

14 JULY 2015

AUSTRALIA (NT)

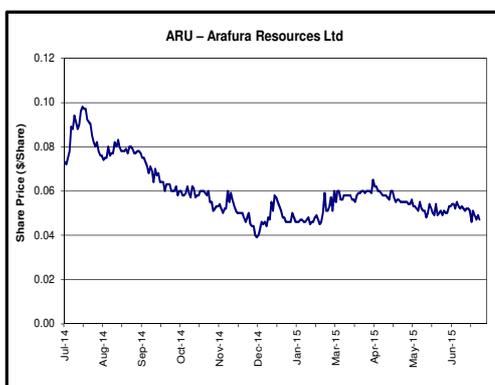
RARE EARTHS, URANIUM, PHOSPHORUS

FEASIBILITY STUDY

EXCHANGE: ASX:ARU

## CAPITAL PROFILE

Share price (A\$)	0.047
52 week range (A\$/share)	0.037 to 0.105
Number of shares (M)	441.3
Options and warrants (M)	16.8
Converting notes (M)	0.0
Fully diluted (M)	458.1
Market capitalisation (undiluted) (A\$M)	20.7
Debt (A\$M) - Jun 15F	0.0
Enterprise value (A\$M)	4.6
Major shareholders: East China Min Expl & Devel Bureau (ECE, 24.9%), JP Morgan Nominees (23.5%)	
Avg monthly volume (M)	5.4
Cash (A\$M) - Jun 15F	16.2
Price/Cash (x)	1.5
Price/Book (x)	0.2
Listed company options:	No



## DIRECTORS

Ian Kowalick (Chairman)  
Gavin Lockyer ( MD)  
Chris Tonkin (Non Exec Dir)  
Terry Grose (Non Exec Dir)  
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## ARAFURA RESOURCES LIMITED

Investment in rare earth (RE) companies will be driven by the positive outlook for magnet-feed RE's (Nd,Pr,Dy). In that regard ARU is well-positioned and undervalued.

Share Price: A\$0.047

Speculative Buy

**Buying ARU shares at the current price purchases potential future NdPr production at less than US\$1 per annual tonne of NdPr produced. Other ASX-listed rare earth developers that have advanced at or close to BFS level are trading at >US\$9 per annual tonne of potential NdPr output. Accordingly, we think ARU (with a top tier advanced NdPr project) should be a primary focus for ASX investors looking for exposure to likely medium term NdPr price increases.**

## INVESTMENT POINTS

- ◆ It is positive price trends that have been rare in rare earth (RE) markets in recent years. There is now a growing expectation that magnet feed RE's will be the stars in the next few years due to strong projected demand increases.
- ◆ RE markets are dominated by Chinese production (>90%). Recent developments in China including changing from volume to value-based resource taxes, consolidation of small mines and closure of illegal mines should see medium term price strengthening.
- ◆ Prices surely couldn't get any worse with the Western world's two RE producers both making large losses and unable to service their debt.
- ◆ ARU's Nolans Rare Earths Project is underpinned by a world-class RE resource (Measured & Indicated) grading 2.72% RE and 0.72% NdPr.
- ◆ The combined NdPr content of the ore means that NdPr oxide will generate 77% of projected revenue. This is of major strategic importance.
- ◆ The project exhibits low opex after recent further opex reductions, while unit costs per kg of NdPr are lowest in class relative to ASX-listed peers.
- ◆ A large proportion of the work on a Definitive Feasibility Study ("DFS") for the Nolans Rare Earths Project has now been completed.
- ◆ The Project could be in production in early 2019 if ARU secures additional offtake agreements and completes project funding in the next 12-18 months.
- ◆ ARU has a very supportive and active major Chinese shareholder (ECE).
- ◆ ARU is cashed up (RCR estimate A\$16.2m as at 30 June 2015) and well positioned to push on with development of the Nolans Rare Earths Project to project financing stage with no immediate capital raising requirement.
- ◆ ARU is capitalised at only A\$20.7m (EV A\$4.6m). Our analysis detailed in this report confirms the ratio EV/future production is significantly lower than for the other ASX-listed peers looking to become significant suppliers of NdPr.

## COMPANY STATISTICS

Year End June	Jun-15F	Sep-15F	2014a	2015F	2016F
Exploration and evaluation (A\$M)	2.11	2.00	8.35	8.17	8.00
Corporate (A\$M)	1.12	1.10	4.21	4.52	4.40
Exploration/(Expl.+ Corporate) (%)	65	65	66	64	65
Funding duration at current burn (years)			2.0	1.3	1.2
Shares on issue (pr end) (m shares)	441.3	441.3	441.3	441.3	466.3
Drilling - RAB (M) *	0	0	0	0	0
Drilling - RC/Diamond (M) *	0	0	1,250	0	0
Land holding ('000 ha)*	268	268	268	268	268
Tenement costs (\$k per year)	-	-	-	-	-
Capital raisings (A\$M)	0.0	0.0	0.0	0.0	10.0
Funding from JV partners (A\$M)	0	0	0	0	0
Cash (A\$M)	16.2	13.3	24.5	16.2	14.4
Cash backing (Ac/share)	3.7	3.0	5.6	3.7	3.1
Net asset backing (Ac/share)	32.4	32.2	32.5	32.4	18.2

\* All drilling metres are RCR estimates, includes drilling by JV partners.

## COMPANY COMMENT

**Overview:** ARU's flagship is the advanced Nolans Rare Earths Project (Northern Territory, Australia). The Nolans Bore deposit is 135km NNW of Alice Springs, and has Measured and Indicated JORC resources of 25.3Mt @ 2.72% rare earth oxides (REO). This is equivalent to over 700,000t of contained (REO). The current mine plan supports a mine life of 25 years at a production level of 20ktpa equivalent REO. The project is world scale, and strategically important with relatively high content of potentially critical RE's such as neodymium ("Nd") and praseodymium ("Pr") (particularly for Western REO consumers looking to secure a reliable non-Chinese supply) which will drive the economics.

