

Hazer Group Ltd (ASX:HZR)

13 March 2018

Waiting for news in the pipeline

HZR recently (28 Feb) announced the results from [preliminary process modelling](#) to simulate the potential application of the group's proprietary Hazer Process, and compared the operational costs in terms of tonne of hydrogen produced (A\$/t H₂) versus competing processes - Steam Methane Reforming (SMR) and Electrolysis.

Some 65 million tonnes of hydrogen are produced globally each year; the gas is a critical feedstock for the production of fertilisers (ammonia), oil refining and the production of low-sulphur transportation fuels, and chemicals. There has also been substantial progress towards the use of hydrogen as an energy carrier via hydrogen fuel cells. The vast bulk (+95%) of H₂ production currently comes from reforming fossil fuels, particularly natural gas. The process is mature, relatively simple (reacting steam at high temperature with the fossil fuel), and requires relatively low capex. The process however, is environmentally damaging, producing at least 10-12t of CO₂ for every tonne of hydrogen produced. HZR's base-case analysis indicates that the Hazer Process can reduce CO₂ emissions by 70% relative to the SMR process, and lower net H₂ production costs by 75% (with higher gas costs (due to higher required volumes of gas input) more than offset by graphite co-product revenue). We believe the results of the **Hazer Process vs SMR** cost analysis could be of particular interest to producers of hydrogen in the fertiliser, oil refining, and chemical industries.

The demand for low CO₂ emission hydrogen production has seen increased interest in electrolysis-based hydrogen production using renewable energy; electrolysis is a process that converts water to hydrogen and oxygen. While electrolysis is potentially emission free, the process requires a significant amount of energy; HZR estimates electrolysis requires 60MWh/tonne H₂, while the Hazer Process requires a much lower 10MWh of electricity + 270GJ natural gas. HZR's base-case analysis indicates that the Hazer Process can produce up to 6 times the hydrogen output (per renewable energy unit) - relative to electrolysis - and lower unit hydrogen costs by ~90%. We believe the results of the **Hazer Process vs Electrolysis** Process cost analysis could be of particular interest to parties looking to produce hydrogen for clean energy applications / hydrogen fuel cell production.

Risk-adjusted SOTP target price: A\$1.00 (unchanged)

In October 2017, HZR signed a (non-binding) Heads of Agreement with Primetals Technologies and, in December 2017, a binding Co-operation Agreement with Mineral Resources (ASX:MIN). Primetals is looking for low CO₂ emission methods of producing hydrogen for carbon capture via methanol production, and reducing (primarily) steel plant operating costs; MIN is looking for a low-cost method of producing ultra-high purity synthetic graphite. This, illustrates, we suggest, the adaptability of the Hazer Process. Year-to-date however, news flow has been somewhat scarce, resulting in HZR's lacklustre share price performance over the past three months. However, we believe that HZR and Primetals are currently in discussion on a legally binding Co-operation Agreement; a positive development here could act as a share price catalyst. While it is disappointing that the targeted commissioning date for MIN's 1tpa ultra-high purity graphite plant has been pushed out from mid-2018 to end-2018, we suggest that MIN has been somewhat pre-occupied over the past few months with its (ultimately unsuccessful) A\$526m bid for oil and gas producer AWE Resources (ASX:AWE). At current share price levels of A\$0.42, we calculate that HZR offers significant upside potential. **We maintain a Speculative Buy (Higher Risk) recommendation**

Share Price: A\$0.42

Target Price: A\$1.00

Recommendation
Speculative Buy

Risk Assessment
Higher

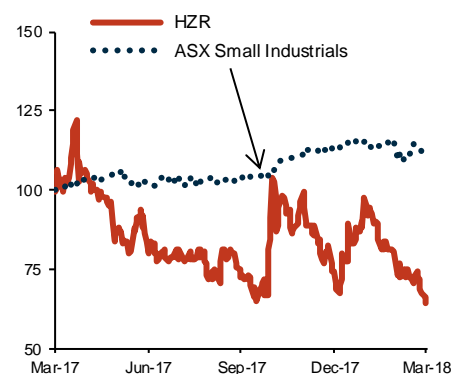
Chemicals

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Hazer Group Ltd

ASX Code	HZR
52 week range (A\$cps)	A\$0.38-A\$0.77
Fully diluted Market Cap (A\$m)	56
Fully diluted no. of shares (m)	134
Av Daily Turnover (shares)	229k
ASX All Ordinaries	6.065
FY18E BV per share (A\$c)	A\$4.4c
FY18E EPS (A\$c)	-A\$3.6c
FY18E Net (Debt)/Cash (A\$m)	4.9

