

ASX Announcement

## Investor Presentation – Amvest Capital Webinar

6 May 2020

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**Arafura Resources Limited (ASX:ARU) (Arafura or the Company)** is pleased to attach a copy of the presentation which was used as the basis for a webinar hosted by Amvest Capital, a New York City based specialist investment manager and corporate finance firm focused solely on the natural resources sector.

Mr Gavin Lockyer, Arafura's Managing Director will be presenting the webinar. Subscribers to the Company's announcements have been sent a link to the webinar. For future webinar invitations, please subscribe to the Company's announcements at [www.arultd.com](http://www.arultd.com).

- ENDS -

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# INVESTOR PRESENTATION

*Amvest Webinar*



5/05/2020





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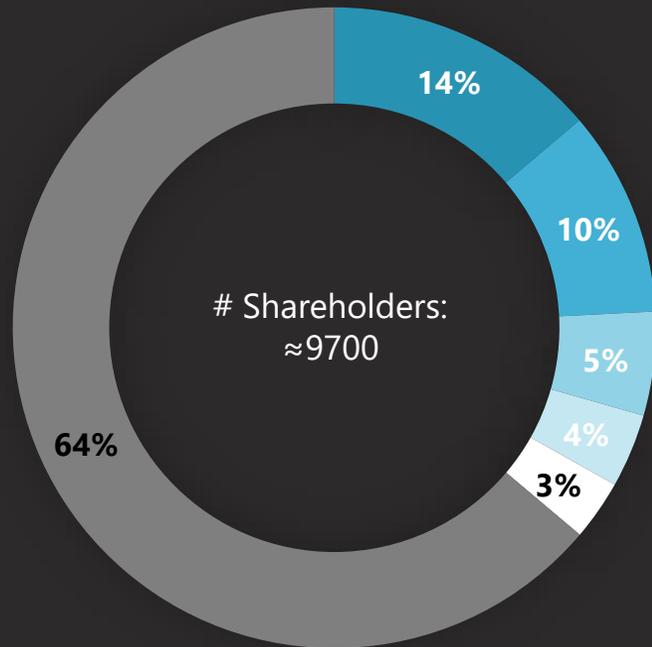
#### Mineral Resources and Ore Reserves

The information in this presentation that relates to Mineral Resources was released in an ASX announcement dated 7 June 2017 (Detailed Resource Assessment Completed) and was completed in accordance with the guidelines of the JORC Code (2012). The information in this presentation that relates to Ore Reserves was released in an ASX announcement dated 16 March 2020 (Major Increase in Mine Life for the Nolans Project) and was completed in accordance with the guidelines of the JORC Code (2012). Arafura Resources confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates in the original market announcements continue to apply and have not materially changed. Arafura Resources confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

#### Production Targets and Forecast Financial Information

The information in this presentation that relates to production targets and financial information included in this presentation is extracted from ASX announcement dated 16 March 2020 (Major Increase in Mine Life for the Nolans Project) including the cost and pricing assumptions referred to in the Company's 16 March 2020 announcement that were used in the DFS and which are set out in the Company's ASX Announcement 7 February 2019 (Nolans Project Definitive Feasibility Study) continue to apply and have not materially changed.

# Corporate Snapshot



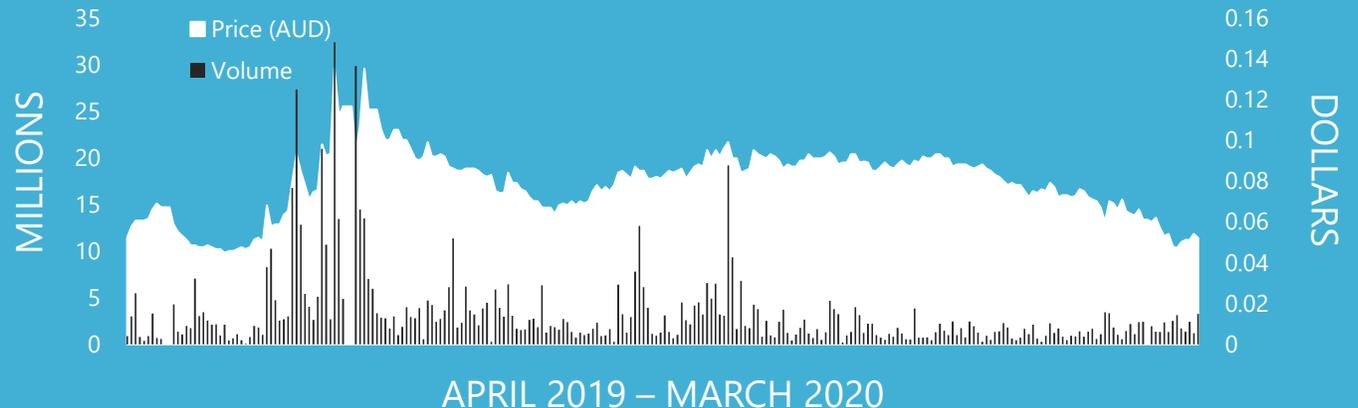
|                                       |
|---------------------------------------|
| JP Morgan Nominees Australia Pty Ltd  |
| ECE Nolans Investment Company         |
| Talaxis Ltd                           |
| Citicorp Nominees Pty Ltd             |
| HSBC Custody Nominees (Australia) Ltd |
| Other                                 |

