

Arafura Resources

High Value Magnet Feed Rare Earths

Project Update
August 2016



ABN 22 080 933 455



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The information in this presentation that relates to Exploration Results or Mineral Resources is based on information compiled by Mr Kelvin Hussey BSc (Hons). Mr Hussey is a Member of the Australian Institute of Geoscientists and he has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code)”. Mr Hussey consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

Mr Hussey is a full-time employee of Arafura Resources.



Company Snapshot



- ▲ ASX listed company developing the **Nolans Rare Earths Project** in Australia
- ▲ Nolans 100% owned, no debt and uncomplicated ownership and capital structure
- ▲ Finalising project development phase – mine to oxides
- ▲ 20+ year resource - exploration complete
- ▲ Focus on **strong growth, high value** magnet-feed rare earths (“RE”s)
- ▲ Afforded **major project status** by the NT Government
- ▲ Demand for high value RE Magnets is poised for significant growth
- ▲ Nolans will be one of the largest suppliers into this market
- ▲ Very low cost OPEX



Secure Supplier of Magnet-Feed Rare Earths



- ▲ **One of the world's largest Neodymium (Nd) deposits**
- ▲ **Critical for production of RE Magnets.** 80% of revenue derived from NdPr
- ▲ Can provide security of supply from a low sovereign risk location
- ▲ **Project approvals well advanced** - No major risks identified
- ▲ **Demonstrated process** with four rare earth products separated to 99% purity
- ▲ Technology metals critical to lower carbon emissions – Nd, Lithium, Cobalt, etc.



Mineralisation



Final RE products

REs have many applications but focus is on Nd



Nd - Critical Inputs for High Value Rare Earth Magnets



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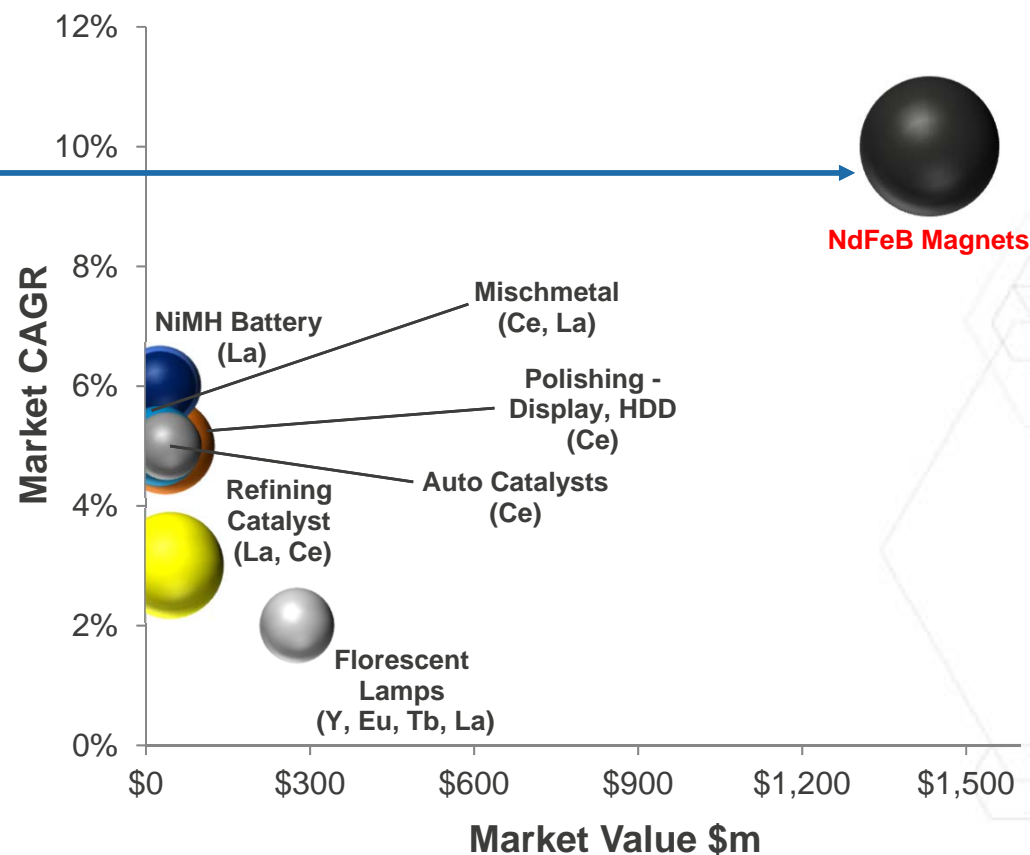
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Market Focus: It's All About The Magnets (Nd)



- ▲ Unique demand drivers for each RE element
- ▲ Some RE elements in mature applications with modest growth outlook
- ▲ Nd is critical feed for Nd Iron Boron magnet (“NdFeB” or “RE magnets”) production.
- ▲ Global demand for RE magnets is forecast to grow at **10% p.a.** to 2020
- ▲ NdPr accounts for 26.5% of Arafura’s RE composition – **highest in the world**



Market Focus: High Value Nd



- ▲ Key input in RE magnets – no known substitute
- ▲ RE magnets are **3x stronger and 1/10th the size** of conventional magnets
- ▲ Products are **smaller, lighter, mobile**
- ▲ **Up to 75 RE magnets in a modern car or 0.7kg NdPr**

