25% to unit cost of the business (US\$12.5/kg LOM).



### Thesis Key Point 3: German backed

Similar to Japan's backing of Lynas in the 2000's, we see Germany backing Hastings for its future rare earth needs. To date, HAS signed two separate MOU's for 10 year offtake with German industrial stalwarts Thyssenkrupp (Raw Materials Division) and Schaeffler AG (auto component manufacturer). Their support has helped secure US\$140m (A\$200m) of low cost German Government Debt facilities (see below). We note that in July 2017 ([here](#)) Schaeffler AG was chosen by Volkswagen Group as one of its EV technology suppliers.

Figure 7: Yangibana Project Offtake announced

| Company            | Country | Type     | MREC (Kt)   | Date Ann | Years |
|--------------------|---------|----------|-------------|----------|-------|
| Thyssenkrupp       | Germany | MOU      | 5.0         | Mar 18'  | 10    |
| Baotou Sky Rock RE | China   | Contract | 2.5         | Nov 18'  | 5     |
| Schaeffler AG      | Germany | MOU      | 5.0         | Jun 19'  | 10    |
| <b>Total</b>       |         |          | <b>12.5</b> |          |       |
| MREC Capacity      |         |          | 15.0        |          |       |

Source: Company, Ord Minnett Limited

## Risks

Key risks for HAS span three key categories of project development, commodity price/exchange rate and operational.

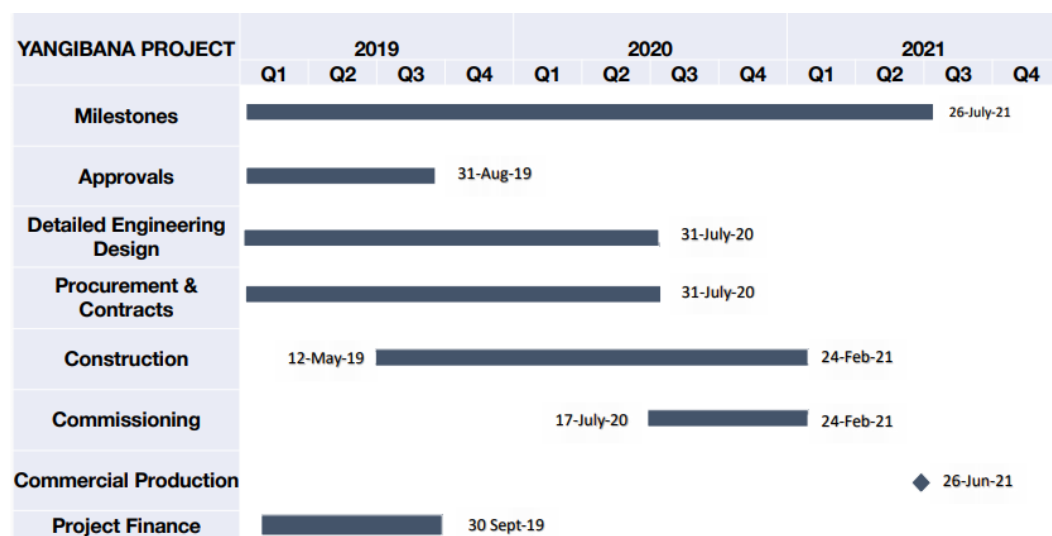
### Project Development Risk:

- Project financing hurdle of A\$450m capex,
- Offtake – 83% of capacity under MOU, need to convert to contract.
- WA regulatory permitting (no objections, due August 2019)
- Construction/commissioning execution risk.

▪ **Commodity/FX Price risk:** The other key risk relates to the prevailing NdPr price and AUD USD.  $\pm 10\%$  change in our forecasts impacts our NPV by  $\sim 15\text{¢/sh}$  each. We note that the project requires a US\$52/kg NdPr price to generate an IRR of 15%, which is some 20% above spot levels.