- ✓ Developing the world-class Nolans NdPr project
- ✓ Nolans will supply **5-10% of global demand for NdPr oxide**, the key rare earths in permanent magnets used extensively in electric motors
- ✓ DFS completed February 2019
- ✓ 100% Australian domiciled ore to oxide strategy

| Capital Structure                |          |
|----------------------------------|----------|
| ASX Code                         | ARU      |
| ASX Share Price (31 March)       | \$0.052  |
| Shares on Issue                  | 1,055m   |
| Market Capitalisation (31 March) | \$54.8m  |
| 12 Month Liquidity               | \$67.6m  |
| Cash (31 March*)                 | \$20.1m  |
| Debt                             | Nil      |
| Enterprise Value (31 March*)     | \$34.75m |

\* Data based on 31 March 2020 2019 Quarterly Report

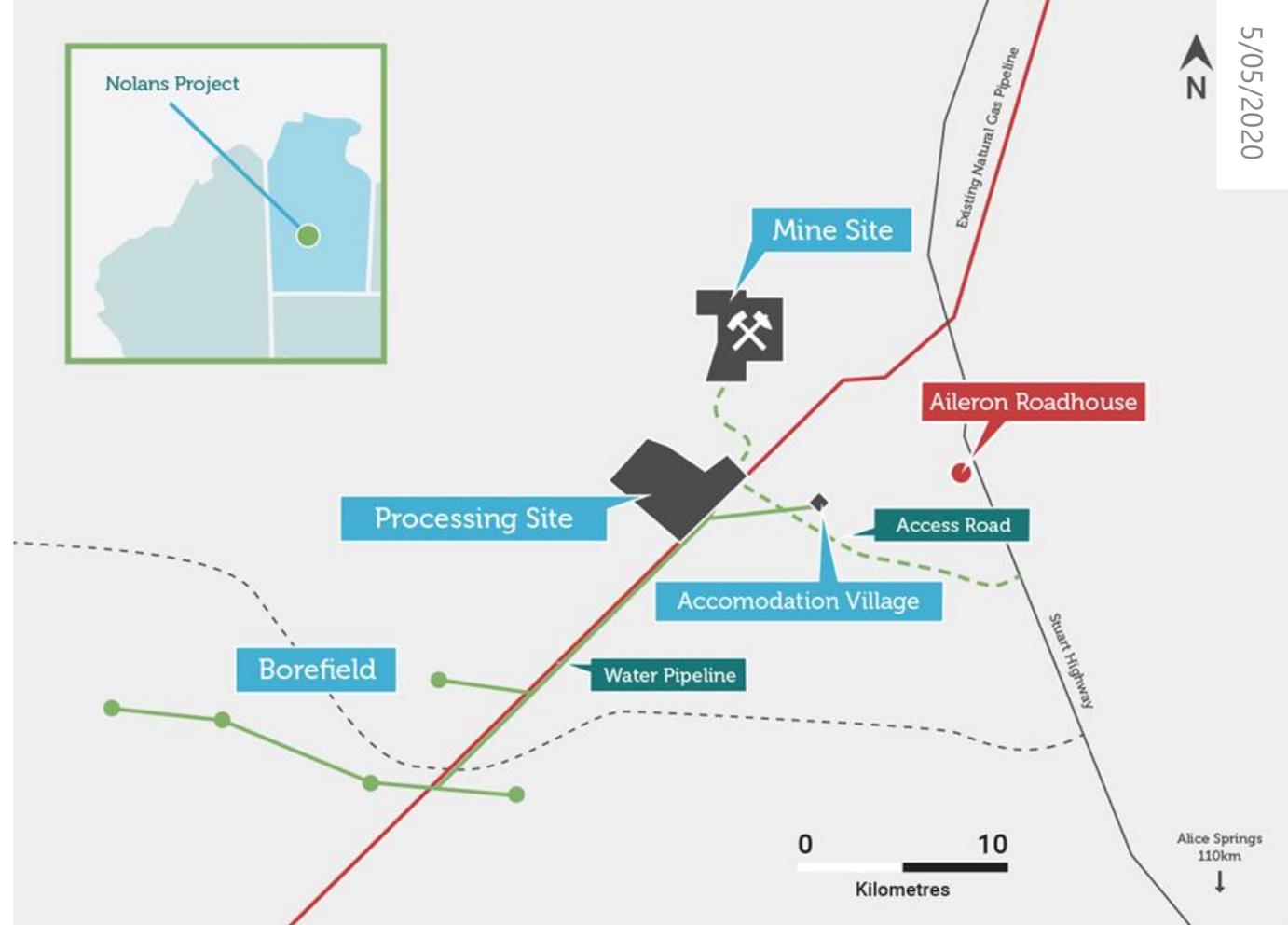
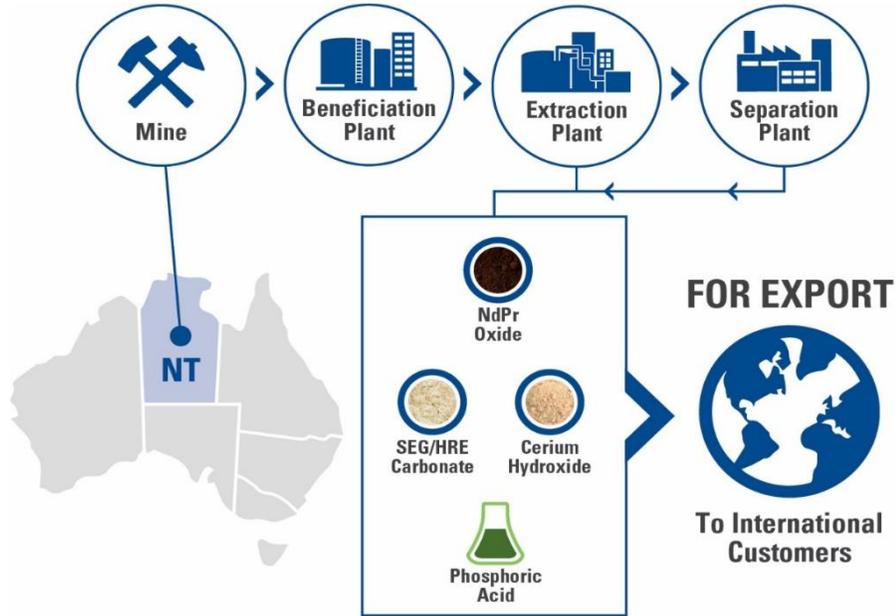
## 12 Month Share Price Performance



