

ARAFURA RESOURCES LIMITED (ARU)

Increases mine life, lowers operating costs

Arafura Resources Ltd (ARU) has released an updated mining inventory. Formal reserves have also increased, but in this note we are concentrating on the inventory, unless otherwise stated. The new mining inventory increases mine life to 39 years and is based on lower operating costs. Costs have been lowered by revised mine scheduling because metallurgical testing has shown that further ore types (5A1 and 5A2) can be processed (previously only some 5A1 and no 5A2). The revised study also assumes an increase in ore milling and beneficiation capacity to 1.2Mtpa, from 1.0Mtpa, from year 14 of production with a further increase to 1.5Mtpa from year 23 and concentrate processing has increased from 0.30Mtpa to 0.33Mtpa. The overall impact of these changes was an increase in the pre-production capital cost of approximately A\$20m.

Large volumes of NdPr oxide

Nolans will produce NdPr oxide. Volumes are large at ~4ktpa of NdPr oxide (around 8-10% of the current market). Eventual growth in the NdPr market is expected to be strong based mainly on the outlook for electric vehicles. In addition, there is strategic value of rare earths, and ARU's location in Australia should be a premium for reliable supply. Note, ARU's current NdPr offtakes are all with large Chinese magnet manufacturers. The project is also expected to produce phosphoric acid and low value cerium product which, combined, are ~20% of revenue.

Speculative Buy recommendation

Using current NdPr prices, we estimate that Nolans is still uneconomic. We believe prices need to increase to incentivise the supply to meet medium term (2025-2030) demand forecasts. A key catalyst (outside of general equity market improvement) for ARU will be when and if the Company can demonstrate binding offtakes for the NdPr. This is a risk given it requires multiple counterparties. Market and funding risk in the current environment is extreme, and hence caution is warranted in the short term. We have a Speculative Buy recommendation.

Fig. 1: Updated mining study

UPDATED MINING STUDY

In order to update the Ore Reserves estimate for the Nolans Project an updated mining study was undertaken by Mining Plus. The key aspects of this updated mining study included:

- Determination of pit optimisation parameters, including the updated geometallurgical relationships (refer to ASX announcement 18 December 2019), carrying out updated pit optimisations and selection of optimal pit shells.
- Re-design of the final pit and intermediate phases as required, and re-calculation of mining physicals.
- Updating of mining and production schedules for the Ore Reserves and mining inventory.
- Revision of the mining cost model to match the campaign mining approach in the early years of mining and to match the extended life of mine.
- Estimation of Ore Reserves and reporting in accordance with the JORC Code (2012 Edition).

Source: ARU

Share Price	\$0.057
Valuation	\$0.16
Price Target (12 month)	\$0.10

Brief Business Description:

ARU is developing the very large Nolans NdPr (rare earth) project in Central Australia.

Hartleys Brief Investment Conclusion

The capital hurdle is a big challenge. However, given the advanced stage, low sovereign risk, strategic importance and high growth outlook, capital maybe available.

Chairman & MD

Mark Southey (Non-Exec Chairman)
Gavin Lockyer (Managing Director)

Top Shareholders

ECE (East China Expl & Dev. Bureau)	10.4%
Talaxis (Noble Group)	5.2%

Company Address

Level 3, 263 Adelaide Tce
Perth, WA, 6000

Issued Capital	1054.0m
- fully diluted	1084.7m

Market Cap	A\$60m
- fully diluted	A\$62m

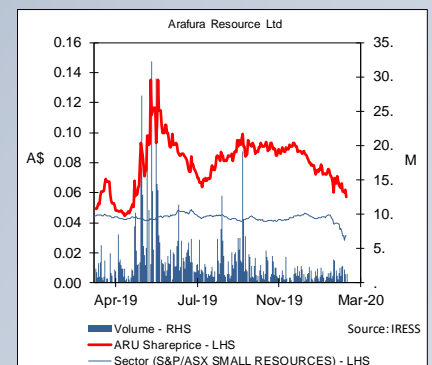
Cash (31 Dec 2019)	A\$22.9m
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Debt (31 Dec 2019)	A\$0.0m
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EV -current	A\$37.2m
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Prelim. (A\$m)	FY20e	FY21e	FY22e
Prod (NdPr)	0	0	0
Op Cash Flw	-6.9	-12.0	-70.5
Norm NPAT	-5.1	-13.0	-63.8
CF/Share (cps)	-0.9	-0.4	-1.2
EPS (cps)	-0.9	-0.4	-1.2
P/E	-6.1	-12.9	-4.8