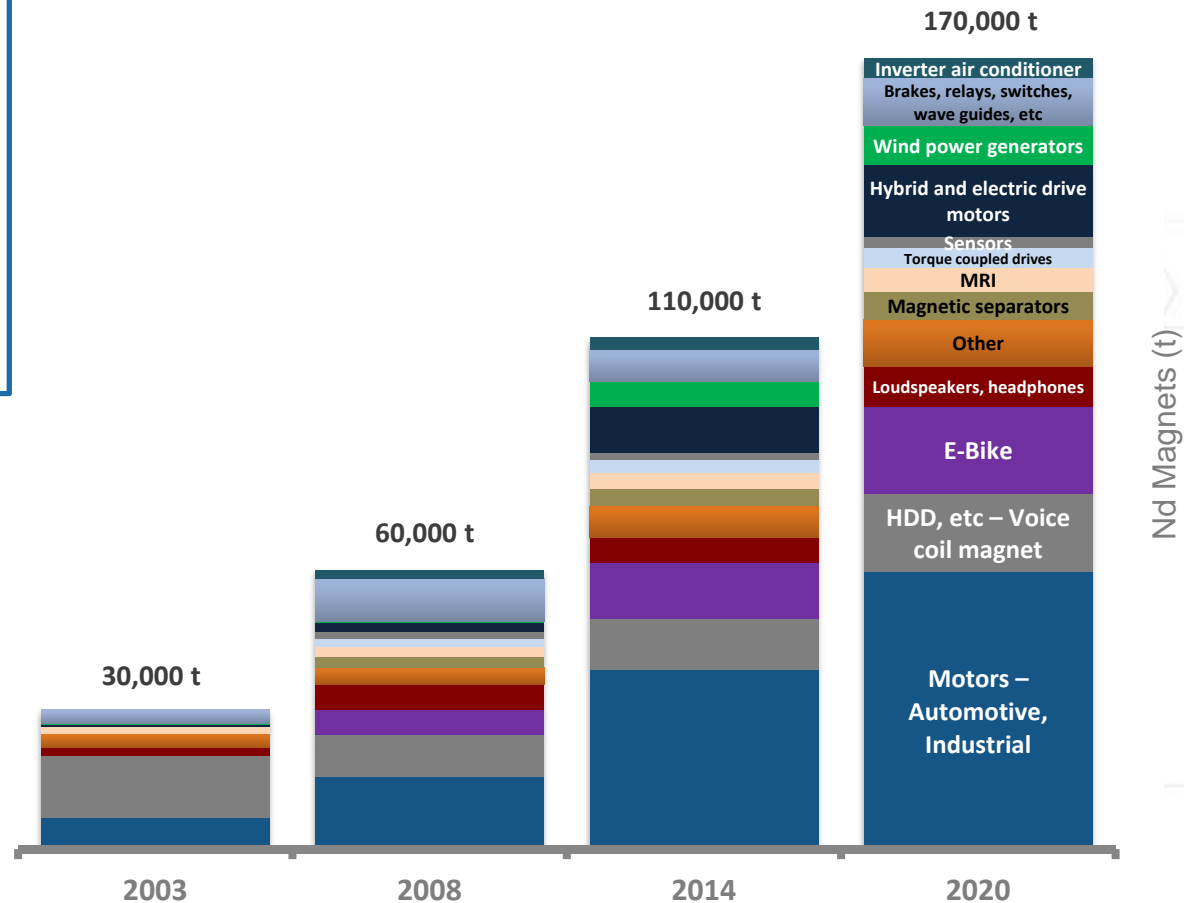
Established Applications



Market focus – growth is in new applications



- ▲ Established market demand for Nd magnets steady
- ▲ **Magnet growth being driven by green technologies**



Nd Magnets (t)



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Market Focus: High Value Nd



- ▲ Development of lithium battery technology & advancements in efficiency are key enablers for electric vehicles and other clean energy applications
- ▲ Rare earth magnets offer high torque density, meaning the electric motors can be compact, lightweight and more efficient
- ▲ RE traction motors in electric vehicles produce increased efficiency and superior range



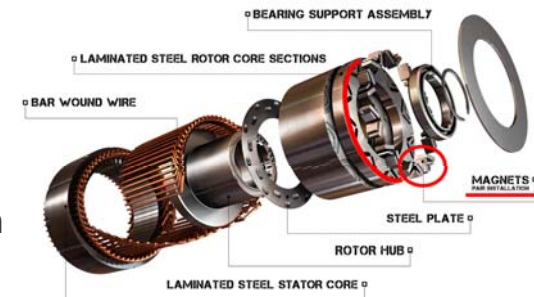
Honda expects 60% of its cars to be green by 2030. Most other OEM's have similar targets.

150kg of Nd Oxide (400-600kg of RE magnets) in a direct drive wind turbine



China expected to produce 30 million ebikes in 2017 (90g Nd oxide per bike)

1kg Nd oxide in electric traction drive motor



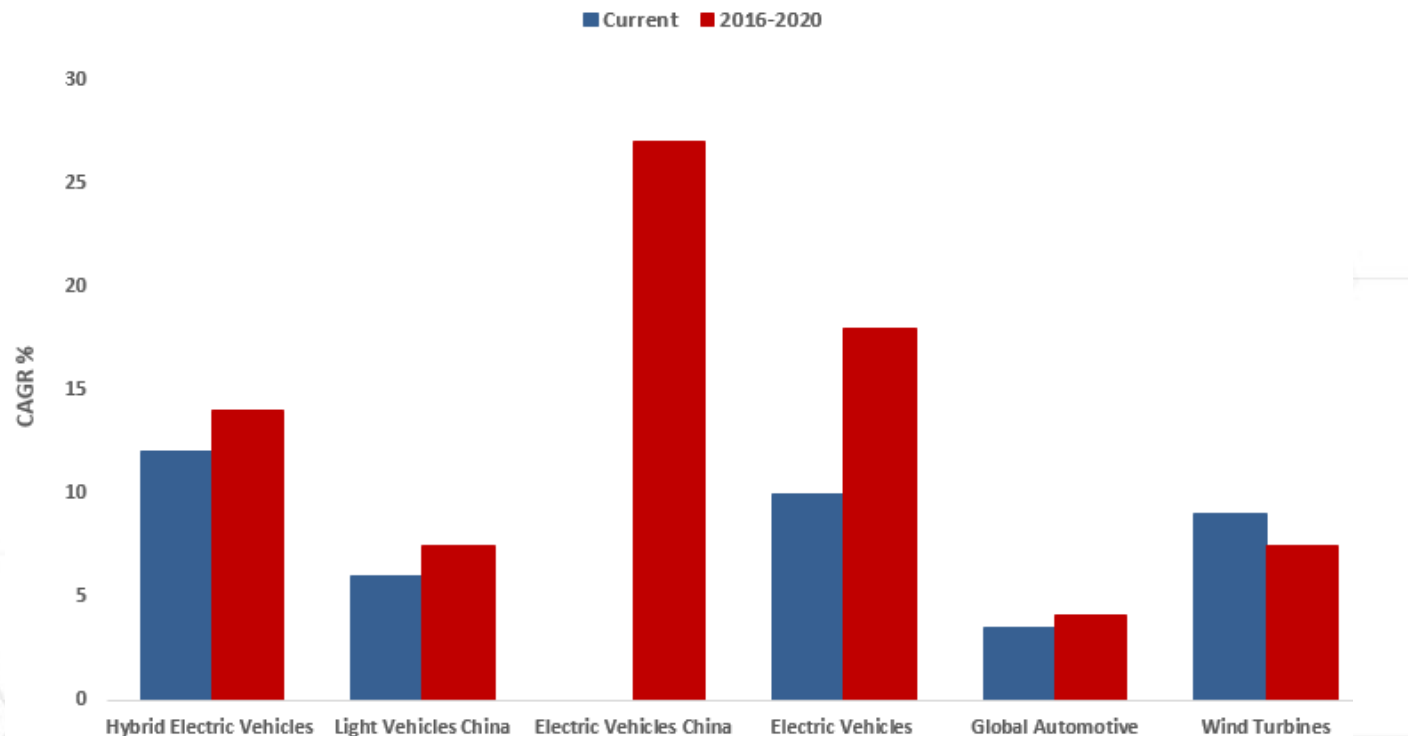
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Demand Driving High Growth Market