# Nolans Project



# 100% Australian Domiciled in the NT



- 1 Ore to oxide at a single site
- 2 Environmental approvals secured

- 3 Product traceability and single site waste management certainty
- 4 DFS includes fully-costed rehabilitation of permanent disposal facility for tailings and process residues

# Definitive Feasibility Study (DFS) Completed & Improved

|   | DFS Ore Reserves | Updated Ore Reserves | Updated Mining Inventory |
|---|------------------|----------------------|--------------------------|
| <b>Mining &amp; Processing</b>                            |                  |                      |                          |
| Project Life (years)                                      | 23               | 33                   | 39                       |
| <b>Production</b>   |                  |                      |                          |
| NdPr Oxide (tpa)  | 4,357            | 3,923                | 4,325                    |
| <b>Financial</b>  |                  |                      |                          |
| Capital Cost (A\$m)                                       | 1,006            | 1,003                | 1,026                    |
| <b>KPI Analysis</b>                                       |                  |                      |                          |
| Operating Cost (US\$/kg NdPr with Phosphoric Acid credit) | \$25.94          | \$27.02              | \$23.71                  |
| NPV10 after tax (A\$m)                                    | 729              | 782                  | 968                      |
| IRR after tax (%)   | 17.43%           | 17.29%               | 17.97%                   |
| After tax payback   | Year 5           | Year 5               | Year 5                   |

As announced on 16 March 2020. Average production and costs are calculated as the arithmetic annual average following the anticipated three year ramp up and excluding the partial final year of production.

- ✓ DFS completed February 2019 confirming **Nolans as a world class NdPr project**
- ✓ CAPEX US\$726m, low OPEX producer at **US\$25.94/kg NdPr**
- ✓ **Long-life asset** based on Ore Reserves only, with potential to further optimise production
- ✓ Well positioned to **feed forecast NdPr supply shortfall**
- ✓ Globally strategic – **100% Australian-domiciled operation in the NT**
- ✓ Only Australian NdPr project with **environmental approval for ore to oxide**

# Environment & Sustainability



# Licence to Operate – Sustainable Supply



Extensive community and stakeholder consultation



Waste management plan tailings and residue facility



Assessing impact from mining, extraction and transport corridor



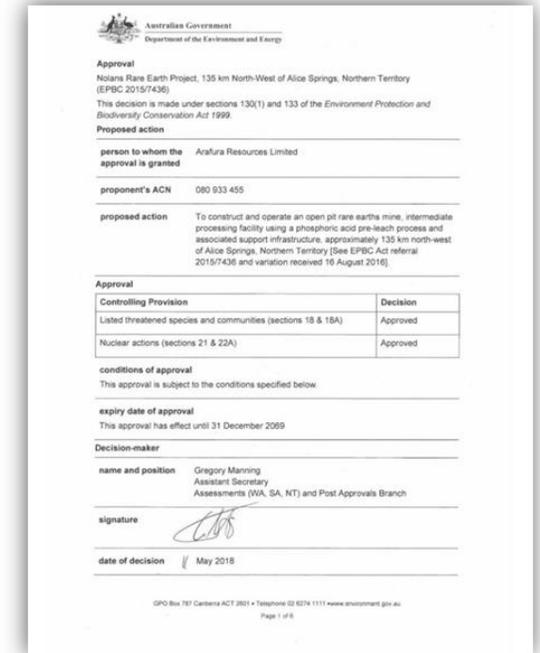
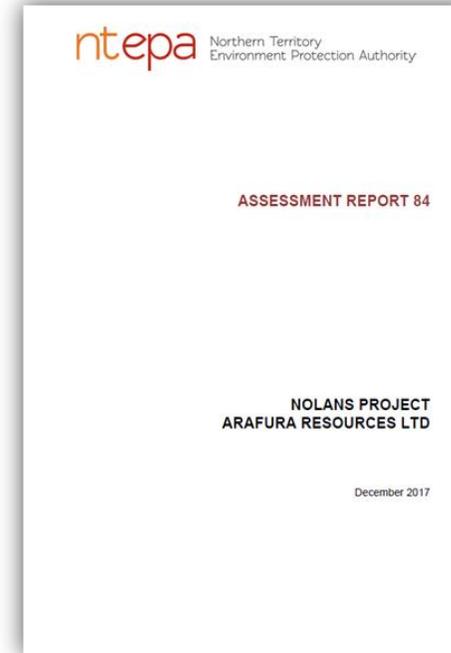
Surface water and groundwater management plans