	Mt	TREO%	P2O5%
Resources	56.0	2.8	11.6
Reserves	29.5	2.9	13.0



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Arafura Resource Ltd ARU		Share Price \$0.057						18 March 2020 Speculative Buy	
Key Market Information									
Share Price		\$0.057						Company Information	
Market Capitalisation - ordinary		A\$60m						Level 3, 263 Adelaide Tce	
Net Cash (Debt)		\$23m						Perth, WA, 6000	
Market Capitalisation - fully diluted		A\$62m						+61 8 6210 7666	
EV		A\$38.9m						https://www.arulld.com/	
Issued Capital		1054.0m							
Options		30.7							
Issued Capital (fully diluted inc. all options)		1084.7m							
Issued Capital (fully diluted inc. all options and new capital)		7908.8m							
Valuation		\$0.16							
12month price target		\$0.10							
P&L	Unit	30 Jun 21	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25			
Net Revenue	A\$m	0.0	0.0	83.2	257.4	409.2			
- TREO		0.0	0.0	69.9	222.2	360.4			
- NdPr				64.9	206.3	334.8			
- Other				5.0	15.8	25.7			
- P2O5		0.0	0.0	13.3	35.2	48.7			
Total Costs	A\$m	-7.1	-7.4	-59.8	-128.9	-167.7			
EBITDA		-7.1	-7.4	23.4	128.5	241.5			
- margin	%	-	-	28%	50%	59%			
Depreciation/Amort		-6.7	-20.7	-41.0	-52.0	-54.7			
EBIT	A\$m	-13.8	-28.1	-17.6	76.5	186.8			
Net Interest		-4.8	-63.0	-69.3	-88.1	-88.1			
Norm. Pre-Tax Profit	A\$m	-18.6	-91.1	-86.9	-11.6	98.7			
Reported Tax Expense		0.0	0.0	0.0	0.0	0.0			
effective rate	%	0.0%	0.0%	0.0%	0.0%	0.0%			
Normalised NPAT	A\$m	-13.0	-63.8	-60.8	-8.1	69.1			
Abnormal Items		-5.6	-27.3	-26.1	-3.5	29.6			
Reported Profit		-18.6	-91.1	-86.9	-11.6	98.7			
Minority		0.0	0.0	0.0	0.0	0.0			
Profit Attrib	A\$m	-18.6	-91.1	-86.9	-11.6	98.7			
Balance Sheet	Unit	30 Jun 21	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25			
Cash	A\$m	1397.1	772.0	248.4	152.8	212.2			
Other Current Assets		3.9	4.1	49.9	123.5	176.0			
Total Current Assets	A\$m	1401.0	776.1	298.3	276.3	388.1			
Property, Plant & Equip.		149.4	682.7	1081.6	1102.8	1095.4			
Exploration		101.6	102.2	102.8	103.4	104.0			
Investments/other		0.3	0.3	0.3	0.3	0.3			
Tot Non-Curr. Assets	A\$m	251.3	785.2	1184.7	1206.5	1199.7			
Total Assets	A\$m	1652.4	1561.3	1483.1	1482.8	1587.9			
Short Term Borrowings		-	-	-	-	-			
Other		1.9	1.9	10.6	21.9	28.3			
Total Curr. Liabilities	A\$m	1.9	1.9	10.6	21.9	28.3			
Long Term Borrowings		628.7	628.7	628.7	628.7	628.7			
Other		0.0	0.0	0.0	0.0	0.0			
Total Non-Curr. Liabil.	A\$m	628.7	628.7	628.7	628.7	628.7			
Total Liabilities	A\$m	630.6	630.7	639.3	650.6	657.0			
Net Assets	A\$m	1021.8	930.6	843.8	832.2	930.8			
Net Debt (cash)		-768.4	-143.3	380.3	475.9	416.5			