- ▲ Clean energy technology to represent greater share of future growth
- ▲ Lithium battery improved cost and efficiency enables wider use of electric vehicles
- ▲ China, US & EU Governments driving change
 - ▲ Major OEMs need to cut fleet emissions by 2020 to meet emission targets
 - ▲ Providing incentives for electric vehicle technology development
- ▲ Consumers demanding reduced reliance on carbon fuels

Current & Forecasts for Magnet Growth Industries



Nd Supply



▲ China's restructure of RE mining sector **targeted for completion in 2016**

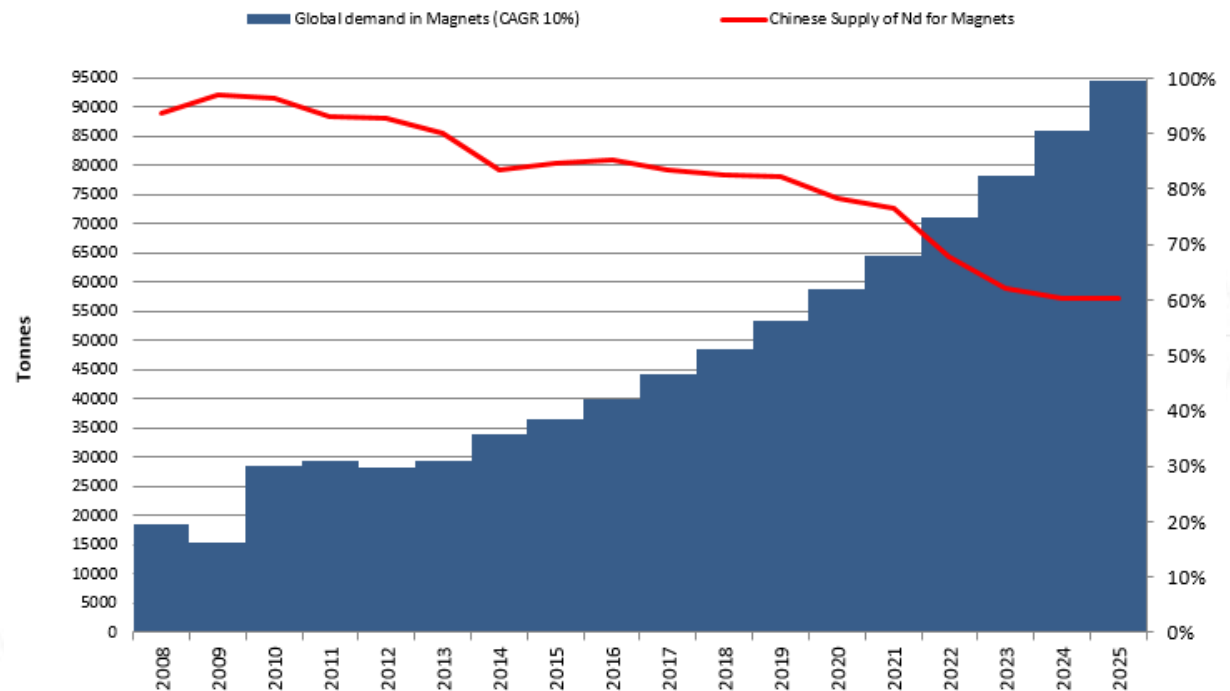
▲ Consolidating Chinese RE industry into six groups

▲ FOB prices have stabilised

▲ Emergence of non-Chinese supply will allow prices to be driven by the demand supply dynamic