Relative price performance



Source: Iress

Financial Statements

HazerGroup Limited

Year ending June

Profit & Loss Statement (A\$m)	FY17A	FY18E	FY19E	FY20E	FY21E
Revenue	0.3	0.0	0.0	0.0	0.0
Gas feedstocks costs	0.0	0.0	0.0	0.0	0.0
Iron ore catalyst/conversion costs	0.0	0.0	0.0	0.0	0.0
Corporate/Other costs	(4.2)	(5.0)	(5.3)	(5.5)	(5.8)
EBITDA	(3.9)	(5.0)	(5.3)	(5.5)	(5.8)
Depreciation & Amortisation	0.0	0.0	0.0	0.0	0.0
Operating profit	(3.9)	(5.0)	(5.3)	(5.5)	(5.8)
Royalty income	0.0	0.0	0.0	1.3	7.7
EBIT	(3.9)	(5.0)	(5.3)	(4.3)	1.9
Interest income	0.1	0.2	0.1	0.1	0.1
Interest expense	(0.0)	0.0	0.0	0.0	0.0
Tax expense	0.0	0.0	0.0	0.0	0.0
Reported NPAT	(3.9)	(4.8)	(5.1)	(4.1)	2.0
Normalised NPAT	(3.9)	(4.8)	(5.1)	(4.1)	2.0
EBITDA Margin (%)	na	na	na	na	na
Operating profit margin (%)	na	na	na	na	na
EPS Reported (A\$c)	(2.9)	(3.6)	(3.8)	(3.1)	1.5
EPS Normalised (A\$c)	(2.9)	(3.6)	(3.8)	(3.1)	1.5
EPS growth (%)	na	na	na	na	na
DPS - Declared (A\$c)	0.0	0.0	0.0	0.0	0.0
YE no. shares (m)	77	84	105	112	122
YE no. of fully-diluted shares (m)	134	134	134	134	134

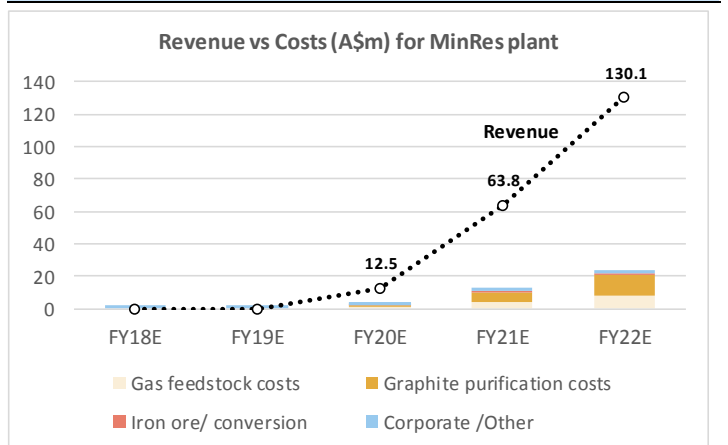
Cash Flow Statement (A\$m)	FY17A	FY18E	FY19E	FY20E	FY21E
EBITDA	(3.9)	(5.0)	(5.3)	(5.5)	(5.8)
Investment in working capital	0.1	0.0	0.0	0.0	0.0
Tax expense	0.0	0.0	0.0	0.0	0.0
Operating Cash Flow	(3.8)	(5.0)	(5.3)	(5.5)	(5.8)
Capex	(1.1)	(0.3)	(0.3)	(0.3)	(0.3)
Other investments	0.0	0.0	0.0	0.0	0.0
Investing Cash Flow	(1.1)	(0.3)	(0.3)	(0.3)	(0.3)
Net interest received / (paid)	0.1	0.2	0.1	0.1	0.1
Debt draw down / (repayment)	0.0	0.0	0.0	0.0	0.0
Dividends paid	0.0	0.0	0.0	0.0	0.0
Equity raised / (repaid)	8.3	1.8	6.1	4.3	4.0
Financing Cash Flow	8.4	2.0	6.2	4.4	4.1
Royalty income	0.0	0.0	0.0	1.3	7.7
Inc/(Dec) in Cash	3.5	(3.3)	0.7	(0.1)	5.7

Balance Sheet (A\$m)	FY17A	FY18E	FY19E	FY20E	FY21E
Cash & Equivalents	8.1	4.9	5.5	5.4	11.1
Receivables	0.0	0.0	0.0	0.0	0.0
Inventories	0.0	0.0	0.0	0.0	0.0
Other Current Assets	0.1	0.1	0.1	0.1	0.1
PPE	1.1	1.3	1.6	1.9	2.2
Deferred tax asset	0.0	0.0	0.0	0.0	0.0
Other Non Current Assets	0.0	0.0	0.0	0.0	0.0
Total Assets	9.3	6.3	7.2	7.3	13.4
Payables and other current Liabilities	0.4	0.4	0.4	0.4	0.4
Short Term Debt	0.0	0.0	0.0	0.0	0.0
Long Term Debt	0.0	0.0	0.0	0.0	0.0
Other Non Current Liabilities	0.0	0.0	0.0	0.0	0.0
Total Liabilities	0.4	0.4	0.4	0.4	0.4
Total Equity	8.9	5.8	6.8	6.9	12.9
Net Cash/(Debt)	8.1	4.9	5.5	5.4	11.1