Cashflow	Unit	30 Jun 21	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25			
EBITDA		-7.1	-7.4	23.4	128.5	241.5			
Working Capital		-0.1	-0.1	-37.2	-62.3	-46.1			
Operating Cashflow		-7.2	-7.6	-13.8	66.2	195.4			
Income Tax Paid		0.0	0.0	0.0	0.0	0.0			
Interest & Other		-4.8	-63.0	-69.3	-88.1	-88.1			
Operating Activities	A\$m	-12.0	-70.5	-83.0	-21.9	107.3			
Property, Plant & Equip.		-159.7	-554.0	-439.9	-73.1	-47.3			
Exploration and Devel.		-0.6	-0.6	-0.6	-0.6	-0.6			
Other		0.0	0.0	0.0	0.0	0.0			
Investment Activities	A\$m	-160.3	-554.6	-440.5	-73.7	-47.9			
Borrowings		628.7	0.0	0.0	0.0	0.0			
Equity or "bc capital"		943.1	0.0	0.0	0.0	0.0			
Dividends Paid		0.0	0.0	0.0	0.0	0.0			
Financing Activities	A\$m	1571.8	0.0	0.0	0.0	0.0			
Net Cashflow	A\$m	1399.5	-625.1	-523.6	-95.6	59.4			
Shares	Unit	30 Jun 21	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25			
Ordinary Shares - End	m	7605.5	7605.5	7605.6	7605.6	7605.6			
Ordinary Shares - Weighted	m	4193.4	7605.5	7605.5	7605.6	7605.6			
Diluted Shares - Weighted	m	4193.5	7605.5	7605.5	7605.6	7605.6			
Ratio Analysis	Unit	30 Jun 21	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25			
Cashflow Per Share	A\$ cps	-0.1	-0.8	-0.9	-1.2	-1.2			
Cashflow Multiple	x	-49.7	-6.9	-6.3	-4.9	-4.9			
Earnings Per Share	A\$ cps	-0.4	-1.2	-1.1	-0.2	1.3			
Price to Earnings Ratio	x	-12.9	-4.8	-5.0	-37.3	4.4			
Dividends Per Share	AUD	-	-	-	-	-			
Dividend Yield	%	0.0%	0.0%	0.0%	0.0%	0.0%			
Net Debt / Net Debt + Equity	X	-303%	-18%	31%	36%	31%			
Interest Cover	X	na	na	na	0.9	2.1			
Return on Equity	%	na	na	na	na	7%			
Directors									
Mark Southey (Non-Exec Chairman)									
Gavin Lockyer (Managing Director)									
Chris Tonkin (Non-Exec Director)									
Quansheng Zhang (Non-Exec Director, ECE nominee)									
Top Shareholders									
ECE (East China Expl & Dev. Bureau)									
Talaxis (Noble Group)									
Reserves & Resources									
Resources	Mt	TREO (%)	P2O5 (%)	Proportion of TREO in-situ					
M&I	35.0	2.8	11.6	Pr6O11	Nd2O3	CeO2	La2O3		
Inferred	21.0	2.3	10.0	n/a	n/a	n/a	n/a		
Total	56.0	2.6	11.0	5.9	20.5	48.7	19.3		
Reserves	Mt	TREO (%)	P2O5 (%)						
Nolans	29.5	2.9	13.0	n/a	n/a	n/a	n/a		
Production Summary									
Production Summary	Unit	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25	30 Jun 26	30 Jun 27		
Mill Throughput	Mt	-	0.24	0.56	0.74	0.88	0.88		
TREO	Grade	-	3.2%	3.3%	3.3%	3.0%	2.9%		
Combined Recovery & Payability	%	-	29.4%	39.1%	48.5%	51.5%	53.3%		
TREO Production	Tonnes	-	2.3	7.3	11.8	13.8	13.9		
NdPr Production	Tonnes	-	0.7	2.2	3.5	4.1	4.2		
P2O5	Grade	-	12.6%	13.2%	13.2%	12.6%	13.0%		
Combined Recovery & Payability	%	-	56%	61%	64%	63%	65%		