▲ Nd prices **forecast to grow** in line with looming supply shortfall

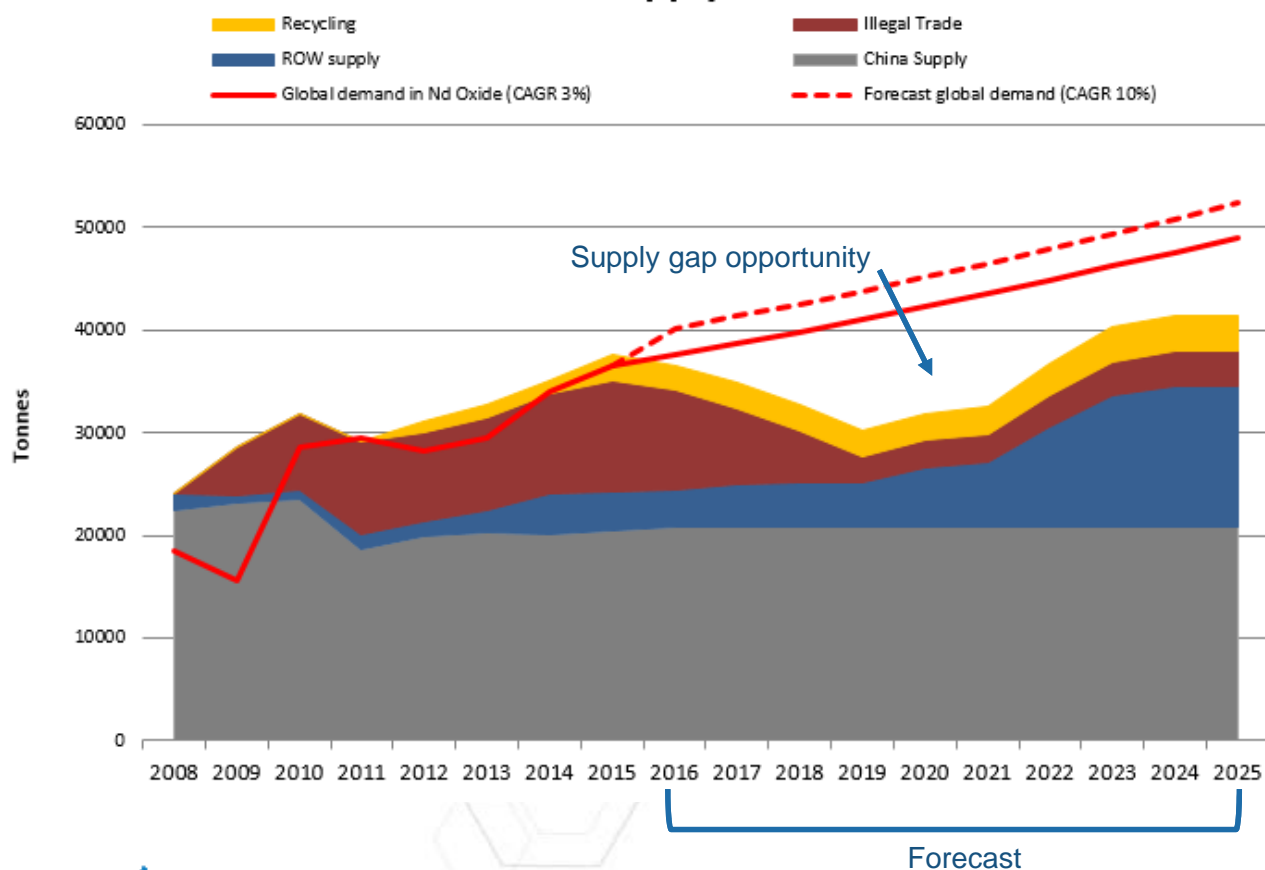
Nd China Supply



Supply Shortfall in Sight



Nd Oxide Supply & Demand



- ▲ Current supply shortfall being met by illegal production
- ▲ Chinese policy changes designed to tackle illegal production
- ▲ Recycling is negligible and currently sits around 10% p.a.
- ▲ Greater social call for development of an International RE Standard
- ▲ To meet supply shortfall in 2020 will require >4 Nolans projects to come online

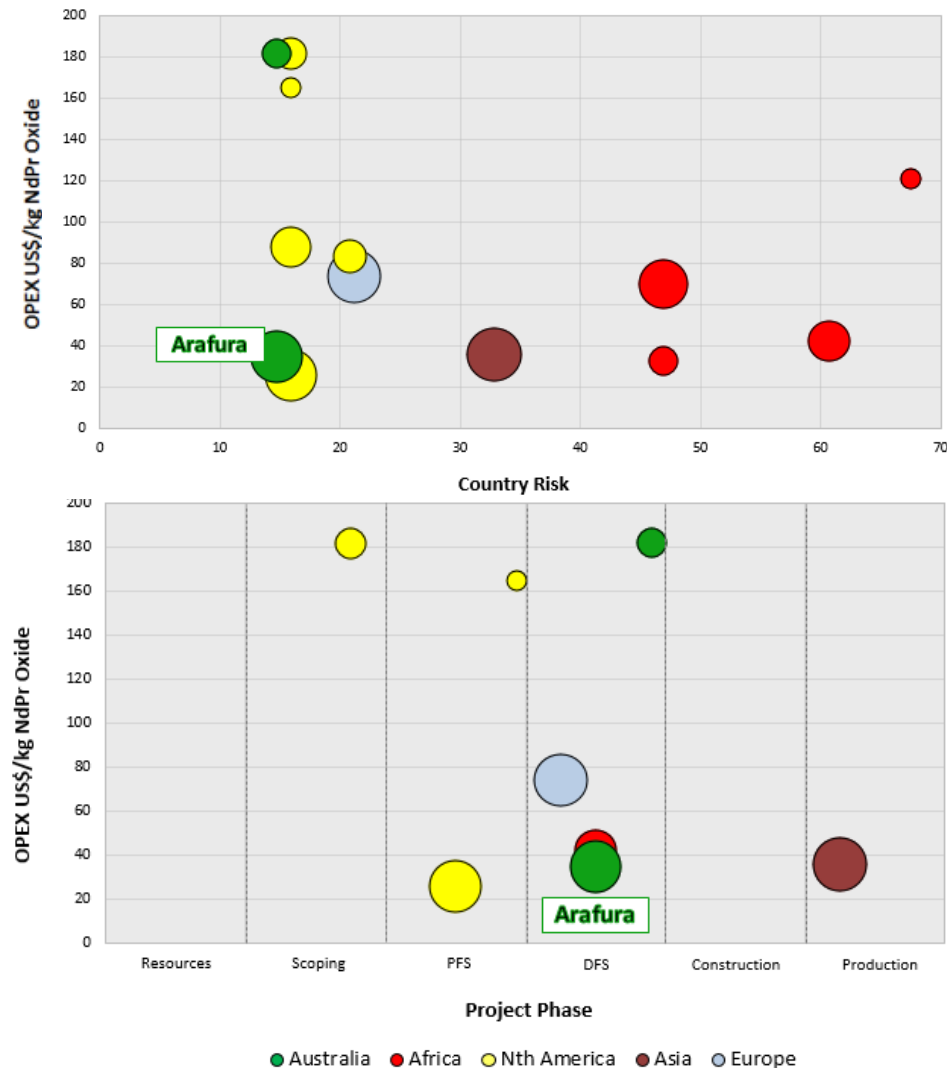


Nd ROW Supply – What Are The Alternatives?