**Outlook for REO Prices:** Making predictions about any commodity price is a challenging business these days. This particularly rings true for predicting REO prices due to the fact that China is the dominant global supplier and it is a low volume high value market sector with end use in highly specialised and relatively technically complex applications. In addition, the massive price spike in 2011 caused by Chinese export bans has clearly undermined confidence in the sector and motivated increased substitution in many applications. That notwithstanding, we believe that we will see positive price trends returning in the next 6-12 months as (particularly for magnet feed REs Nd and Pr) due to the following factors: (1) The Chinese Government is increasing efforts to regulate supply and control illegal production and smuggling despite the World Trade Organisation ("WTO") ruling leading to removal of export quotas in May 2015. (2) China is consolidating small RE producers into six large State controlled entities. (3) Export quotas and tariffs have been replaced by resource taxes (applied to concentrates) which are likely to lead to higher prices once existing stocks of REO are run down. Meanwhile, on the demand side, strong growth (7-10% CAGR) is predicted for magnet feed REs Nd, Pr and dysprosium ("Dy"). However, the latter could be more at substitution risk due to its comparative elevated price

**The Nolans Development Report ("NDR"):** In September 2014 ARU released a very detailed Development Report which forms the backbone of the DFS.

**Development Timetable:** ARU has developed a Project Execution Plan which is based on the DFS being completed in 2H15. Completion of an EIS and permitting, finalising offtake agreements and financing are projected to continue through to the second half of 2016 when construction is expected to commence. Mining is scheduled to commence in mid-2018 and first RE production is expected in 2019.

**Production Forecasts:** The NDR (and DFS in progress) is based on an assumed open pit mining rate of approximately 800,000 tonnes per annum ("tpa") of ore delivered to the Concentrator at the Nolans Site. This mining rate will give a mine life of 25 years based on current Measured and Indicated Resources and optimised pit designs. After beneficiation, 300,000tpa of concentrate will be fed by slurry pipeline to the RE Intermediate Plant also at the Nolans Site, which will produce a final cerium carbonate product (8,800tpa REO equivalent) and about 26,000tpa of a mixed RE chloride intermediate product (42% REO) which will then be shipped to the RE Separation Plant whose output will be 11,200tpa of five high-quality separated REO products. In order to minimise capex and opex, the RE Separation Plant will be built in an existing chemical precinct, assumed to be on the USA Gulf Coast (final site selection in progress).

**Capex and Opex:** The current total project capex estimate is A\$1,437M including contingencies. Impressive reductions in projected total opex have been achieved. In the original studies (2Q12) opex was estimated at A\$20.55/kg REO. This reduced to A\$15.67/kg in 1H14 and recently A\$14.51/kg (June 2015) with process efficiency improvements relating mainly to reduced sulphuric acid consumption, reduced residue and waste management costs. In US\$ terms the projected operating cost is now around US\$11/kg (see graph page 3) which makes it one of the lowest cost projects amongst the ASX-listed RE hopefuls, and the lowest cost in terms of cost per kg NdPr.

**Addressing the Risks:** The NDR is very much aimed at summarising ARU's progress in de-risking the Nolans Rare

Earths Project's path to production. Obviously this is of prime importance to existing and potential investors weighing up the prospects of ARU entering as a major RE producer in the next five years. The perceived project risk is reflected in the huge gap between the current enterprise value of ARU and the potential project NPV. Not surprisingly, project funding for the A\$1.4bn project is seen as the most critical risk factor, with cost and schedule blowouts seen as a lesser risk, as is radioactivity. Product pricing is only seen as a moderate risk, underlining ARU's confidence that the strength in RE magnet demand will underpin price strength in its suite of REO products. Our view is that project funding risk can be addressed by bringing in a major partner (or partners) who can inject equity funds and underwrite a project financing. Our analysis shows that this dramatically reduces the equity capital ARU will be required to raise to fund its share.

**Existing Listed RE Producers:** Investment confidence in the RE sector has been sapped by the recent financial and share market performance of the two listed non-Chinese RE producers – Molycorp (NYSE:MCP) and Lynas Corporation (ASX:LYC). These companies are in the process of ramping up production and optimising their plants. Both have been recording significant losses and negative cashflow in recent quarters. MCP has recently filed for bankruptcy protection and LYC is having to restructure its project finance debt and defer debt repayments to avoid a similar fate. LYC's current share price (A\$0.034) is a tiny fraction of the peak of >A\$2.00/share seen in 1H11. In the past twelve months the LYC share price has continued its freefall, down by 74%. So if that is the performance of the two major non-Chinese producers, what hope is there for the next REO cabs off the rank? The hope is mainly derived from an anticipation of stronger REO prices in the next few years (see discussion elsewhere on this page) and different product mixes with more focus on NdPr and less on cerium and lanthanum. Furthermore, we are seeing some glimmers of hope from recent LYC releases, reporting positive free cashflow for the month of March 2015 and stating that "...the business currently expects to deliver free cash flow...". The company also reports that "Market pricing improved from historic lows in the December quarter." This supports our contention that REO prices may have seen their five year lows and investor sentiment in the sector could be starting to change.