Production	Tonnes	-	17.0	44.9	62.2	70.2	74.1		
Modelled mine Life	yr	-	38.75	37.75	36.75	35.75	34.75		
Modelled mining inventory	Mt	-	33.8	33.3	32.6	31.8	30.9		
Costs	Unit	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25	30 Jun 26	30 Jun 27		
Cost per milled tonne	\$/t	-	247.2	229.6	226.6	225.3	225.7		
EBITDA / tonne milled ore	\$/t	-	96.7	228.8	326.3	316.3	320.4		
Total cash costs (no credits)	\$/kg NdPr	-	87.5	59.1	47.4	47.9	47.9		
	\$/kg NdPr	-	64.3	43.7	35.1	35.4	35.4		
Total cash costs (with credits)	\$/kg NdPr	-	60.7	35.7	26.4	27.3	26.7		
	\$/kg NdPr	-	44.6	26.4	19.5	20.2	19.7		
Price Assumptions									
Price Assumptions	Unit	30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25	30 Jun 26	30 Jun 27		
AUD/USD	A\$/US\$	0.71	0.74	0.74	0.74	0.74	0.74		
TREO	US\$/kg	22.6	22.6	22.6	22.6	22.6	22.6		
NdPr	US\$/kg	70.0	70.0	70.0	70.0	70.0	70.0		
P2O5	US\$/tonne	580	580	580	580	580	580		
Hedging		30 Jun 22	30 Jun 23	30 Jun 24	30 Jun 25	30 Jun 26	30 Jun 27		
Hedges maturing?		No	No	No	No	No	No		
Sensitivity Analysis									
		Valuation				FY24 EBITDA			
Base Case		0.160				128.5			
Spot Prices		0.00 (-100.0%)				97.7 (-24.0%)			
Spot AUD/USD 0.60, NdPr \$39/kg, P2O5 \$580/t									
AUD/USD +/-10%		0.00 / 0.43 (-100.0% / 170.6%)				105.1 / 157.1 (-18.2% / 22.3%)			
P2O5 +/-10%		0.16 / 0.13 (19.6% / -21.0%)				128.47 / 124.95 (2.7% / -2.7%)			
Ce Oxide +/-10%		0.16 / 0.15 (9.0% / -9.1%)				128.47 / 126.89 (1.2% / -1.2%)			
NdPr +/-10%		0.19 / 0.00 (127.4% / -100.0%)				131.99 / 107.84 (16.1% / -16.1%)			
Production +/-10%		0.41 / 0.00 (154.1% / -100.0%)				154.2 / 102.7 (20.0% / -20.0%)			
Operating Costs +/-10%		0.04 / 0.27 (-72.5% / 68.9%)				116.4 / 140.5 (-9.4% / 9.4%)			
Unpaid Capital									
Year Expires	No. (m)	\$m	Avg price		% ord				
30-Jun-20	0.0	0.0	0.00		0%				
30-Jun-21	0.0	0.0	0.00		0%				
30-Jun-22	1.6	0.2	0.15		0%				
30-Jun-23	29.1	3.3	0.11		3%				
30-Jun-24	0.0	0.0	0.00		0%				
TOTAL	30.7	3.5	0.00		3%				
Share Price Valuation (NAV)									
100% Nolans (pre-tax NAV at disc. rate of 12%)									
Other Asset/Exploration									
Hedging									
Corporate Overheads									
Net Cash (Debt)									
Tax (NPV future liability)									
Expected future franking credits									
Options & Other Equity									
Total									
1268.4									
0.16									
Analyst: Trent Barnett									
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bc capital could be equity or debt. Our valuation is risk-adjusted for how this may be obtained.									
Sources: IRESS, Company Information, Hartleys Research									
Last Updated: 18/03/2020									