- ▲ Capital intensive projects being developed by small cap companies, hence number of potential suppliers diminishing
- ▲ In excess of 14 Nd projects in development a year ago – now only 8
- ▲ The Nolans project will be a low cost producer in a low risk jurisdiction
- ▲ NdPr Oxide output >3,600 t p.a., quotient highest of all RE projects. 26.5% by volume and > 80% by value
- ▲ RE Projects have a long lead time in project development and are not easily turned on or off
- ▲ Demand forecasts require all these projects in DFS to succeed

Nd projects 2015 by location (top) & 2016 in development (lower)



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Nolans Project

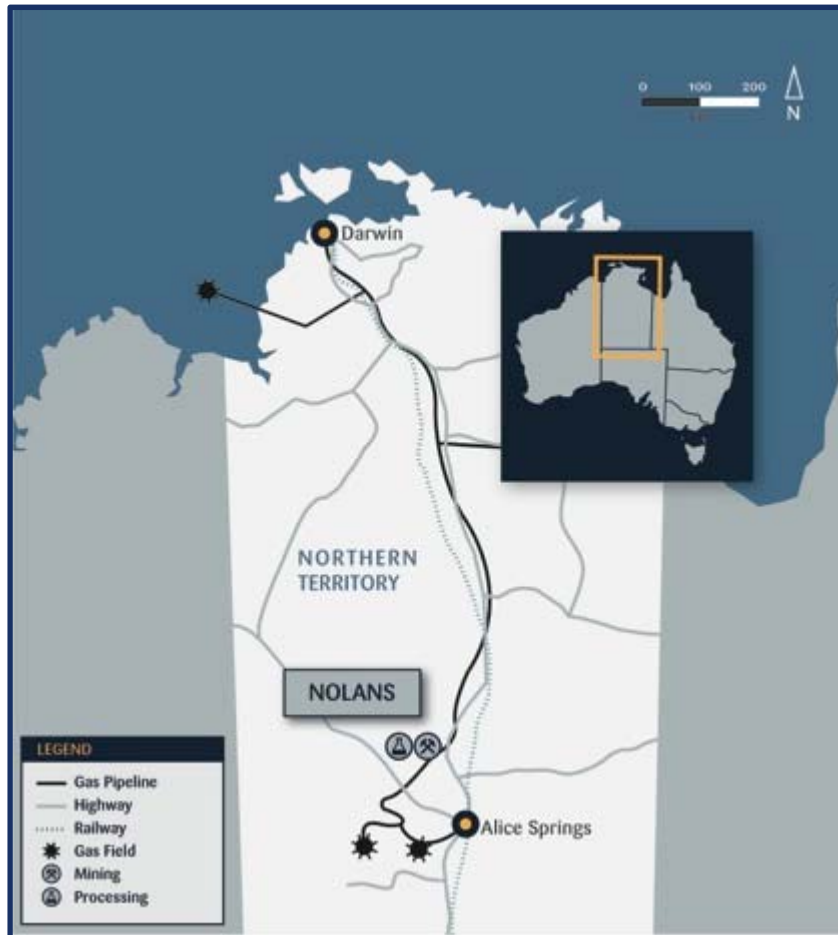


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Nolans Project – Australia

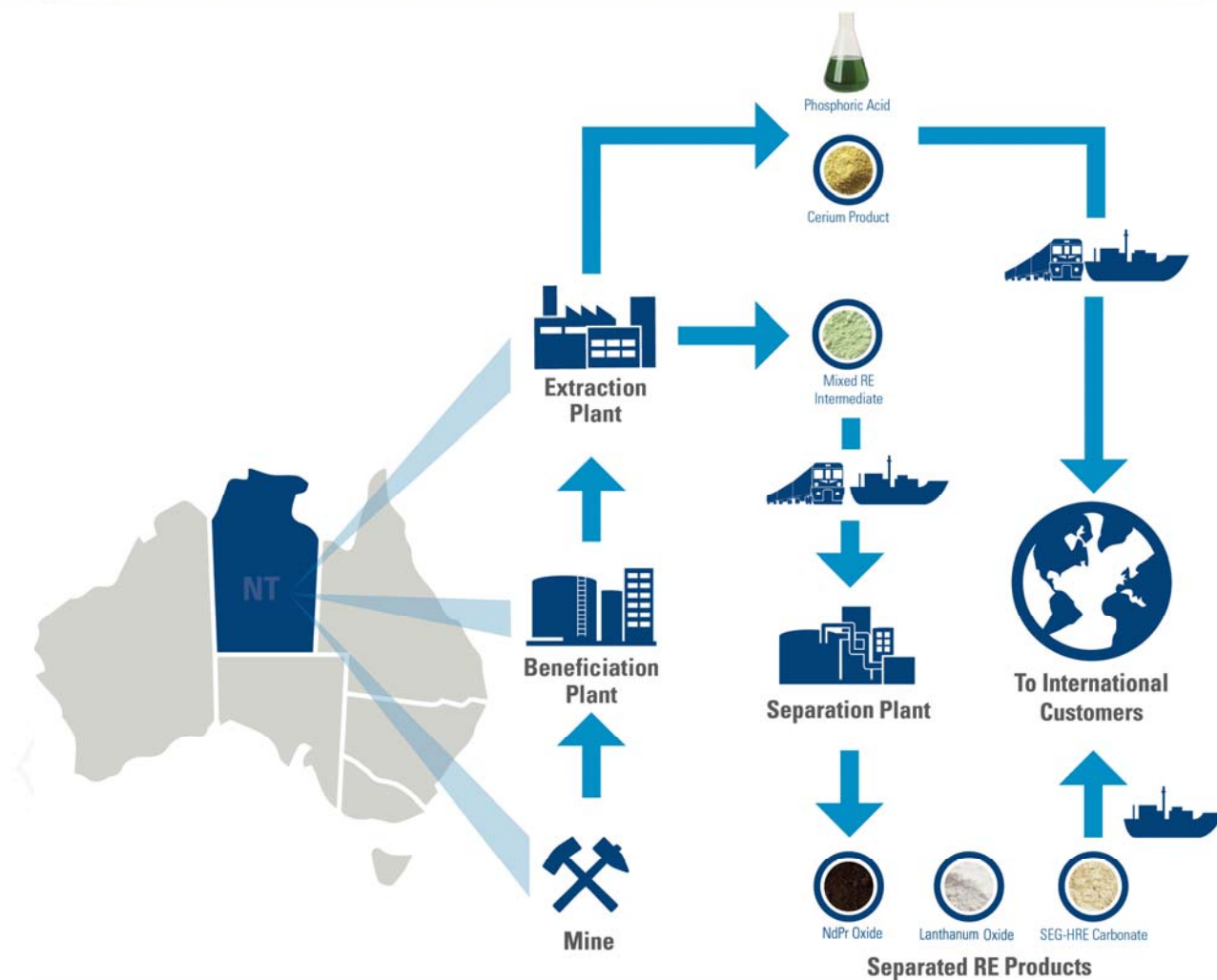


- ▲ Underpinned by **world-scale, low risk resource** in Australia's Northern Territory
- ▲ Resource sits **at surface** and remains **open at depth**
- ▲ Amenable to **low-cost open cut** mining and standard beneficiation techniques
- ▲ Mining & processing at site producing Cerium Carbonate, Phosphoric Acid & RE intermediate.
- ▲ Tailings and wastes remain at site