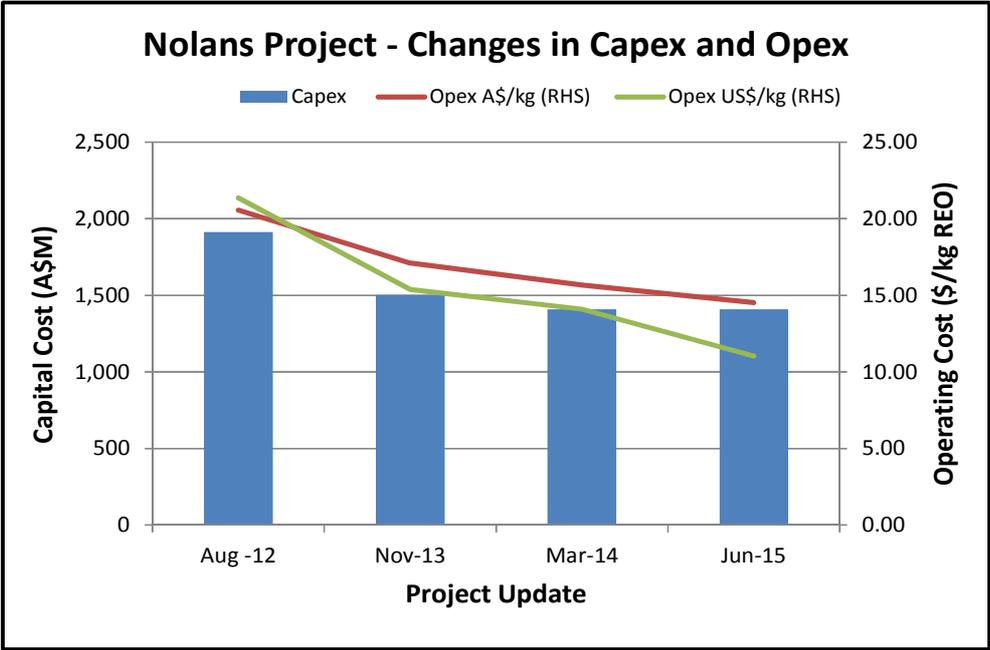
**Comparison with other ASX-Listed REO Developers:** In this report we have presented a review of ARU in comparison with four of the leading ASX-listed RE developers, as well as LYC. We believe that this comparison makes a compelling argument for having ARU in a portfolio as a highly undervalued leading RE developer.

**Corporate:** As at 30 June 2015 we estimate cash was A\$16.2M after a A\$3.4M R&D tax refund from the ATO, meaning there is no immediate requirement for further equity raising to complete the BFS and secure project financing.

**Key 'Big Brother' Partnerships:** ARU has a very supportive major Chinese shareholder in ECE that has already injected A\$33M. ECE is playing an active role in project development by introducing Chinese expertise in RE processing technology. In September 2013 ARU signed an MOU with Shanghai Exchange-listed Shenghe Resources, a Chinese RE producer that is an industry leader in RE production and technology development. It operates China's third-largest RE mine and a RE processing plant. Shenghe is providing key Chinese technical input to optimise and complete the Nolans Rare Earths Project DFS.

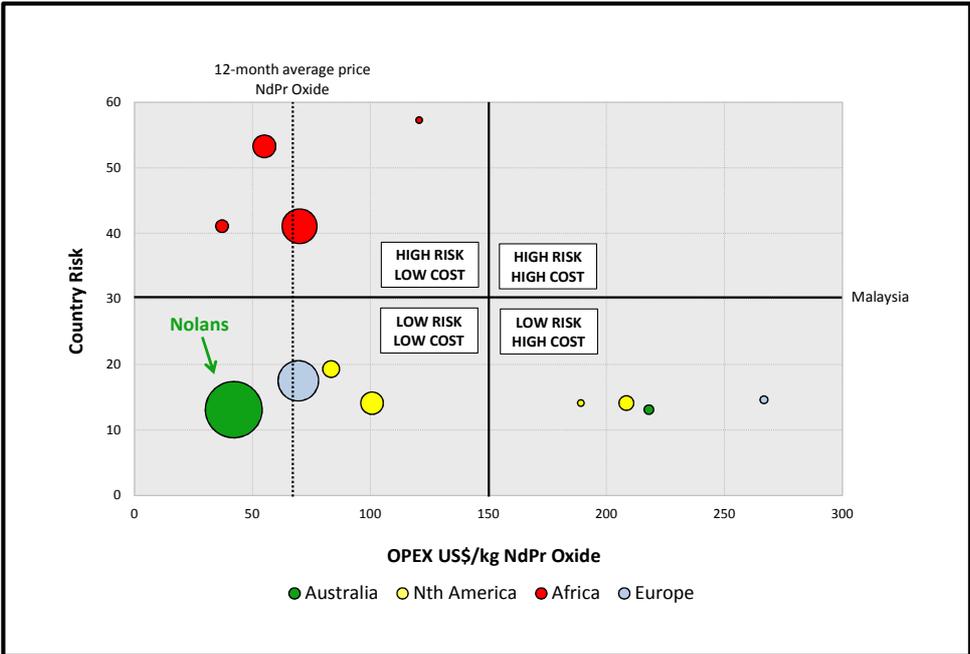
**Investment Comment:** ARU's Nolans Rare Earths Project is a world class RE project that is well advanced after spending on exploration and development of almost A\$150M by ARU since 2009. Importantly, it is a low operating cost project that is well positioned to become a stable non-Chinese supplier of key magnet feed RE's Nd and Pr in the next few years. If we are correct in our view that we will see significant strengthening in Nd and Pr prices in the next 6-12 months, ARU's current under-valuation relative to its peers suggests it will be a top performing ASX-listed RE company.

The graph below demonstrates the strong progress ARU has made in reducing projected operating costs and transforming the Nolans Rare Earths Project into a competitive low operating cost project. In A\$ terms, the original estimated opex of >A\$22/kg REO has been trimmed to under A\$15/kg in the most recent review (June 2015), driven by further efficiency gains. In US\$ terms (with the conversion to US\$ based on exchange rates of the day), the gains have been even more impressive, virtually being halved from around US\$21/kg in 2012 to around US\$11/kg in the June 2015 review.



Source: ARU

The graphic below (sourced from ARU’s 3 June 2015 ASX release “Operating Costs Reduced at Nolans”) highlights the natural advantages of its Nolans Rare Earths Project. These are the Project’s leverage to the high growth magnet market through its key NdPr oxide product that will generate 77% of projected revenue, the low unit operating cost of producing NdPr (US\$41.67/kg), and the Project’s low sovereign risk courtesy of it being located in the Northern Territory, Australia.