Substantial Shareholders	%	Date
Mineral Resources Limited	13.5	
OOFY Prosser Pty Ltd	4.8	Aug-17
Point at Infinity Pty Ltd	4.6	

Source: Company, IRESS, State One Stockbroking forecasts

Royalty income assumptions	FY17A	FY18E	FY19E	FY20E	FY21E
Graphite production (94%) (tonnes)	na	-	-	1,250	6,250
Graphite sales (99.9%) (tonnes)	na	-	-	1,000	5,000
Graphite price (US\$/t)	na	10,000	10,000	10,000	10,200
Graphite revenue (US\$m)	na	-	-	10.0	51.0
Hydrogen sales (tonnes)	na	-	-	-	-
Hydrogen price (US\$/t)	na	2,500	2,500	2,500	2,550
Hydrogen revenue (US\$m)	na	-	-	-	-
Revenue (total) (A\$m)	na	-	-	10.0	51.0
AUD:USD exchange rate	na	0.8	0.8	0.8	0.8
Revenue (total) (A\$m)	na	-	-	12.5	63.8
Natural gas price (A\$/GJ)	na	8	8	8	8
Gas feedstock required (tonnes)	na	-	-	1,812	9,058
Gas input costs (A\$m)	na	-	-	(0.8)	(3.9)
Other costs (A\$m)	na	(2.0)	(2.0)	(3.4)	(8.8)
Total costs (A\$m)	na	(2.0)	(2.0)	(4.1)	(12.7)
EBITDA (A\$m)	na	(2.0)	(2.0)	8.4	51.1
Royalty rate to HZR (%)	na	15%	15%	15%	15%
Royalty to HZR (A\$m)	na	-	-	1.3	7.7



Leverage	FY17A	FY18E	FY19E	FY20E	FY21E
Net Debt/Equity	cash	cash	cash	cash	cash
Gearing (ND/ND+E)	cash	cash	cash	cash	cash
Interest Cover (x)	na	na	na	na	na

Valuation Ratios (x)	FY17A	FY18E	FY19E	FY20E	FY21E
Normalised P/E	na	na	na	na	27.6
Price/OP Cash Flow	-14	-11	-10.6	-10.1	-9.6
Book value per share (A\$c)	6.6	4.4	5.1	5.2	9.6
EV/EBITDA	-7	-6	-6	-5.7	-4.4
ROE (%)	-44%	-82%	-76%	-60%	16%

Risk-Weighted Target Price	(A\$m)	(A\$ps)
NPV of technology sharing agreement (TSA) with MinRes	57	0.42
Risk weighting attached to MinRes TSA	70%	
Risk-weighted MinRes TSA NPV	40	0.30
NPV of 500ktpa methanol plant contract with Primetals Tech	89	0.66
.....potential number of steel plant contracts (x)	10x	
Royalty value attached to Primetals Tech contracts (unrisked)	888	6.63
Risk weighting attached to Primetals Tech contracts	10%	
Risk-weighted valuation attached to contracts with Primetals Tech	89	0.66
Net cash / (debt)	5	0.04
Risk weighted valuation	133	1.00
Current share price		0.42
% upside / (downside)		140%

Note: Per share target price based on 134m fully-diluted shares in issue

Valuation

Sum-of-the parts (SOTP) valuation

Our estimated SOTP equity value for HZR is A\$133m (A\$1.00 per fully diluted share). It is comprised of:

- A risk-weighted NPV₁₀ of A\$40m (A\$0.30 per fully diluted share) from royalties stemming from potential technology licensing arrangements (TLA) with Mineral Resources (MinRes)
- A risk-weighted NPV₁₀ of A\$89m (A\$0.66 per fully diluted share) from royalties stemming from potential technology licensing arrangements (TLA) with Primetals Technologies,
- FY18E net cash of A\$5m (A\$0.04 per fully diluted share),