Biodiversity studies on existing flora and fauna



Framework for decommissioning closure and rehabilitation

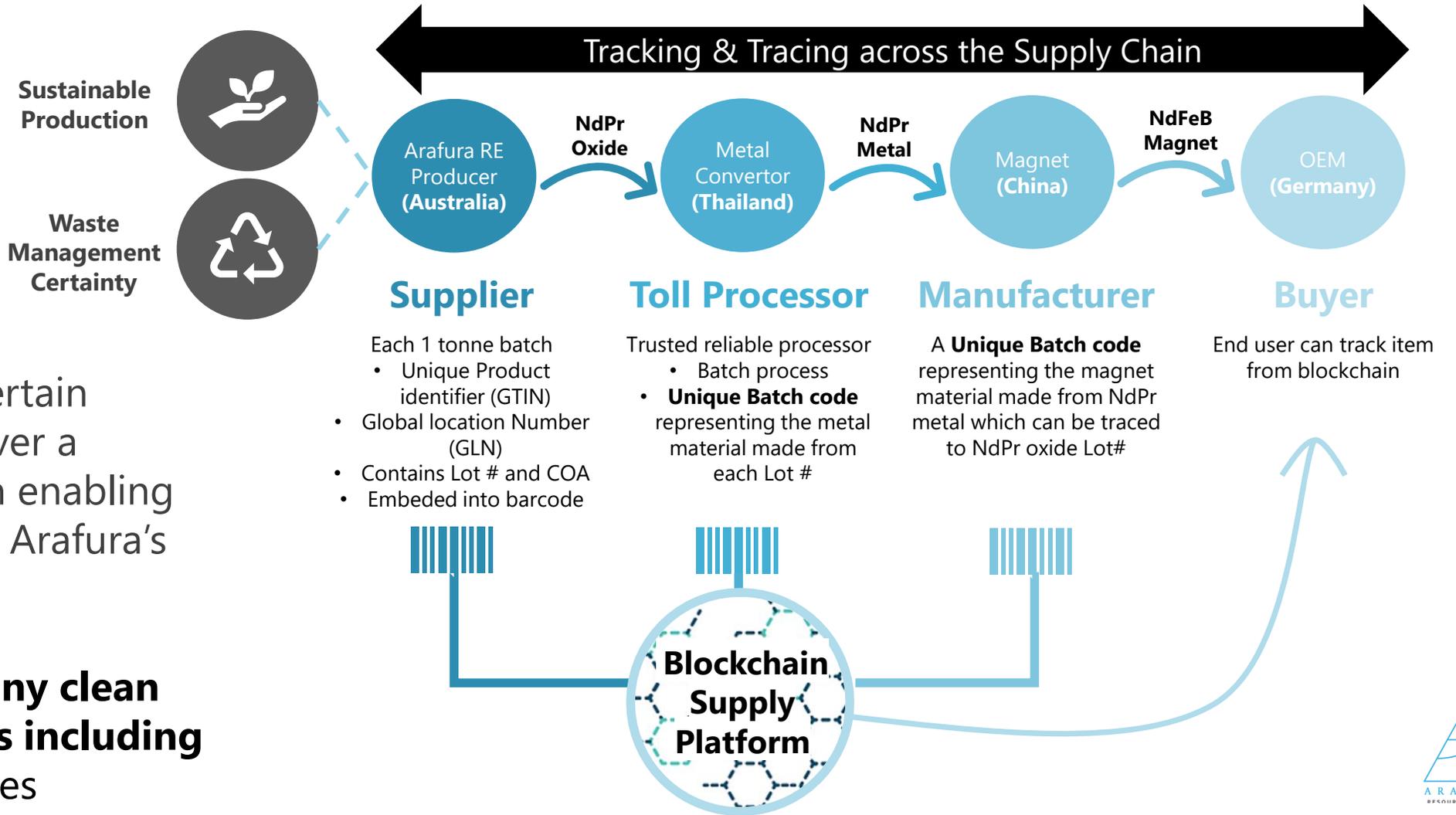


- ✓ **Nolans is the only NdPr-focused project in Australia with environmental approval for mining, extraction and separation, including for radioactive and other waste management from all processes**
- ✓ **Provides customers with a long-term reliable and sustainable supply from outside China**