Note: Size of circle is proportional to planned annual production of NdPr, based on 100% recovery of the *in-situ* composition.

## ASX-LISTED NdPr-FOCUSED RARE EARTH PROJECT DEVELOPERS – A REVIEW OF KEY DATA

Company	ASX Code	Project	Project Equity	Location	Stage	First REO production*	Share Price (A\$)**	12 Month High	12 Month Low	12 Month Gain
Arafura Resources Ltd	ARU	Nolans	100%	NT	BFS well advanced	2019	0.047	0.105	0.037	-39.7%
Greenland Minerals & Energy Ltd	GGG	Kvanebjerg	100%	Greenland	FS Completed	2019	0.062	0.170	0.055	-35.4%
Hastings Rare Metals Ltd	HAS	Yangibana	70-100%	WA	Sc. Study, PFS Underway	2019	0.080	0.105	0.053	27.0%
Lynas Corporation Ltd	LYC	Mt Weld	100%	WA/Malaysia	In Production	2013	0.035	0.225	0.030	-74.1%
Northern Minerals Ltd	NTU	Browns Range	100%	NT/WA	DFS complete	2018	0.170	0.300	0.150	3.0%
Peak Resources Limited	PEK	Ngualla	100%	Tanzania	PFS, Commenced BFS	2018	0.085	0.105	0.065	-4.5%

\* First production based on current projections in company releases, apart from HAS which estimates 2018 but RCR estimates 2019, and LYC which is already in production.

Production for development projects is contingent on successful project financing and offtake agreements.

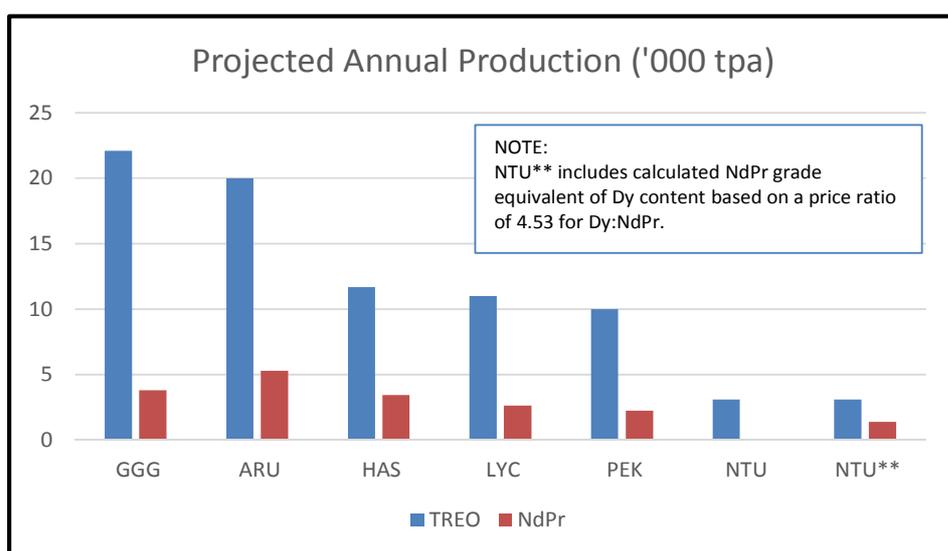
\*\* Share prices are closing prices as at 13 July 2015

### SELECTION CRITERIA

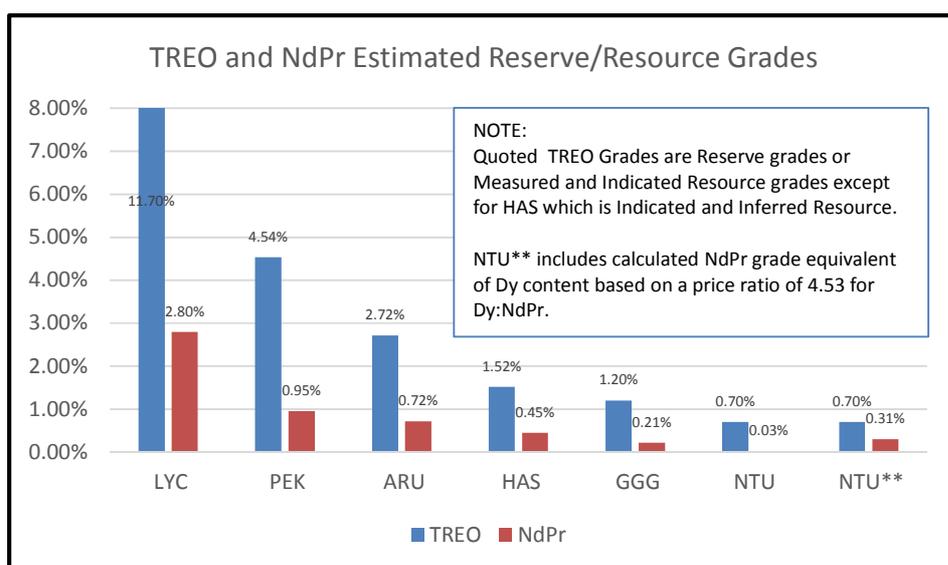
The ASX-listed project developers in the Table all have a major component of magnet-feed NdPr in their projected product mix, or in the case of NTU, Dy, which is also predominantly a magnet feed.

Alkane Resources (ASX:ALK) which is developing the Dubbo Zirconia Project (DZP) has not been included since NdPr only accounts for about 21% of projected revenues (revenue is predominantly derived from Zr, Nb and heavy RE's) and it is not a pure RE stock - the company has current gold production.