▪ **Operational:** Valuation is highly sensitive to ramp up assumptions as well as metallurgical recovery rates ( $\sim 76\%$ ) and headgrade (1.2% TREO). A  $\pm 10\%$  change in either variable of or head grade of moves our NPV by  $\sim 14\text{¢/sh}$ .

Figure 8: Project Timeline



Source: Company

## Key Risk 1: Capital Hurdle ~A\$450mn

The current preproduction capital cost for Yangibana is ~A\$450mn including contingency, with an additional A\$50m for working capital and finance charges over the initial mine life. To date around A\$32mn has been spent, slightly reducing the capex spend profile over the next three years to A\$74m in FY20, A\$252m in FY21 and A\$108m in FY22.

The key risk in any development project is the potential for project delays and capital cost blowouts. We're comfortable with the current capex estimate as it has recently been adjusted by the German debt facility requirements:

1. >90% of the capex has been fixed with EPCM project contractors
2. Higher Contingency of A\$60m (15%)
3. Additional contract cost for OEM's signing equipment performance warranties, adding A\$40m.

Figure 9: Yangibana Project Capex

| Capex                          | A\$m       |
|--------------------------------|------------|
| Mining                         | 10         |
| Process plant                  | 220        |
| Infas/TSF                      | 60         |
| Indirect costs                 | 100        |
| Contingency                    | 60         |
| <b>Pre production Capex</b>    | <b>450</b> |
| Financing/Working Capital      | 50         |
| Less: capex to date            | (32)       |
| <b>Initial Capex Remaining</b> | <b>468</b> |

Source: Company, Ord Minnett Limited

## Key Risk 2: Project Funding

The project will principally rely on German and Australian government debt to deliver the bulk of the (A\$400m) of the capex required. Impressively their German offtake partners have been actively assisting HAS securing German Federal Government funding, which has a mechanism to fund "eligible projects that contribute supply critical natural resources to; Tier 1 German companies". In our view, this funding arrangement give us considerable confidence in the projects standing as:

1. German funding evaluation process is extremely rigorous.
2. It is typically very difficult to get debt financing for rare earth projects.
3. Highly attractive Low cost debt with interest of c.5% over 7-10 years, the principal facility of US\$140m (A\$200m) boasts rate of US Libor + 2.75%.

Currently technical due diligence is being undertaken, with final documentation and ministerial decision completed by December 2019. Details ([here](#)).

'North Australia Infrastructure Fund' ('NAIF') is also undertaking a feasibility study (due Oct 19') for funding of c. A\$150mn. This is expected to be used for site infrastructure expenditure that will more broadly assist the region (Dampier-Bunbury gas pipeline access, access roads etc).

We expect a further A\$50mn to be funded from new equity raises and \$50mn from customer prepayments.

Figure 10: Debt Facility Summary

|                      | Source                              | Facility Size<br>A\$m | Status                  | Due by<br>mmm yy | Interest rate<br>% | Duration<br>Years |
|----------------------|-------------------------------------|-----------------------|-------------------------|------------------|--------------------|-------------------|
| Facility 1           | German United Loan Guarantee Scheme | 200                   | Technical due diligence | Nov 19'          | US Libor + 2.75%   | 10                |
| Facility 2           | KfW IPEX Bank                       | 50                    | " "                     | " "              | US Libor + 4.25%   | 7                 |
| Facility 3           | NAIF                                | 150                   | Feasibility study       | Oct 19'          | RBA Cash + 2.5%    | 10                |
| <b>Total Debt</b>    |                                     | <b>400</b>            |                         |                  |                    |                   |
| New Equity           |                                     | 50                    |                         |                  |                    |                   |
| Customer Prepayments |                                     | 50                    |                         |                  |                    |                   |
| <b>Total</b>         |                                     | <b>450</b>            |                         |                  |                    |                   |