Fig. 2: Key assumptions and risks for valuation

Assumption	Risk of not realising assumption	Downside risk to valuation if assumption is incorrect	Comment
Obtaining substantial capital	High	High	Our valuation assumes ARU can obtain the substantial capital for development
Rising NdPr prices	Moderate to High	High	Appears reasonable, although not conservative
Binding offtakes	Moderate	High	Company requires binding offtakes to secure the financing
Mining licence	Low	High	The project still requires mining license granting
<i>Conclusion</i>	<i>We believe our assumptions are reasonable, but high risk. The most important assumption is that NdPr prices will increase</i>		

Source: Hartleys

PRICE TARGET

Our new price target is 10cps (from 15cps previously).

Price Target Methodology	Weighting	Spot	12 mth out
NPV12 base case	20%	\$0.16	\$0.16
NPV12 base case at spot commodity and fx prices	25%	\$0.00	\$0.00
NPV8 base case	6%	\$0.72	\$0.74
NPV 12 NdPr price US\$90/kg	1%	\$1.50	\$1.60
3x EV/EBITDA five years ahead	5%	\$0.00	\$0.04
Net cash backing	43%	\$0.02	\$0.02
Risk weighted composite		\$0.10	
12 Months Price Target		\$0.10	
Shareprice - Last		\$0.057	
12 mth total return (% to 12mth target + dividend)		82%	

Source: Hartleys Research

RECOMMENDATION & RISKS

INVESTMENT THESIS & RECOMMENDATION

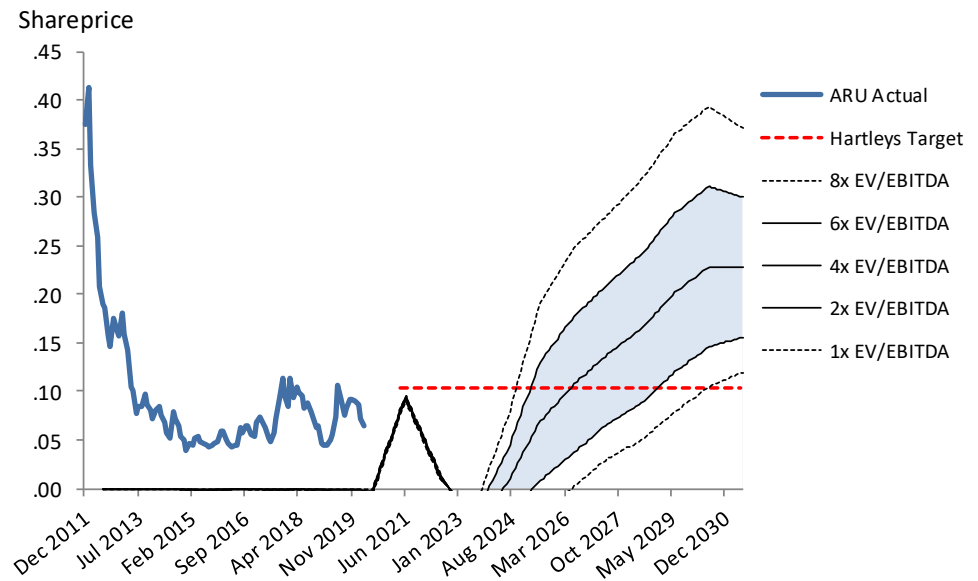
Nolans is a very advanced project, with ARU having spent >10years on studies and approvals. Current prices of NdPr mean it is uneconomic, but we believe prices are need to increase to incentivise the supply to meet medium term (2025-2030) demand forecasts. Geopolitical risks suggest it is possible that industry could move earlier than usual to lock in supply. The problem is that superficially there is substantial possible rare earth supply, and so procurement by end-users, on paper, appears straightforward. The reality of long lead times, environmental approvals and high capital requirements suggest procurement will be much harder. Hence, it is possible that market needs a strong price signal. We initiate coverage with a Speculative Buy recommendation.