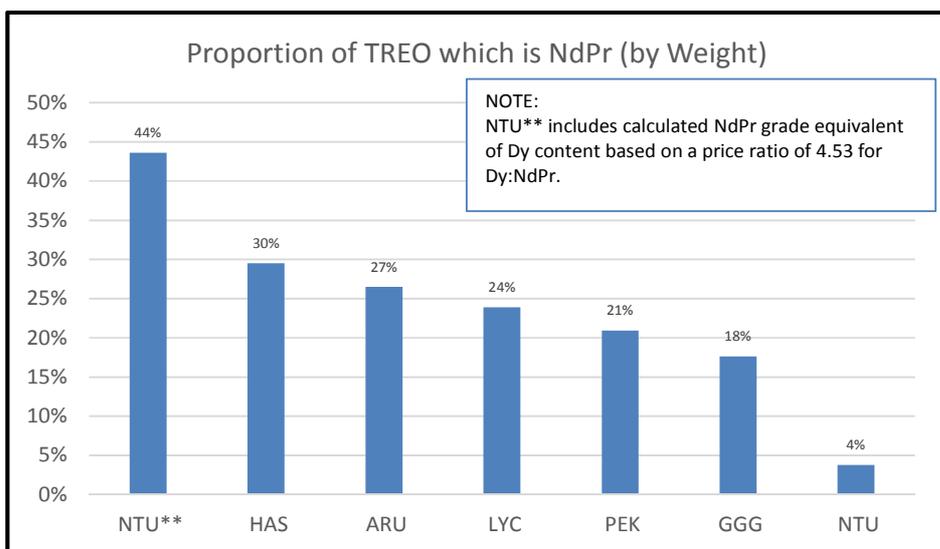
**Based on projected production targets, ARU will be the second biggest producer of TREO and the most significant producer of magnet feed NdPr. NTU will have a very minor output of NdPr but significant if Dy output is expressed as NdPr equivalent. LYC's projected production (11ktpa TREO) is the target production for the current plant expansion and optimisation. Current output is ~8ktpa REO.**



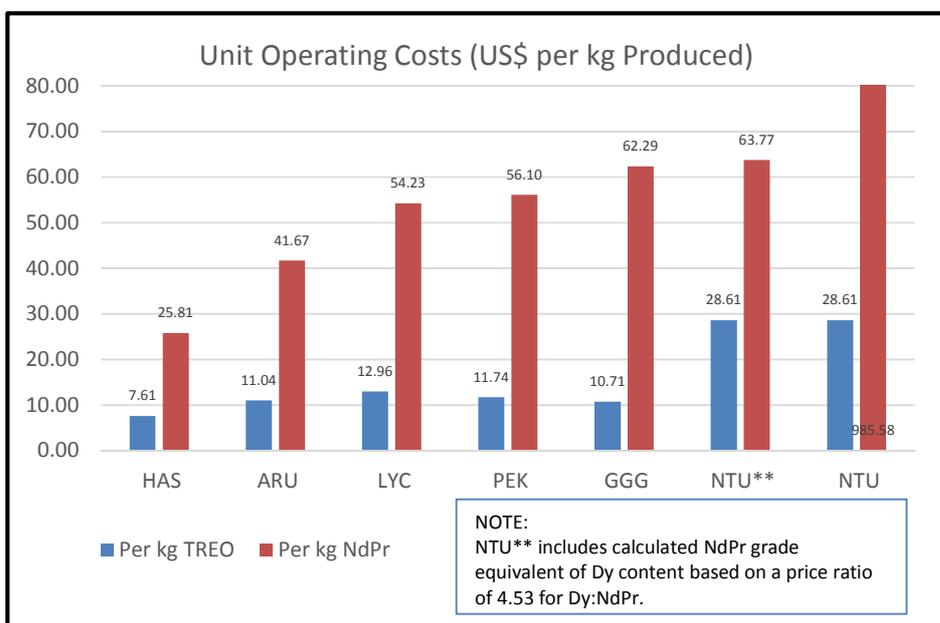
**ARU's Nolans Rare Earths Project has the third highest total rare earths (TREO) grade and NdPr grades of the six projects. LYC is financially struggling despite the significantly higher reserve grades.**



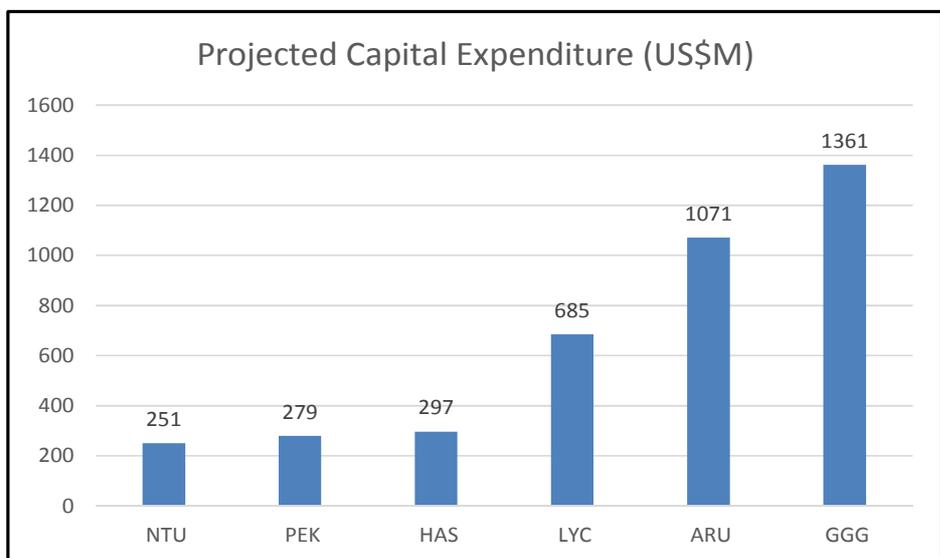
ARU's NdPr proportion of total REO's ranks highly with the potential NdPr producers, with only HAS higher (HAS grades are based on Indicated and Inferred Resources only, 42% of which in Inferred category). NTU's heavy rare earth-dominant Browns Range Project contains a low NdPr proportion but ranks highest if Dy is expressed as NdPr equivalent.