Source: Company, UKF, KfW, NAIF, Ord Minnett Limited

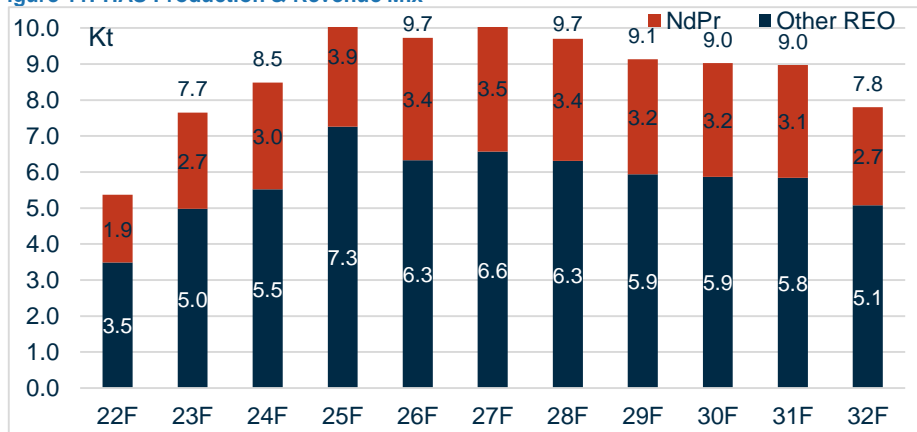
## Appendix: Company Summary & Forecasts

### Production Forecast

We expect Yangibana's commercial production to commence FY22 and quickly ramp-up to a nameplate capacity of 15kt of Mixed Rare Earth Carbonate ('MREC'). This is expected to contain 8.5ktpa of total Rare Earth Oxide ('REO') of which 40% or c.3.5kt of 'NdPr' oxide, which generates ~90% of its revenue.

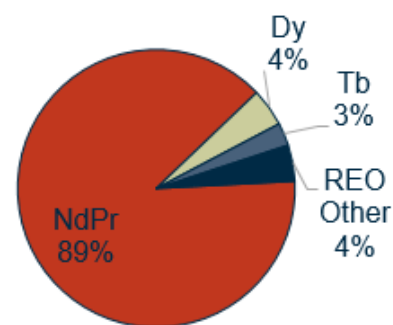
Yangibana has an unusual but highly advantageous plans to rapidly ramp up production within 6 months of commissioning. We note that its German lenders have stipulated that equipment providers sign 'performance warranty'.

Figure 11: HAS Production & Revenue Mix



Source: Ord Minnett Limited estimates

Revenue Split by product (LOM)



### Price forecast

Between now and 2022 we forecast the NdPr market deficit to grow and expect prices to rise until a supply response is incentivised in 2023. We forecast NdPr Oxide prices on an FOB China basis excluding 16% VAT to rise from spot of c.US\$40/kg and increase to our long-term real price of US\$68/kg.

As the non NdPr production represents <10% of group revenue we have forecast spot prices for its key products. The combination of the two product prices implies a basket price of c.US\$28/kg over the life of mine.

Figure 12: Commodity Price forecast

| Assumptions (Real) |         | 21F  | 22F  | 23F  | 24F  | 25F  | 26F  | LOM  |
|--------------------|---------|------|------|------|------|------|------|------|
| AUD                |         | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 | 0.70 |
| NdPr               | US\$/kg | 61   | 68   | 68   | 68   | 68   | 68   | 68   |
| Basket Value       | US\$/kg | 22.6 | 27.6 | 27.1 | 26.3 | 26.9 | 26.6 | 26.6 |