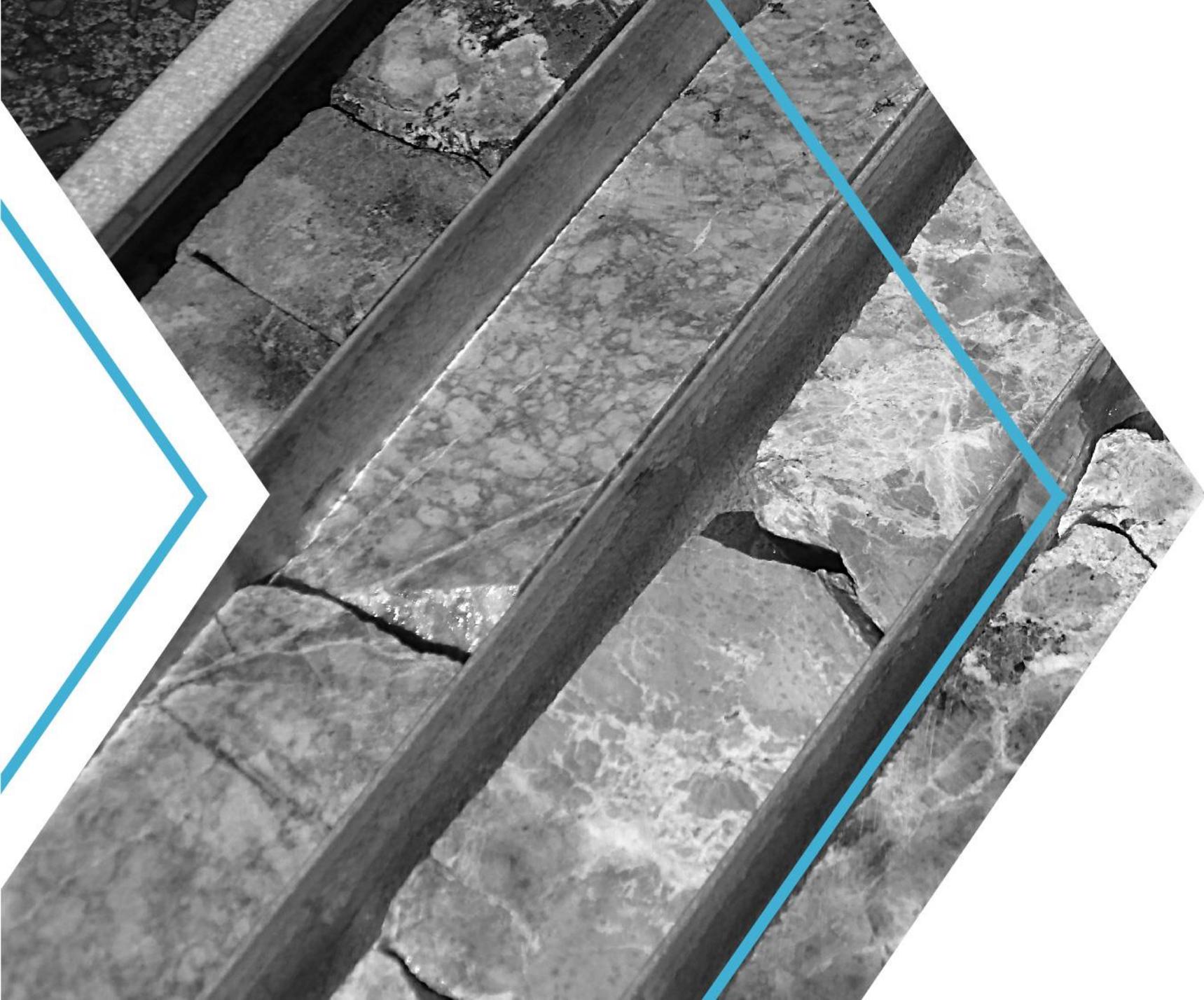
# Verified Supply Chain

MoU with Source Certain International to deliver a verified supply chain enabling origin verification of Arafura's NdPr Oxide

**NdPr central to many clean energy applications including EVs and wind turbines**

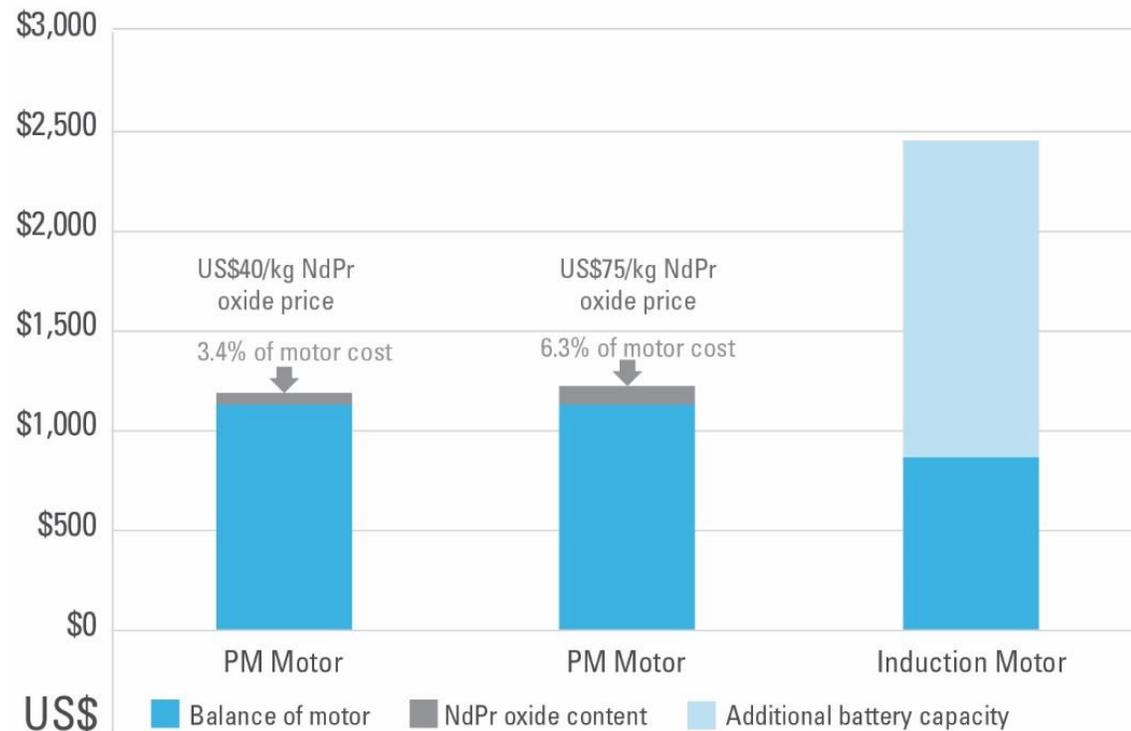


# Marketing Strategy



# NdFeB Magnet Power Central to EV Efficiency & Cost

Modelled effect of increase in NdPr price, Permanent Magnet (PM) vs Induction Motor and incremental Li-ion Battery Pack



- ✓ Chevrolet Bolt: 150 kW permanent magnet (PM) motor with 60 kWh lithium-ion battery pack.<sup>1</sup>
- ✓ PM motor cost based on US\$8 per kW.<sup>2</sup>
- ✓ Estimate of 1 kilogram of NdPr metal per PM motor.<sup>2</sup>
- ✓ Induction motor cost calculated as 76% of PM motor.<sup>3</sup>
- ✓ Efficiency of induction motor 15% less than PM motor.<sup>4</sup> To compensate, an extra 6 kWh of battery capacity has been allowed for.
- ✓ Lithium-ion battery pack costs of US\$176 per kWh applied.<sup>5</sup>

<sup>1</sup> [www.chevrolet.com](http://www.chevrolet.com)

<sup>2</sup> UBS, "UBS Evidence Lab Electric Car Teardown – Disruption Ahead?", [www.ubs.com/investmentresearch](http://www.ubs.com/investmentresearch), May 2017.