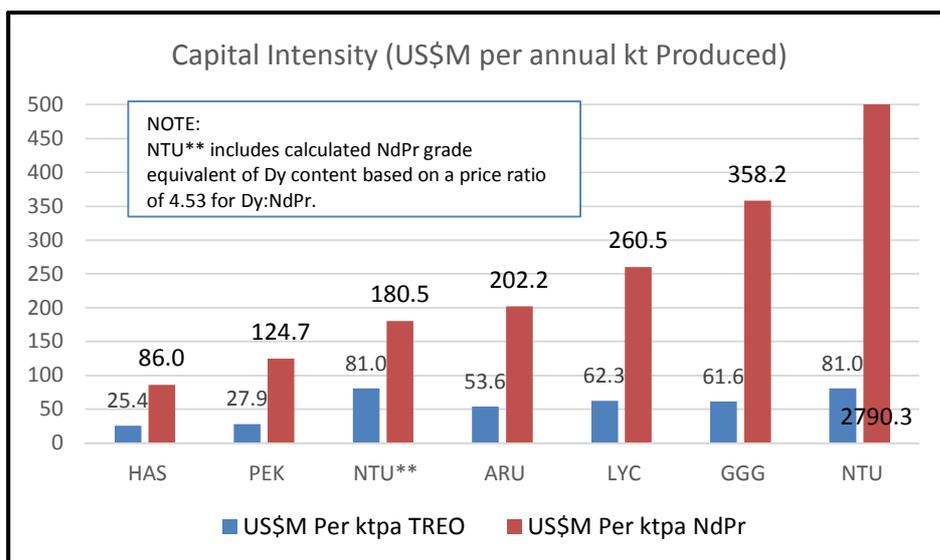
Of the more advanced projects (excluding HAS which is only at Scoping Study level) ARU's Nolans Project exhibits low unit operating costs and the lowest projected cost per kg NdPr produced. LYC's costs are based on reported costs and production for the March 2015 quarter. US\$ costs are based on an exchange rate of A\$/US\$ = 0.761.



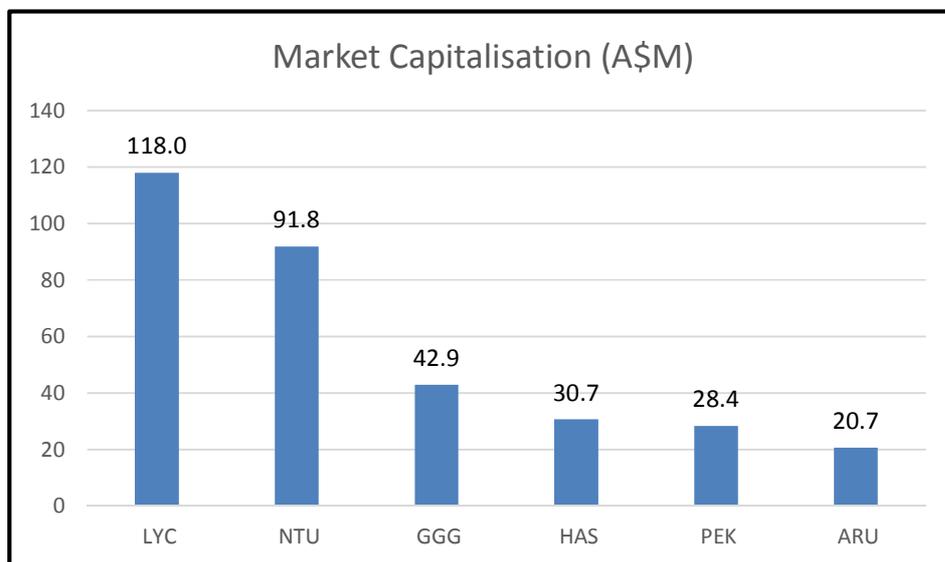
NTU exhibits the lowest projected capital costs, however this project is based on production and sale of a mixed REO carbonate product rather than separated REO products. ARU and GGG are the two larger scale potential producers. US\$ capital costs are based on an exchange rate of A\$/US\$ = 0.761.



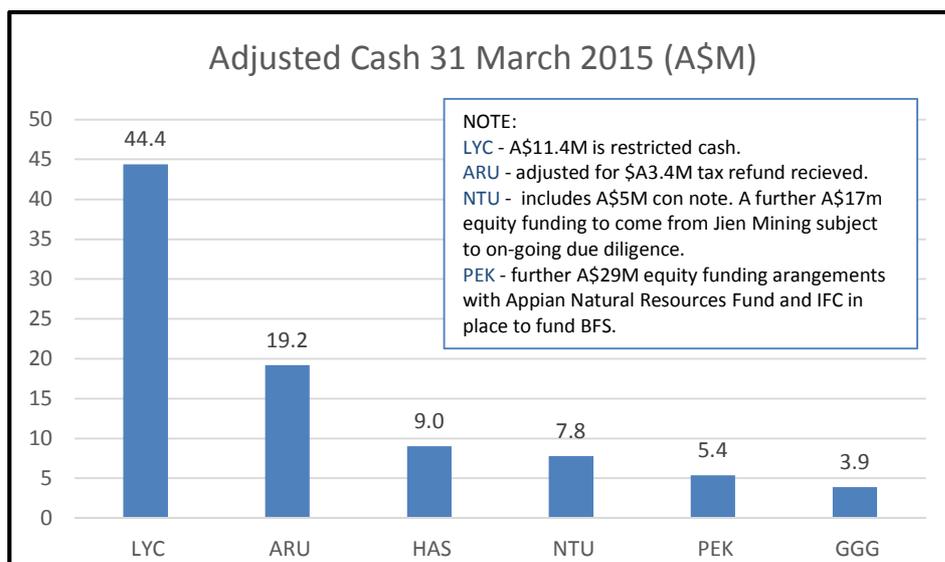
ARU's Nolans Rare Earths Project exhibits a mid-range capital intensity of US\$53.60 per annual kt of REO produced. The capital intensity per annual kt of NdPr REO is similar to that of NTU (with NTU's Dy product converted to NdPr equivalent), despite NTU not including a separation and refining plant.