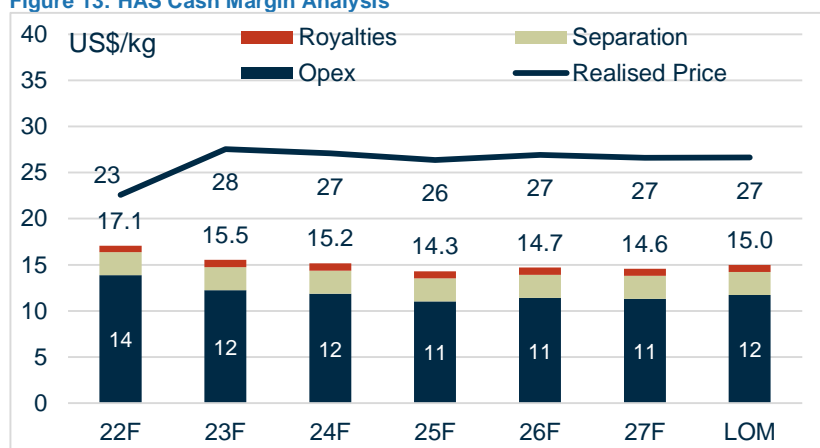
Source: Ord Minnett Limited estimates

## Cost Forecast

We forecast an annual operating cost base of c.A\$150m over the life of mine or ~US\$15/kg REO based on the following assumptions:

- Variable Production costs of c.A\$12/kg or some A\$100m pa.
- Fixed cost A\$42mn annually
- Royalty of 3.2% from a State Royalty of 2.5% and 0.7% for a native title royalty (~A\$10m pa)
- Corporate/Admin costs of A\$3m pa
- Separation cost of US\$2.5/kg for REO sold or some A\$20m pa (at AUD of 0.7) we treat this as a treatment cost for accounting purposes which reduces the realised revenue rather than costs.
- Sustaining Capex we assume A\$1.3m annually

Figure 13: HAS Cash Margin Analysis



Source: Ord Minnett Limited estimates

## Capital Structure

Currently there are 916.9mn shares on issue and 1,005.6mn on a fully diluted basis, consisting of 69.2mn Options and 19.5mn performance rights. Over the next 2 years we expect two further capital raising for c.A\$50mn which increases the share count by 357mn shares (35%).

Executive Chairman Charles Lew owns 11.5% of the register along with his Singapore/Malaysian business associates Mark Chang at 6.5%.

Figure 14 Capital Structure

| Key financial metrics       |          | 18A        | 19A        | 20F          | 21F          | 22F          | 23F          |
|-----------------------------|----------|------------|------------|--------------|--------------|--------------|--------------|
| Shares on issue             | m        | 532        | 712        | 917          | 1,117        | 1,317        | 1,317        |
| Options                     | m        | 18         |            | 69           | 69           | 69           | 69           |
| Performance Rights          | m        | 18         | 15         | 20           | 20           | 20           | 20           |
| New Equity                  | m        | 58         | 179        | 116          | 200          | 200          |              |
| <b>Fully Diluted Shares</b> | <b>m</b> | <b>568</b> | <b>727</b> | <b>1,006</b> | <b>1,206</b> | <b>1,406</b> | <b>1,406</b> |

Source: Ord Minnett Limited estimates

**Hastings Technology Metals Limited**

| <b>PROFIT &amp; LOSS (A\$m)</b> | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b>  |
|---------------------------------|--------------|--------------|--------------|--------------|---------------|
| Revenue                         | -            | -            | -            | -            | -             |
| <b>Operating EBITDA</b>         | <b>(1.7)</b> | <b>(3.2)</b> | <b>(3.2)</b> | <b>(3.0)</b> | <b>(3.0)</b>  |
| <b>EBIT</b>                     | <b>(1.7)</b> | <b>(3.2)</b> | <b>(3.2)</b> | <b>(3.0)</b> | <b>(3.0)</b>  |
| Net interest                    | 0.2          | 0.3          | 0.3          | (4.6)        | (10.8)        |
| <b>Pre-tax profit</b>           | <b>(1.4)</b> | <b>(2.6)</b> | <b>(2.9)</b> | <b>(7.6)</b> | <b>(13.8)</b> |
| Net tax (expense) / benefit     | -            | -            | -            | -            | -             |
| Significant items/Adj.          | 0.2          | 0.4          | -            | -            | -             |
| Associate NPAT                  | (1.4)        | (2.5)        | (2.9)        | (7.6)        | (13.8)        |
| <b>Normalised NPAT</b>          | <b>(1.4)</b> | <b>(2.5)</b> | <b>(2.9)</b> | <b>(7.6)</b> | <b>(13.8)</b> |
| <b>Reported NPAT</b>            | <b>(1.5)</b> | <b>(2.9)</b> | <b>(2.9)</b> | <b>(7.6)</b> | <b>(13.8)</b> |
| Normalised dil. EPS (cps)       | (0.3)        | (0.4)        | (0.3)        | (0.7)        | (1.1)         |
| Reported EPS (cps)              | (0.3)        | (0.4)        | (0.3)        | (0.6)        | (1.0)         |
| Effective tax rate (%)          | 30.0         | 30.0         | 30.0         | 30.0         | 30.0          |
| DPS (cps)                       | -            | -            | -            | -            | -             |
| DPS (cps)                       | -            | -            | -            | -            | -             |
| Dividend yield (%)              | -            | -            | -            | -            | -             |
| Payout ratio (%)                | -            | -            | -            | -            | -             |
| Diluted # of shares (m)         | 567.8        | 727.0        | 1,005.7      | 1,184.3      | 1,362.9       |