Target price:
A\$1.00ps

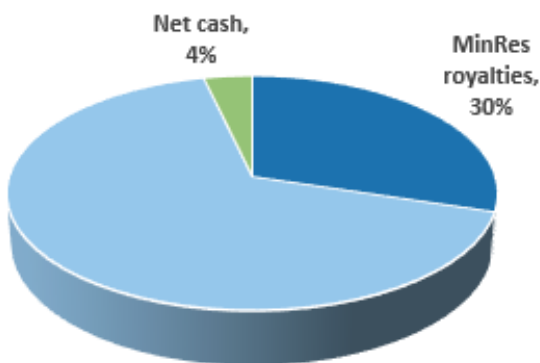
Figure 1: SOTP valuation

	(A\$m)	(A\$ps)
NPV of technology licencing arrangements (TLA) with MIN (10ktpa G)	57	0.42
<i>Risk weighting</i>	<i>70%</i>	
Risk-weighted NPV of TLA with Mineral Resources (ASX:MIN)	40	0.30
NPV of TLA with Primetals Technologies (for 1X 500ktpa methanol plant)	89	0.66
.....potential number of steel plant / methanol plant contracts		10x
Total NPV of TLA with Primetals Technologies (unrisked)	888	6.63
<i>Risk weighting</i>	<i>10%</i>	
Risk-weighted NPV of TLA with Primetals Technologies	89	0.66
Net cash / (debt)	5	0.04
Risk-weighted group valuation	133	1.00
<i>Current share price</i>		<i>0.42</i>
<i>% upside / (downside)</i>		<i>140%</i>

Source: State One Stockbroking forecasts

Note: Per share valuations based on 134m fully diluted shares.

Group valuation composition



Primetals Technologies royalties, 67%

Estimated royalties from technology licencing arrangements with **Primetals Technologies** account for 67% of our group valuation.

Estimated royalties from technology licencing arrangements with **Minerals Resources (ASX:MIN)** account for 30% of our group valuation.

Net cash (FY18E) of A\$5m accounts for the balance (4%) of our group valuation.

Recommendation and risks

At current share price levels, we calculate that HZR offers some 88% upside potential to our A\$1.00ps valuation. **We initiate coverage on HZR with a Speculative Buy (Higher risk) recommendation.**

Risks to our earnings profile and target price include, but are not limited to:

- **Timing – MinRes:** Some 30% of our group valuation is based on the estimated NPV of royalties associated with technology licencing arrangements with Mineral Resources (ASX: MIN). MinRes is a significant shareholder in HZR (at 13.5%), and in December 2017 signed a binding Co-operation Agreement with HZR. However, the precise nature of the licencing arrangements – including royalty rates to HZR - have not been disclosed.
- **Timing – Primetals Technologies:** Some 67% of our group valuation is based on the estimated NPV of royalties associated with technology licencing arrangements with Primetals Technologies. At this juncture, the arrangement is (only) in the form of a non-binding Memorandum of Understanding. The timeframe associated with progressing this beyond the MOU stage is not known. The precise nature of licencing arrangements – including royalty rates to HZR - will have to be firmed up to a legally-binding HoA.
- **Operational/Technical:** The Hazer Process – converting natural gas to hydrogen and graphite using an iron ore catalyst - has been successfully demonstrated in laboratory-scale apparatus and at a pre-pilot plant level. Under the MoA with MinRes, initial commissioning of a 1tpa ultra-high purity graphite pilot plant is scheduled for end-2018. Success here will largely determine the timeline associated with scaling up production to 10,000tpa.
- **Natural gas costs:** The only input cost of significance in the Hazer Process is the cost of natural gas feedstock. We calculate that in the proposed modified process for MinRes (which will produce graphite only, not hydrogen and graphite), some 18,000t (960,000GJ) of natural gas is required to produce 10,000t of ultra-high purity graphite. At our base-case natural gas price of A\$8/GJ (real), we calculate natural gas input costs will come to ~A\$8m. Natural gas prices significantly higher (or lower) than forecast will reduce/increase margins.
- **Graphite price:** Our NPV₁₀ for the MinRes royalty stream to HZR is particularly sensitive to realised prices for ultra-high purity graphite (99.9% C). Our base-case price assumption is US\$10,000/t (real); this compares to current synthetic graphite prices of ~US\$12,000-20,000/t and US\$7,000-10,000/t for spherical coated natural graphite prices. In a 50% lower graphite price environment (i.e., US\$5,000/t), our un-risked NPV for the MinRes royalty stream falls by 60% to A\$22m from A\$57m and our SOTP valuation for HZR falls by 19% to A\$0.81ps from A\$1.00ps.
- **Currency:** A stronger/weaker AUD:USD exchange rate relative to our base-case of US\$0.80 will reduce earnings/increase earnings respectively.
- **Other:** Increased competition from new and existing methane cracking technologies. Regulatory risks. Dependence upon key personnel.

Recommendation:

Speculative Buy
(Higher risk)

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