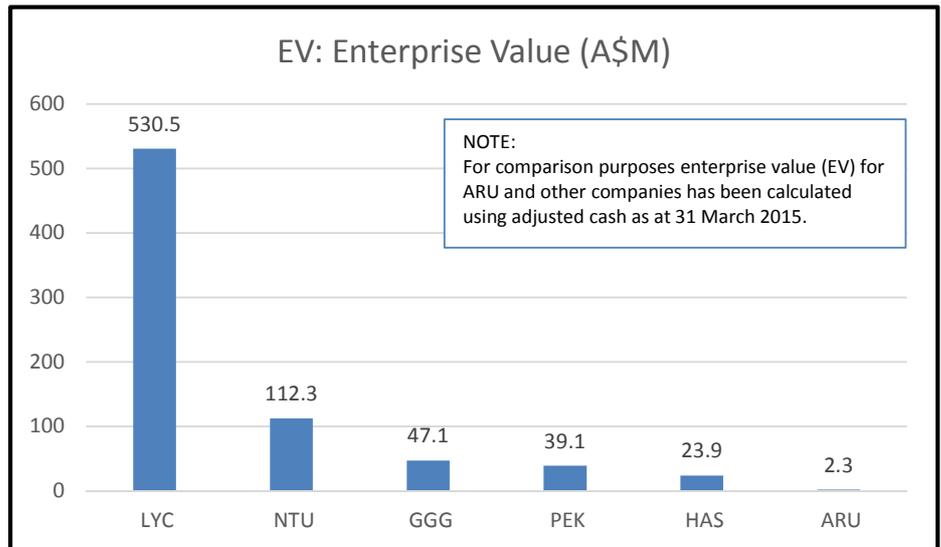
ARU's market capitalisation is the lowest of the six ASX-listed companies considered.



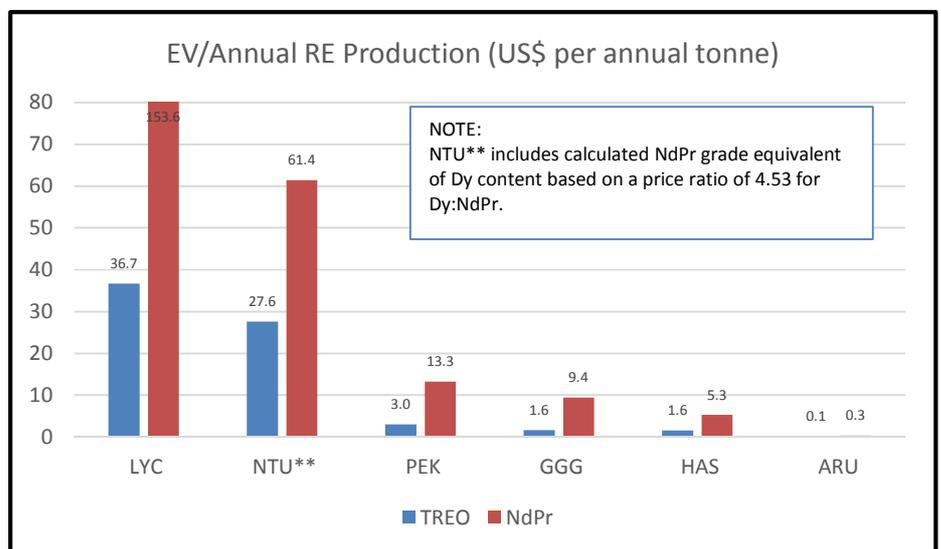
Of the five potential RE project developers (excluding producer LYC) ARU is the most cashed-up with no immediate equity funding requirements to advance the BFS and move towards project financing. Both NTU and PEK have funding arrangements in place (NTU subject to due diligence) to fund further work to advance them to potential project financing stage. However, it is expected that these cash injections will require further equity issues to their backers.



The adjusted enterprise value comparison (EV = market cap. less adjusted 31 March 2015 cash, plus debt) shows that the market is currently placing negligible value on the advanced Nolans Rare Earths Project, despite ARU having invested approximately A\$150M in developing the project since early 2009.