| <b>CASH FLOW (A\$m)</b>      | <b>2017A</b> | <b>2018A</b>  | <b>2019E</b>  | <b>2020E</b>  | <b>2021E</b>   |
|------------------------------|--------------|---------------|---------------|---------------|----------------|
| EBITDA incl. adjustments     | (1.7)        | (3.2)         | (3.2)         | (3.0)         | (3.0)          |
| Change in working capital    | -            | -             | -             | -             | -              |
| Net Interest (paid)/received | 0.2          | 0.3           | 0.3           | (9.4)         | (22.1)         |
| Income tax paid              | -            | -             | -             | -             | -              |
| Other operating items        | 0.4          | 0.2           | -             | -             | -              |
| <b>Operating Cash Flow</b>   | <b>(1.0)</b> | <b>(2.7)</b>  | <b>(2.9)</b>  | <b>(12.4)</b> | <b>(25.1)</b>  |
| Other investing items        | 10.8         | 1.7           | -             | -             | 50.0           |
| <b>Investing Cash Flow</b>   | <b>(1.3)</b> | <b>(12.5)</b> | <b>(38.0)</b> | <b>(74.0)</b> | <b>(202.0)</b> |
| Other financing items        | (0.1)        | (1.5)         | -             | -             | -              |
| <b>Financing Cash Flow</b>   | <b>4.6</b>   | <b>31.6</b>   | <b>22.4</b>   | <b>116.3</b>  | <b>213.9</b>   |
| FX adjustment                | -            | -             | -             | -             | -              |
| Net Inc/(Dec) in Cash        | 2.3          | 16.4          | (18.5)        | 29.9          | (13.2)         |

| <b>BALANCE SHEET (A\$m)</b>   | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b> |
|-------------------------------|--------------|--------------|--------------|--------------|--------------|
| Cash                          | 4.3          | 20.7         | 18.0         | 47.9         | 34.7         |
| Receivables                   | 0.4          | 0.6          | -            | -            | -            |
| Inventory                     | -            | -            | -            | -            | -            |
| PP & E                        | 37.3         | 54.5         | 92.5         | 166.5        | 418.5        |
| Other non-current assets      | -            | -            | -            | -            | -            |
| <b>Total Assets</b>           | <b>42.0</b>  | <b>75.9</b>  | <b>110.5</b> | <b>214.4</b> | <b>453.2</b> |
| Short term debt               | -            | -            | -            | 18.3         | 55.6         |
| Payables                      | 3.3          | 7.2          | -            | -            | -            |
| Long term debt                | -            | -            | -            | 73.0         | 222.2        |
| Other non-current liabilities | -            | -            | -            | (73.0)       | (222.2)      |
| <b>Total Liabilities</b>      | <b>3.3</b>   | <b>7.3</b>   | <b>-</b>     | <b>18.3</b>  | <b>55.6</b>  |
| <b>Total Equity</b>           | <b>38.7</b>  | <b>68.5</b>  | <b>88.0</b>  | <b>105.4</b> | <b>116.6</b> |
| Net debt (cash)               | (4.3)        | (20.7)       | (18.0)       | 43.4         | 243.1        |