- ▲ **Close to vital infrastructure**



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From Mine To Market



▲ Targeting RE offtake customers in:

- ▲ Japan
- ▲ Korea
- ▲ Germany
- ▲ USA

▲ Phosphoric acid sales targeted for Asian region



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Infrastructure & Project Approvals



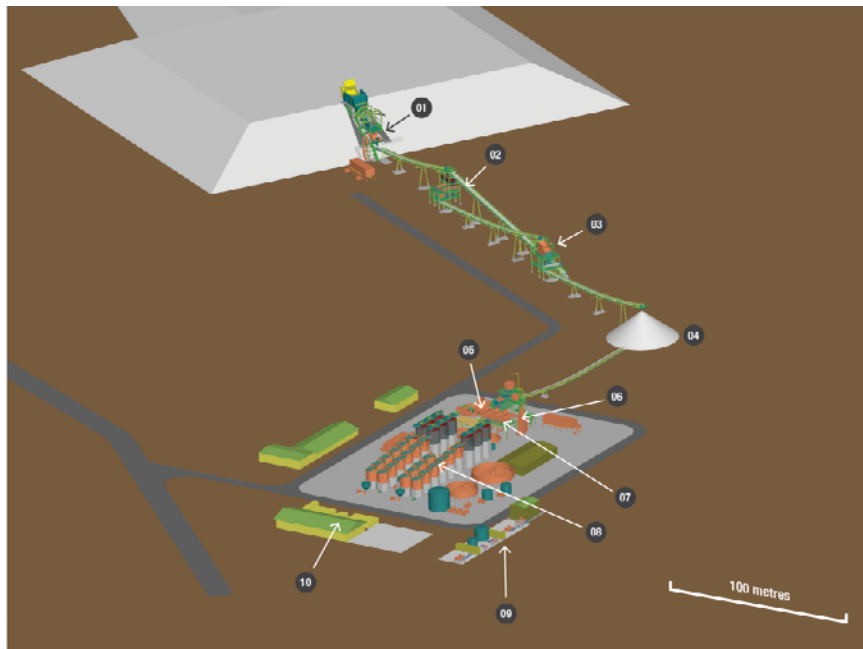
- ▲ 10km west of Stuart Highway
- ▲ 135km north of major service town of Alice Springs/ railyard & airport
- ▲ Amadeus gas pipeline dissects project area
- ▲ New bore field identified 40km south
- ▲ Site layouts well defined and Mineral Lease Applications lodged
- ▲ Environmental & Social Impact Statement submitted - no major risks identified
- ▲ 15,000 tpa high value RE intermediate product transported to offshore facility for toll refining.



Nolans Project – Australian Site



ROM and Beneficiation



LEGEND

- | | | | | |
|---------------------------------|--------------------------|------------------|------------------------|-------------|
| 01 Primary Crusher | 03 Screen | 05 Grinding Mill | 07 Magnetic Separation | 09 Reagents |
| 02 Secondary & Tertiary Crusher | 04 Crushed Ore Stockpile | 06 Re-grind Mill | 08 Flotation | 10 Workshop |