RISKS

The key risks for Arafura Resources Ltd (like most mine companies in development) is obtaining the necessary funding to complete the project. Other risks are earnings disappointments given the industry is volatile and earnings can disappoint due to cost overruns, project delays, cost inflation, environmental regulations, plant and mine design mistakes or lower production. Although some earnings disappointments can be short term and are only a timing issue, other disappointments can be materially value destructive and can sometimes overhang stocks for a long period of time (for example metallurgy problems). Such disappointments can be very difficult to predict and share price reactions can be severe and immediate upon disclosure by the company. High financial leverage (if it exists at that time) would add to the problem.

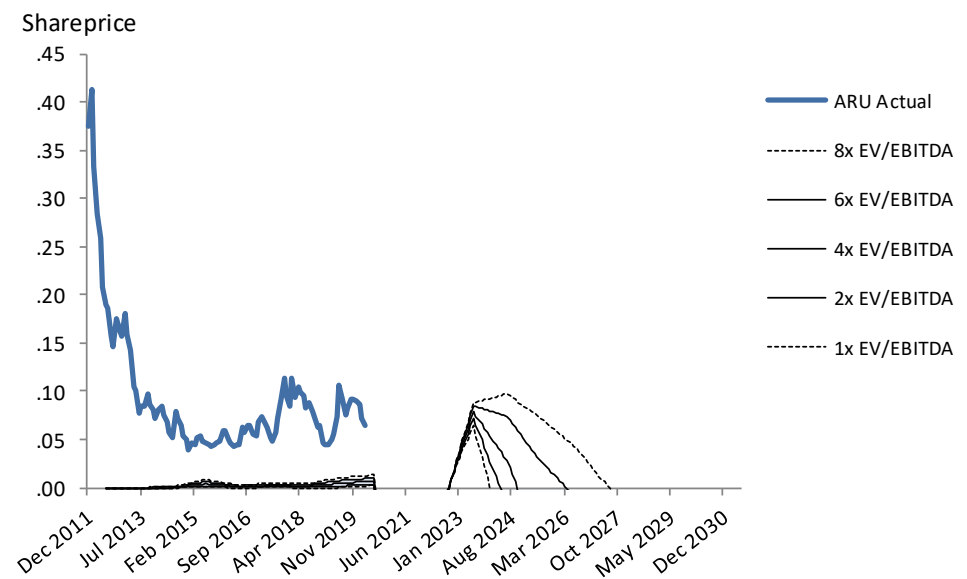
EV/EBITDA BANDS

Fig. 3: Using Hartleys base case commodity forecasts



Source: Hartleys Estimates, IRESS

Fig. 4: Using spot commodity prices



Source: Hartleys Estimates

HARTLEYS CORPORATE DIRECTORY

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Hartleys Recommendation Categories

Buy	Share price appreciation anticipated.
Accumulate	Share price appreciation anticipated but the risk/reward is not as attractive as a "Buy". Alternatively, for the share price to rise it may be contingent on the outcome of an uncertain or distant event. Analyst will often indicate a price level at which it may become a "Buy".
Neutral	Take no action. Upside & downside risk/reward is evenly balanced.
Reduce / Take profits	It is anticipated to be unlikely that there will be gains over the investment time horizon but there is a possibility of some price weakness over that period.
Sell	Significant price depreciation anticipated.
No Rating	No recommendation.
Speculative Buy	Share price could be volatile. While it is anticipated that, on a risk/reward basis, an investment is attractive, there is at least one identifiable risk that has a meaningful possibility of occurring, which, if it did occur, could lead to significant share price reduction. Consequently, the investment is considered high risk.

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