**Speculative Buy**

| <b>DIVISIONS</b> | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b> |
|------------------|--------------|--------------|--------------|--------------|--------------|
|------------------|--------------|--------------|--------------|--------------|--------------|

| <b>KEY METRICS (%)</b> | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b> |
|------------------------|--------------|--------------|--------------|--------------|--------------|
| EBITDA growth          | -            | -            | -            | -            | -            |
| EBIT growth            | -            | -            | -            | -            | -            |

| <b>VALUATION RATIOS (x)</b> | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b> |
|-----------------------------|--------------|--------------|--------------|--------------|--------------|
| Reported P/E                | -            | -            | -            | -            | -            |
| Price To Free Cash Flow     | -            | -            | -            | -            | -            |
| EV / EBIT                   | -            | -            | -            | -            | -            |

| <b>LEVERAGE</b>           | <b>2017A</b> | <b>2018A</b> | <b>2019E</b> | <b>2020E</b> | <b>2021E</b> |
|---------------------------|--------------|--------------|--------------|--------------|--------------|
| ND / (ND + Equity) (%)    | (12.5)       | (43.3)       | (25.7)       | 29.2         | 67.6         |
| Net Debt / EBITDA (%)     | 248.8        | 646.0        | 558.5        | (1,446.7)    | (8,103.8)    |
| EBIT Interest Cover (x)   | 8.8          | 11.4         | 11.1         | -            | -            |
| EBITDA Interest Cover (x) | 8.8          | 11.4         | 11.1         | -            | -            |

| <b>SUBSTANTIAL HOLDERS</b> | <b>m</b> | <b>%</b> |
|----------------------------|----------|----------|
| Charles Lew                | 103.3    | 11.5%    |
| Mun Kee Chang              | 60.2     | 6.6%     |

| <b>VALUATION</b>                 |              |
|----------------------------------|--------------|
| Cost of Equity (%)               | 12.8         |
| Cost of debt (after tax) (%)     | 5.0          |
| <b>WACC (%)</b>                  | <b>9.5</b>   |
| Forecast cash flow (\$m)         | 298.1        |
| Terminal value (\$m)             | 1,439.5      |
| <b>Equity NPV (\$m)</b>          | <b>298.1</b> |
| <b>Equity NPV Per Share (\$)</b> | <b>0.30</b>  |

|  |       |
|--|-------|
| Target Price Method                          | NPV   |
| Target Price (\$)                            | 0.30  |
| Valuation disc. / (prem.) to share price (%) | 140.0 |

**Institutional Research**

|                     |                                |                 |                          |
|---------------------|--------------------------------|-----------------|--------------------------|
| Nicholas McGarrigle | Head of Institutional Research | +61 2 8216 6345 | nmcgarrigle@ords.com.au  |
| Dylan Kelly         | Senior Research Analyst        | +61 2 8216 6417 | dkelly@ords.com.au       |
| Jules Cooper        | Senior Research Analyst        | +61 3 9608 4117 | julescooper@ords.com.au  |
| John O'Shea         | Senior Research Analyst        | +61 3 9608 4146 | joshea@ords.com.au       |
| Phillip Chippindale | Senior Research Analyst        | +61 2 8216 6346 | pchippindale@ords.com.au |
| William MacDiarmid  | Research Analyst               | +61 2 8216 6514 | wmacdiarmid@ords.com.au  |
| Jason Korchinski    | Research Associate             | +61 2 8216 6348 | jkorchinski@ords.com.au  |
| Joshua Goodwill     | Research Associate             | +61 3 9608 4121 | jgoodwill@ords.com.au    |