RE Plant & Phosphoric Acid



LEGEND

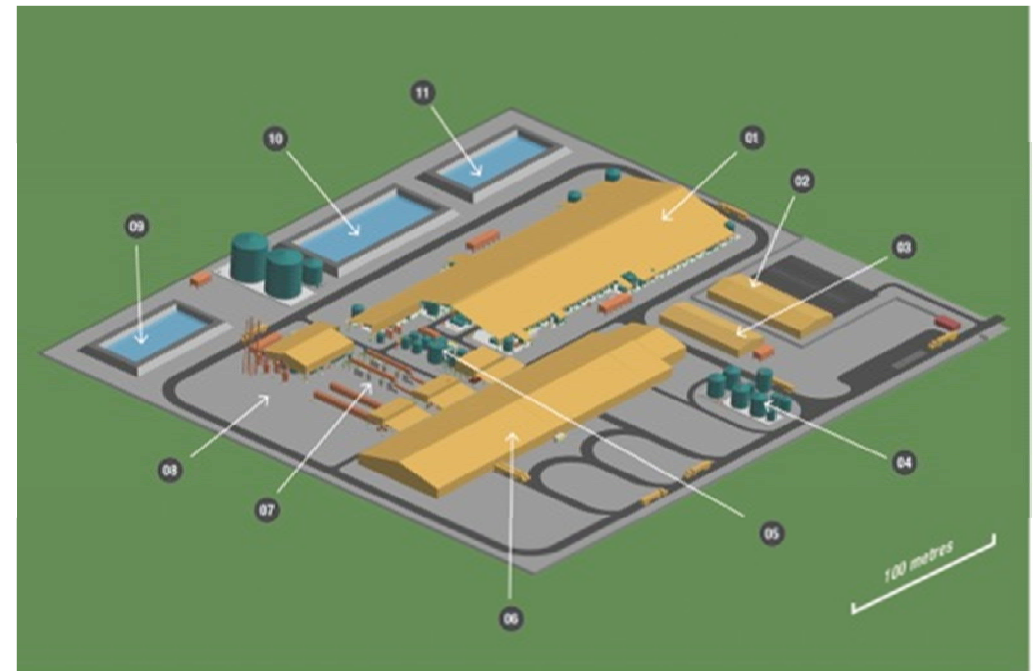
- | | | | | | |
|------------------|--------------------------|-------------------------|--------------------|-----------------|--------------|
| 01 Acid Plant | 03 OSP | 05 Impurity Removal | 07 Product Packing | 09 Workshop | 11 Pre-Leach |
| 02 Power Station | 04 Hydroxide Dissolution | 06 Hydroxide Conversion | 08 Water Leach | 10 Control Room | 12 Reagents |
| | | | | | 13 Acid Bake |



Nolans Project – Offshore Refining



- ▲ Offshore sites shortlisted for location of RE Separation Plant
- ▲ RE intermediate product from Australia to be refined to produce annually,
 - ▲ 3,601 tonnes NdPr Oxide
 - ▲ 3,315 tonnes other RE products
- ▲ **MOU with OCI to develop a JV Toll Processing Plant in South Korea**
 - ▲ Includes long-term supply of raw materials
 - ▲ Proposed location in “Free Economic Zone”
 - ▲ Material to be processed under a tolling agreement.



LEGEND

- | | | | | | |
|-------------------|----------------------|----------------|--------------------|------------------|----------------|
| 01 SX | 03 Operations Centre | 05 Dissolution | 07 Calcination | 09 Storm Water | 11 Waste Water |
| 02 Administration | 04 Reagents | 06 Warehouse | 08 Laydown Storage | 10 SX Event Pond | |
-
- | | | |
|--|---|--|
| 
Lanthanum Oxide | 
NdPr Oxide | 
SEG-HRE Carbonate |
|--|---|--|



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Nolans – The Project Keeps Getting Better



- ▲ Capital cost reduced - US\$680m
- ▲ Globally competitive low cost producer - US\$8.89/kg REO
- ▲ Phosphate revenue - reduces commodity risk
- ▲ Operating costs reduced to US\$6.23/kg REO - Phosphate credits

MINING & PROCESSING		Previous	Current	Change
ROM feed (ktpa)		922	525	-43%
Mine life (years)		20+	20+	0%
Recovery (ROM to final product)	Total RE	63%	76%	21%
	NdPr	64%	75%	17%
	La	63%	75%	19%
	SEG-HRE	48%	68%	42%
PRODUCTION				
TREO equivalent (tpa)		20,000	14,000	-30%
NdPr oxide (tpa)		5,260	3,601	-32%
La oxide (tpa)		3,827	2,658	-31%
SEG-HRE carbonate (tpa TREO equivalent)		746	657	-12%
Phosphoric acid (ktpa merchant grade)		-	110	-
FINANCIAL				
Capital cost (US\$m)		\$835	\$680	-19%
Operating cost (US\$m pa)		\$173	\$125	-28%
Operating cost (US\$/kg TREO)		\$8.65	\$8.89	2.7%
Operating cost (US\$/kg TREO; less credit for phosphoric acid)		\$8.65	\$6.23	-28%



Nolans – The Project Keeps Getting Better



Commercial

- Product and revenue diversification
- Plant upgrade extended to year 10 of operations
- Lower OPEX
- Increased rare earth recovery from ROM to final product
- Enhanced Heavy RE recovery.

Environmental

- Reduction in waste streams
- Reduced power and water consumption
- Smaller project footprint
- Use of process generated gypsum reduces limestone in waste neutralization
- Overall reduced environmental impact

Efficiency

- Reduction in reagent use
- Reduction in the mining rate and ROM feed to the crushing plant
- Simplification of the comminution circuit to deliver a coarser feed into beneficiation
- Phosphoric acid in pre-leach better aligned with a rare earth-bearing phosphate-rich feed
- Enhanced suppression of deleterious elements in the phosphoric acid process
- Smaller unit operations in sulfation and water leach



Nolans Mineral Resource



Resources	Tonnes (million)	Rare Earths TREO %	Tonnes TREO	Phosphate P ₂ O ₅ %	Uranium U ₃ O ₈ lb/t
Measured	4.9	3.2	158,000	13	0.54
Indicated	30	2.7	816,000	12	0.44
Inferred	21	2.3	489,000	10	0.36
TOTAL	56	2.6	1,462,000	12	0.42

1% TREO cut-off grade. Numbers may not compute exactly due to rounding. 1 lb/t U₃O₈ = 0.0454% U₃O₈.

- ▲ Production of 14,000 tpa REO (equivalent) & 110,000 tpa of Phosphoric Acid
- ▲ 20+ years life of mine – less than 40% of Measured & Indicated Resource only
- ▲ 525,000 tpa mined - very high 75% Nd recovery as oxide
- ▲ Large world class, low risk resource open at depth
- ▲ Flowsheet development, technology, access to infrastructure, social licence, and capital are the key hurdles to project execution.