<sup>3</sup> Parker Hannifin, "Comparing AC Induction with Permanent Magnet motors in hybrid vehicles and the impact on the value proposition", 2013.

<sup>4</sup> Adamas Intelligence, "Spotlight on Dysprosium", [www.adamasintel.com/spotlight-on-dysprosium/](http://www.adamasintel.com/spotlight-on-dysprosium/), April 2018.

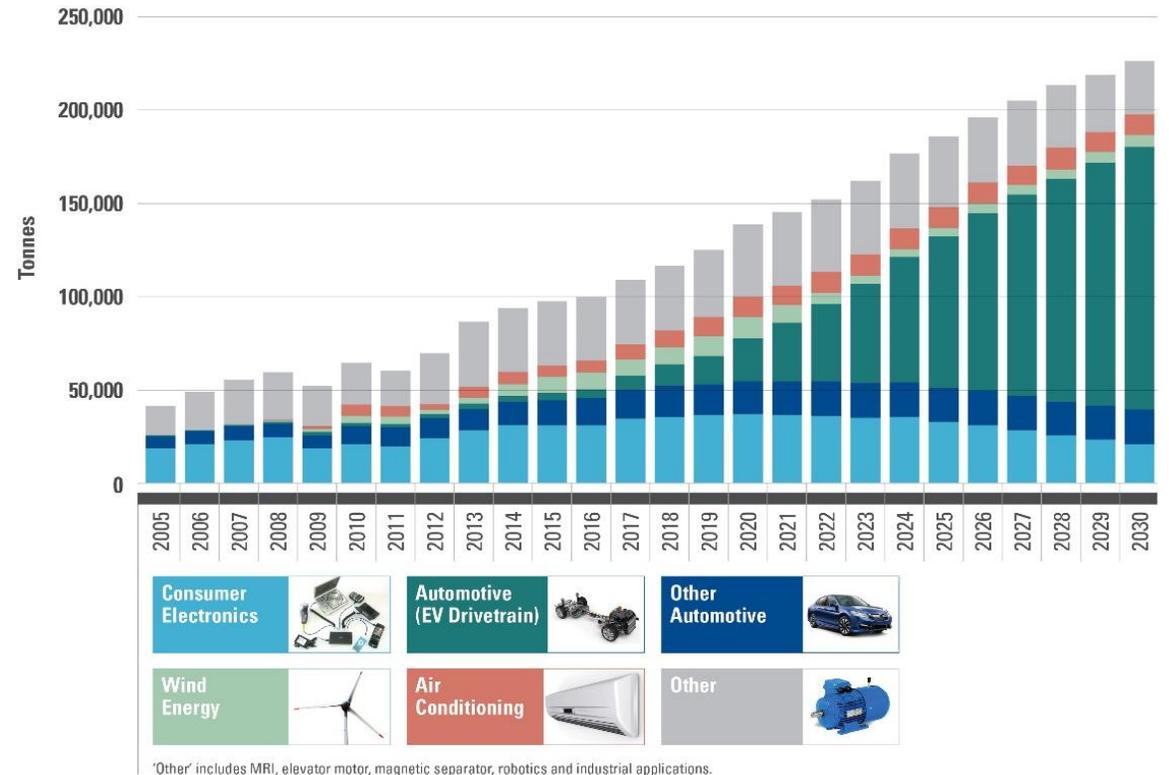
<sup>5</sup> Bloomberg New Energy Finance, "A Behind the Scenes Take on Lithium-ion Battery Prices", March 2019.

<sup>6</sup> Average NdPr oxide EXW China price for April 2019. [www.asianmetal.com](http://www.asianmetal.com)

# EVs - driving the NdPr Market Opportunity

- ✓ Underlying demand for NdFeB magnets across all applications is forecast to grow by 6% p.a. over the period to 2030
- ✓ NdFeB demand growth for EV applications is more dramatic and forecast to grow by 24% p.a.
- ✓ Supply-demand balance achieved through demand destruction in lower quality applications and technology innovations that achieve better use of NdPr in magnet manufacturing
- ✓ Demand in applications for consumer electronics and wind turbines will reduce during the forecast period. For some applications substitution will be traded off against reduced performance and cost.
- ✓ EV applications require high quality and efficient motors using NdFeB magnets
- ✓ New supply will not come on stream fast enough to meet demand from all applications – NdFeB magnets and NdPr oxide will move to the best value in use