**Institutional Sales (Australia)**

|                 |                                      |                 |                        |
|-----------------|--------------------------------------|-----------------|------------------------|
| Nick Burmester  | Head of Institutional Equities       | +61 2 8216 6363 | nburmester@ords.com.au |
| Chris McDermott | Institutional Equities Sales         | +61 2 8216 6335 | cmcdermott@ords.com.au |
| Frida Bohlenius | Institutional Equities Sales         | +61 2 8216 6365 | fbohlenius@ords.com.au |
| Jim Bromley     | Institutional Equities Sales         | +61 2 8216 6343 | jbromley@ords.com.au   |
| Matt White      | Institutional Equities Sales         | +61 3 9608 4133 | mwhite@ords.com.au     |
| Richard Wolff   | Institutional Equities Sales         | +61 2 8216 6429 | rwolff@ords.com.au     |
| Stephen Jolly   | Institutional Equities Sales         | +61 2 8216 6424 | sjolly@ords.com.au     |
| Zac Whitehead   | Institutional Equities Sales Support | +61 2 8216 6350 | zwhitehead@ords.com.au |
| Brendan Sweeney | Operator                             | +61 2 8216 6781 | bsweeney@ords.com.au   |

**Institutional Sales (Hong Kong)**

|              |                              |                                   |                    |
|--------------|------------------------------|-----------------------------------|--------------------|
| Timothy Last | Institutional Equities Sales | +852 2912 8988<br>+61 8 8203 2526 | tlast@ords.com.hk  |
| Chris Moore  | Institutional Equities Sales | +61 2 8216 6362                   | cmoore@ords.com.hk |

**Ord Minnett Offices**

**Adelaide**  
Level 5  
100 Pirie Street  
Adelaide SA 5000  
Tel: (08) 8203 2500  
Fax: (08) 8203 2525

**Buderim**  
Sunshine Coast  
1/99 Burnett Street  
Buderim QLD 4556  
Tel: (07) 5430 4444  
Fax: (07) 5430 4400

**Gold Coast**  
Level 7  
50 Appel Street Surfers  
Paradise QLD 4217  
Tel: (07) 5557 3333  
Fax: (07) 5557 3377

**Melbourne**  
Level 7  
161 Collins Street  
Melbourne VIC 3000  
Tel: (03) 9608 4111  
Fax: (03) 9608 4142

**Head Office**  
**Sydney**  
Level 8, NAB House  
255 George Street  
Sydney NSW 2000  
Tel: (02) 8216 6300  
Fax: (02) 8216 6311  
[www.ords.com.au](http://www.ords.com.au)

**Brisbane**  
Level 31  
10 Eagle St  
Brisbane QLD 4000  
Tel: (07) 3214 5555  
Fax: (07) 3214 5550

**Canberra**  
101 Northbourne Avenue  
Canberra ACT 2600  
Tel: (02) 6206 1700  
Fax: (02) 6206 1720

**Mackay**  
45 Gordon Street  
Mackay QLD 4740  
Tel: (07) 4969 4888  
Fax: (07) 4969 4800

**Newcastle**  
426 King Street  
Newcastle NSW 2300  
Tel: (02) 4910 2400  
Fax: (02) 4910 2424

**International**  
**Hong Kong**  
1801 Ruttonjee House  
11 Duddell Street  
Central, Hong Kong  
Tel: +852 2912 8980  
Fax: +852 2813 7212  
[www.ords.com.hk](http://www.ords.com.hk)

## Guide to Ord Minnett Recommendations

|                 |   |
|-----------------|---|
| SPECULATIVE BUY | We expect the stock's total return (nominal yield plus capital appreciation) to exceed 20% over 12 months. The investment may have a strong capital appreciation but also has high degree of risk and there is a significant risk of capital loss.  |
| BUY             | The stock's total return (nominal dividend yield plus capital appreciation) is expected to exceed 15% over the next 12 months.  |
| ACCUMULATE      | We expect a total return of between 5% and 15%. Investors should consider adding to holdings or taking a position in the stock on share price weakness.   |
| HOLD            | We expect the stock to return between 0% and 5%, and believe the stock is fairly priced.  |
| LIGHTEN         | We expect the stock's return to be between 0% and negative 15%. Investors should consider decreasing their holdings.  |
| SELL            | We expect the total return to lose 15% or more.   |
| RISK ASSESSMENT | Classified as Lower, Medium or Higher, the risk assessment denotes the relative assessment of an individual stock's risk based on an appraisal of its disclosed financial information, historic volatility of its share price, nature of its operations and other relevant quantitative and qualitative criteria. Risk is assessed by comparison with other Australian stocks, not across other asset classes such as Cash or Fixed Interest. |