Nolans Project Value Proposition



Attribute	Arafura
Long-life, low-risk resource with planned output that supports >20 years of production	✓
Flowsheet proven from mine to market	✓
Close to vital infrastructure ; transport, gas and water	✓
Feasibility underway and Environmental Study lodged with regulator	✓
NdPr Magnet focus - highest quotient of all RE projects 26.5% with > 75% recovery	✓
Lowest production cost to remain competitive in a cyclical downturn	✓
World class asset located in a jurisdiction with low geopolitical risk; strategic support	✓



Proposed use of funds in 2016/17



Project Refinement

- ▲ Beneficiation Pilot Plant
- ▲ Phosphoric Acid Pilot
- ▲ RE Pilot
- ▲ REO purification to customer specification

Engineering

- ▲ Detailed Flow diagrams
- ▲ Detailed engineering
- ▲ Transport and logistics

Other

- ▲ Environmental Approval
- ▲ Marketing
- ▲ Strategic partners
- ▲ Water Licence
- ▲ Financing

Discussions with potential investors ongoing including customers, financiers & ECA's



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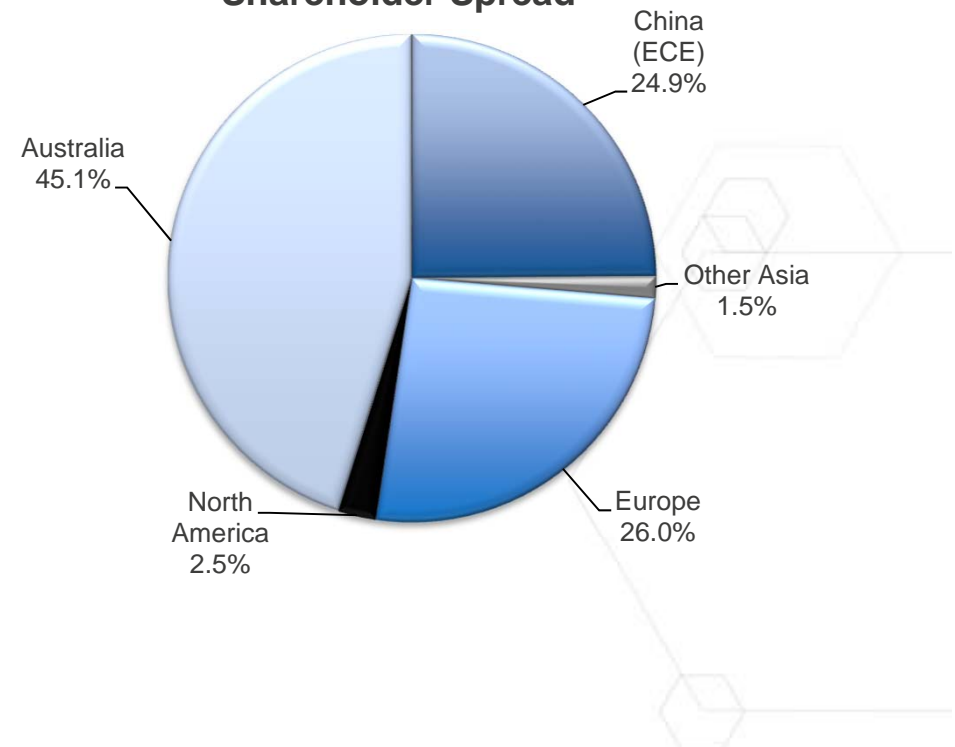
Company Snapshot



ASX Code	ARU
Market Cap @ 7c	A\$31 million
1-year range	4.1 – 7.5 cents
Cash at 30/06/16	A\$11.5 million
Debt	Nil

- ▲ 100% owned Nolans project
- ▲ ECE – supportive SOE shareholder, one director
- ▲ 7,000+ retail shareholders
- ▲ Value created through to DFS completion
- ▲ Low enterprise value highly leveraged to positive Nd trend

Shareholder Spread



Highly Experienced Board & Management



Board of Directors



Ian Kowalick – Non-Executive Chairman

Appointed 1 February 2012. Ian has worked in technical and project consulting, economic and business analysis for resource, banking and investment companies. Previously held the most senior management position in the South Australian public sector.



Gavin Lockyer – Managing Director

Over 20 years' international experience in finance and mining. Held positions in senior investment banking, finance, treasury, derivatives and accounting.



Chris Tonkin – Non-Executive Director

25+ years' experience as a senior business executive. Proven track record in structuring and arranging complex financings for companies and projects in Australia and internationally across all major industry sectors.



Terry Grose – Non-Executive Director

30 years' experience as a senior executive, consultant & director. Joined Wesfarmers Ltd in 1985 as a Business Development Manager and later moved to Hong Kong as Executive Director of a computer software company.



Cungen Ding – Non-Executive Director

Over 30 years of mineral prospecting and exploration experience, both within China and internationally, with extensive experience in titanium and iron. Chairman of ECE subsidiary Jiangsu Eastern China Non-ferrous Metals Investment Holding Co., Ltd,

Management Team



Peter Sherrington – CFO and Company Secretary

Over 20 years' experience in professional & corporate roles. Has held senior finance and commercial positions in many ASX and public unlisted entities. Has also worked in public practice for 10 years in business services and corporate advisory.



Richard Brescianini – GM Exploration & Development

30 years' public and private experience in the minerals industry, including BHP Minerals and the NT Government's Geological Survey.



Brian Fowler – GM Northern Territory & Sustainability

40+ years in the mining industry, including in environmental and safety management, community engagement, permitting/approvals and land access. Exploration and production/operation phase experience. Previously with Newmont Australia & Normandy Mining.



Lloyd Kaiser – Engineering & Marketing Manager

More than 20 years in the resources and chemical industry with experience in process engineering, business development, sales and marketing. Previously with CIBA, BASF and Doral Minerals.