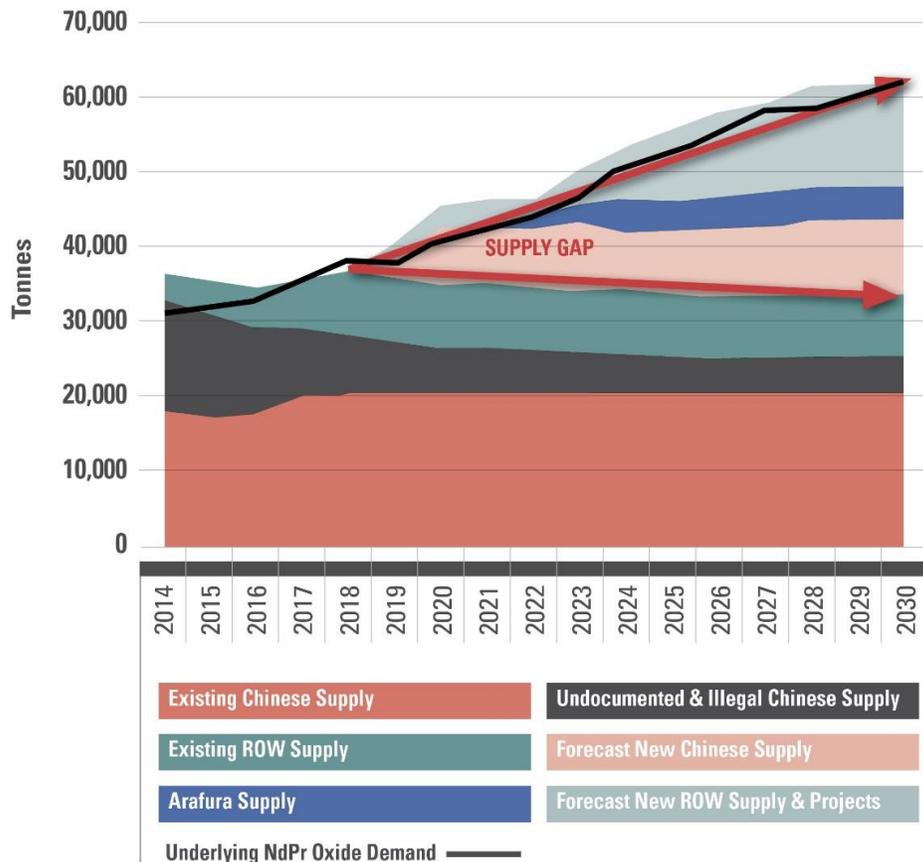
## NdFeB Magnet Demand by Application



Source: Roskill Consulting (November 2018) – Rare Earths Market Analysis

# Supply & Demand Balance

## NdPr Oxide Supply & Demand

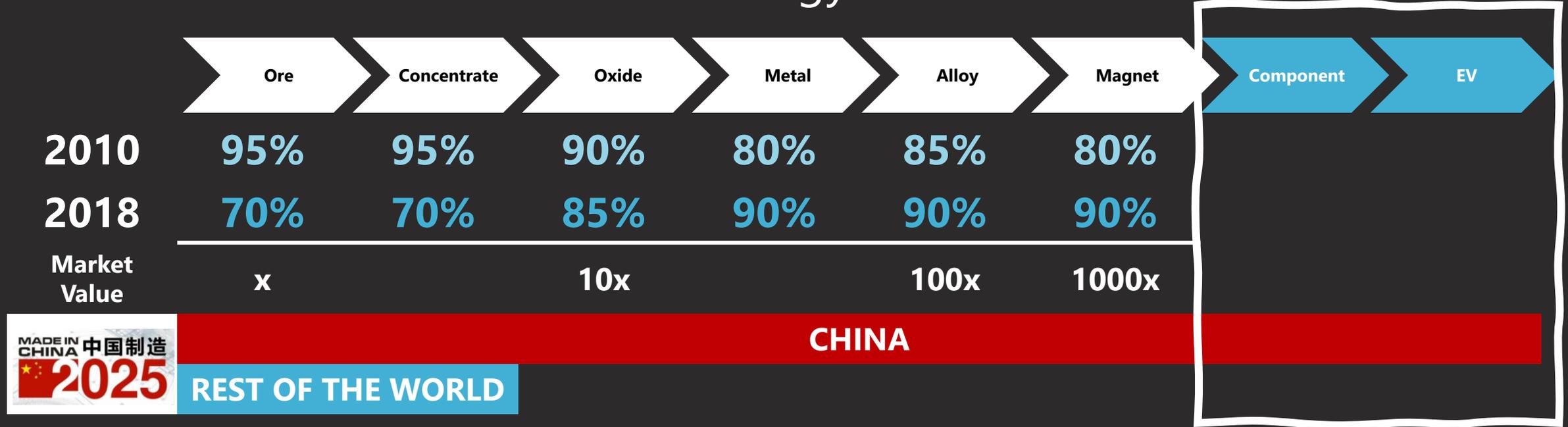


- ✓ China continues to dominate the global supply chain being the world's largest producer accounting for about 80% of NdPr for global NdFeB magnet production
- ✓ Supply reforms, industry consolidation and higher environmental standards will constrain China's ability to rapidly increase NdPr production
- ✓ Supply growth of 20,000 tonnes of NdPr oxide required in the next decade
- ✓ Lynas Corporation (ASX:LYC) is the only significant miner and processor of rare earth materials outside China enjoying a market capitalisation in excess of \$1bn
- ✓ China remains the dominant supplier, however analysts forecast China to become a net importer by the early 2020s

Source: Roskill Consulting (November 2018) – Rare Earths Market Analysis

# China's Evolving Integrated NdPr Supply Chain

– Enables Made In China 2025 Strategy



1

More recently China has **increased its reliance** on concentrate and oxide from non-China sources

2

Access to capital and increased environmental constraints means ore, concentrate and oxide production from China **will be less reactive to world demand**

3

Capital deployed down the value chain focused on enabling China's **Made In China 2025 strategy**