**Disclosure:** Ord Minnett is the trading brand of Ord Minnett Limited ABN 86 002 733 048, holder of AFS Licence Number 237121, and an ASX Market Participant. Ord Minnett Limited and/or its associated entities, directors and/or its employees may have a material interest in, and may earn brokerage from, any securities referred to in this document, or may provide services to the company referred to in this report. This document is not available for distribution outside Australia, New Zealand and Hong Kong and may not be passed on to any third party or person without the prior written consent of Ord Minnett Limited. Further, Ord Minnett and/or its affiliated companies may have acted as manager or co-manager of a public offering of any such securities in the past three years. Ord Minnett and/or its affiliated companies may provide or may have provided corporate finance to the companies referred to in the report.

Ord Minnett and associated persons (including persons from whom information in this report is sourced) may do business or seek to do business with companies covered in its research reports. As a result, investors should be aware that the firm or other such persons may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

This document is current as at the date of the issue but may be superseded by future publications. You can confirm the currency of this document by checking Ord Minnett's internet site.

**Disclaimer:** Ord Minnett Limited believes that the information contained in this document has been obtained from sources that are accurate, but has not checked or verified this information. Except to the extent that liability cannot be excluded, Ord Minnett Limited and its associated entities accept no liability for any loss or damage caused by any error in, or omission from, this document. This document is intended to provide general financial product advice only, and has been prepared without taking account of your objectives, financial situation or needs, and therefore before acting on advice contained in this document, you should consider its appropriateness having regard to your objectives, financial situation and needs. If any advice in this document relates to the acquisition or possible acquisition of a particular financial product, you should obtain a copy of and consider the Product Disclosure Statement prospectus or other disclosure material for that product before making any decision. Investments can go up and down. Past performance is not necessarily indicative of future performance.

**Analyst Certification:** The analyst certifies that: (1) all of the views expressed in this research accurately reflect their personal views about any and all of the subject securities or issuers; (2) no part of their compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed herein.

**Ord Minnett Hong Kong:** This document is issued in Hong Kong by Ord Minnett Hong Kong Limited, CR Number 1792608, which is licensed by the Securities and Futures Commission (CE number BA1183) for Dealing in Securities (Type 1 Regulated Activity) and Advising on Securities (Type 4 Regulated Activity) in Hong Kong. Ord Minnett Hong Kong Limited believes that the information contained in this document has been obtained from sources that are accurate, but has not checked or verified this information. Except to the extent that liability cannot be excluded, Ord Minnett Hong Kong Limited and its associated entities accept no liability for any loss or damage caused by any error in, or omission from, this document. This document is directed at Professional Investors (as defined under the Securities and Futures Ordinance of Hong Kong) and is not intended for, and should not be used by, persons who are not Professional Investors. This document is provided for information purposes only and does not constitute an offer to sell (or solicitation of an offer to purchase) the securities mentioned or to participate in any particular trading strategy. The investments described have not been, and will not be, authorized by the Hong Kong Securities and Futures Commission.

For summary information about the qualifications and experience of the Ord Minnett Limited research service, please visit <http://www.ords.com.au/our-team-2/>

For information regarding Ord Minnett Research's coverage criteria, methodology and spread of ratings, please visit <http://www.ords.com.au/methodology/>

For information regarding any potential conflicts of interest and analyst holdings, please visit <http://www.ords.com.au/methodology/>

The analyst has certified that they were not in receipt of inside information when preparing this report; whether or not it contains company recommendations. This report has been authorised for distribution by Nicholas McGarrigle, Head of Institutional Research at Ord Minnett Limited.