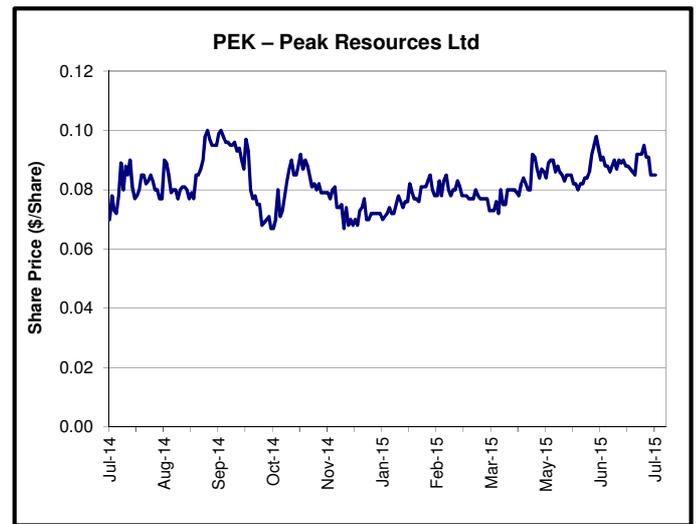
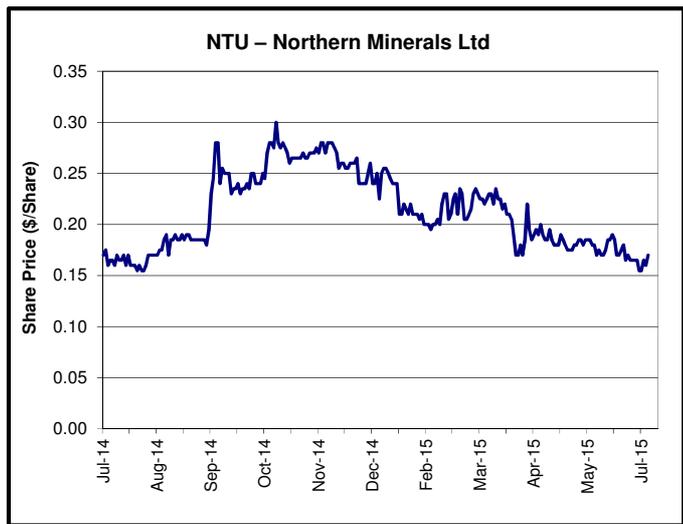
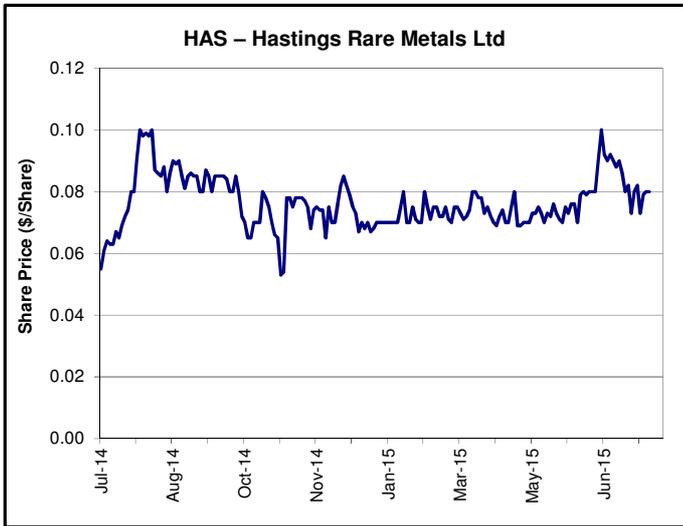
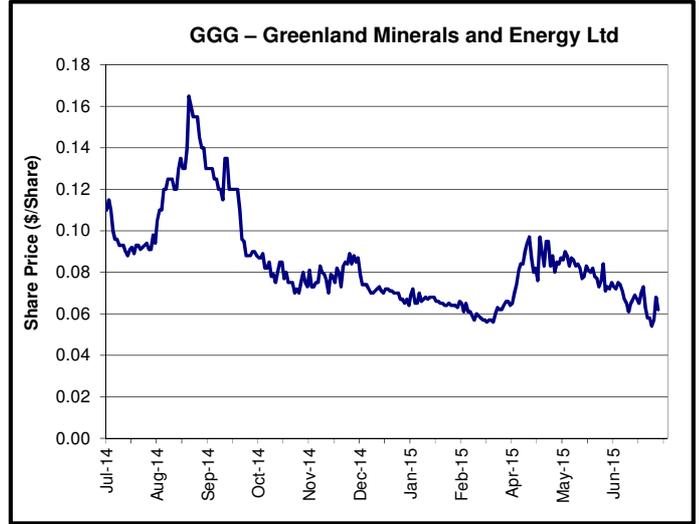
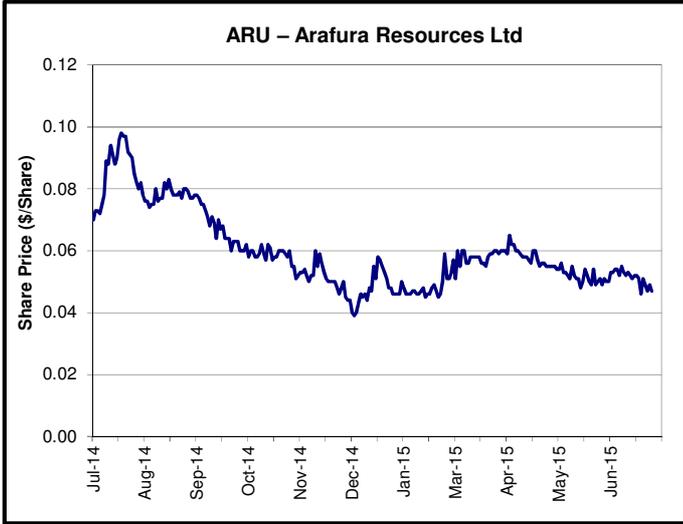
The ratio of adjusted enterprise value (EV) to projected future REO production shows that ARU currently exhibits a significantly lower effective valuation of future production than the other companies considered.



## NOTES ON COMPANY COMPARISONS

1. All data in the ASX-listed company comparisons presented in this report is derived from the latest available company releases and reports. Share prices as at 13 July 2015.
2. "TREO" means "total rare earth oxides"
3. RCR normally defines enterprise value (EV) as market capitalisation plus debt. In this case, because cash levels are significant in being able to fund project development through to a future project financing, we have included cash in our 'adjusted' EV calculation: EV = market capitalisation plus debt minus cash.
4. In calculating adjusted EV for the comparison graphs we have used the reported cash as at 31 March 2015, based on company releases (March quarter reports), adjusting for any further cash inflows reported. This adjusted 31 March 2015 cash for ARU used in company comparison tables differs from forecast cash for 30 June 2015 shown in the Capital Profile table on page 1 of this report. The EV for ARU in the Capital Profile table on page 1 is based on forecast 30 June 2015 cash.

**TWELVE MONTH SHARE PRICE GRAPHS OF THE ASX-LISTED NdPr RE PROJECT DEVELOPERS**



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