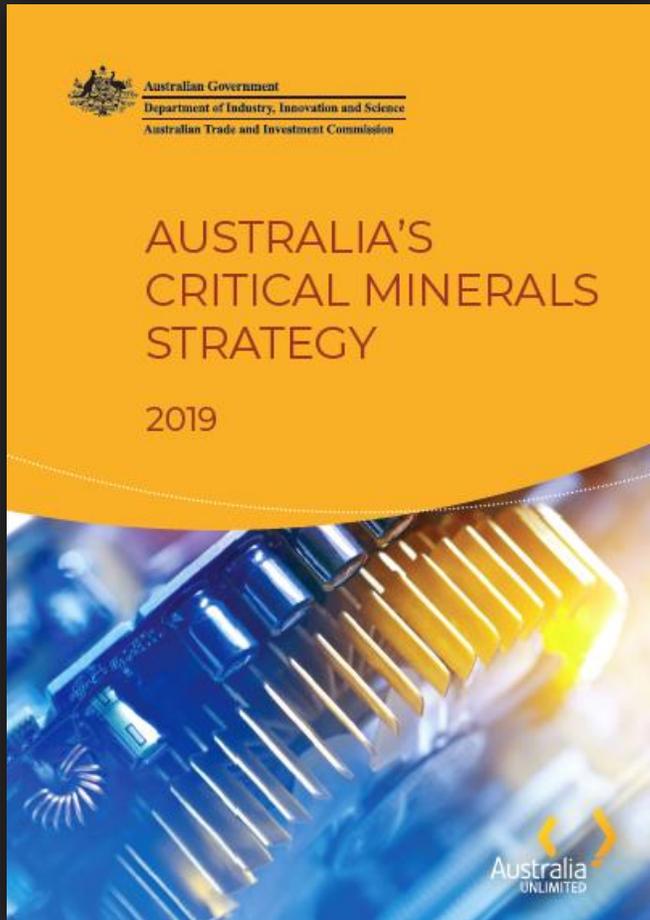
4

China is the only country with a fully integrated **Mine to Motor** supply chain



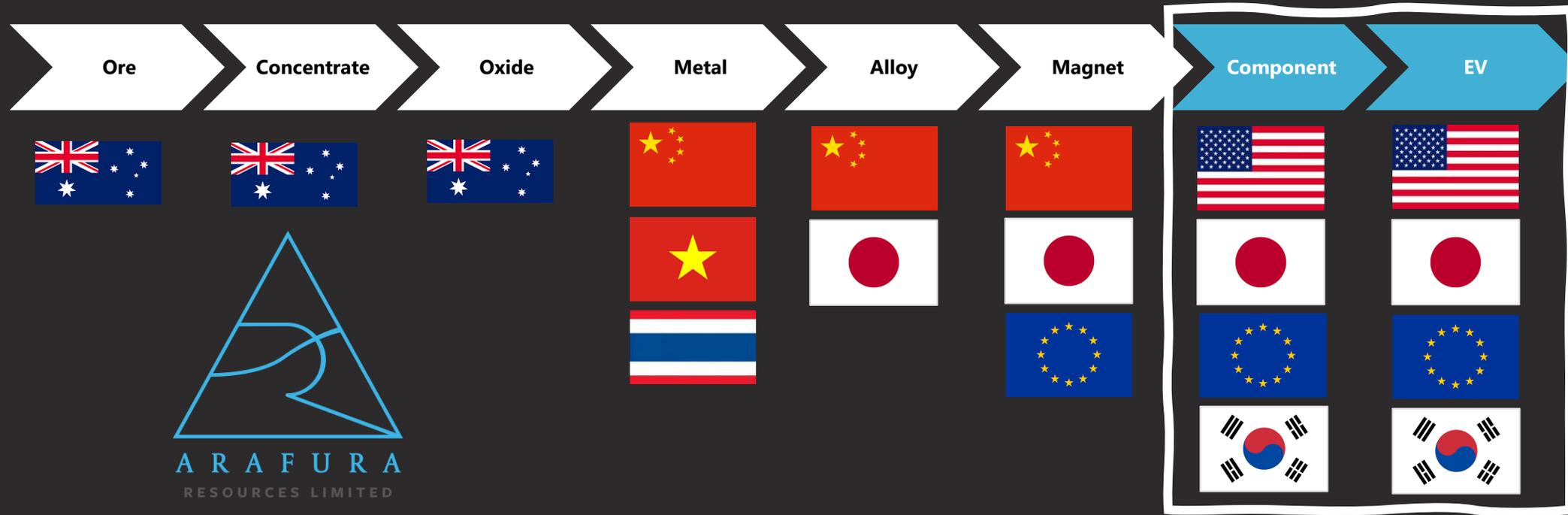
(ASX:ARU)

# Rare Earths are Critical Minerals



- ✓ **China exerts control** over most of the global rare earth supply chain
- ✓ **Australia and its strategic allies recognise the threat posed by China's strategy** to deny capital to new developments
- ✓ **Australia is active in its policy response:** Critical Minerals Strategy & Facilitation Office, expanded EFA mandate via Defence Export Facility, NAIF-EFA co-investment, Austrade support
- ✓ **Multilateral engagement intensifying** with Japan, EU member states and USA
- ✓ Nolans will supply **5-10% of global demand for NdPr oxide**

# Rest of the World Alternative Supply Chain



1

**European auto industry employs 13.8 million people** which equates to 6.1% of the EU workforce and 11.4% of all manufacturing jobs  
*("Electric cars sparks jobs fears in Germany's auto heartland" – Wall Street Journal, August 2019)*

2

**Diversification of NdPr supply source** may provide better traceability, supply certainty and more transparent pricing

3

**Government recognition of the strategic significance of NdPr** can enable multilateral Mine to Motor supply chain solutions

4

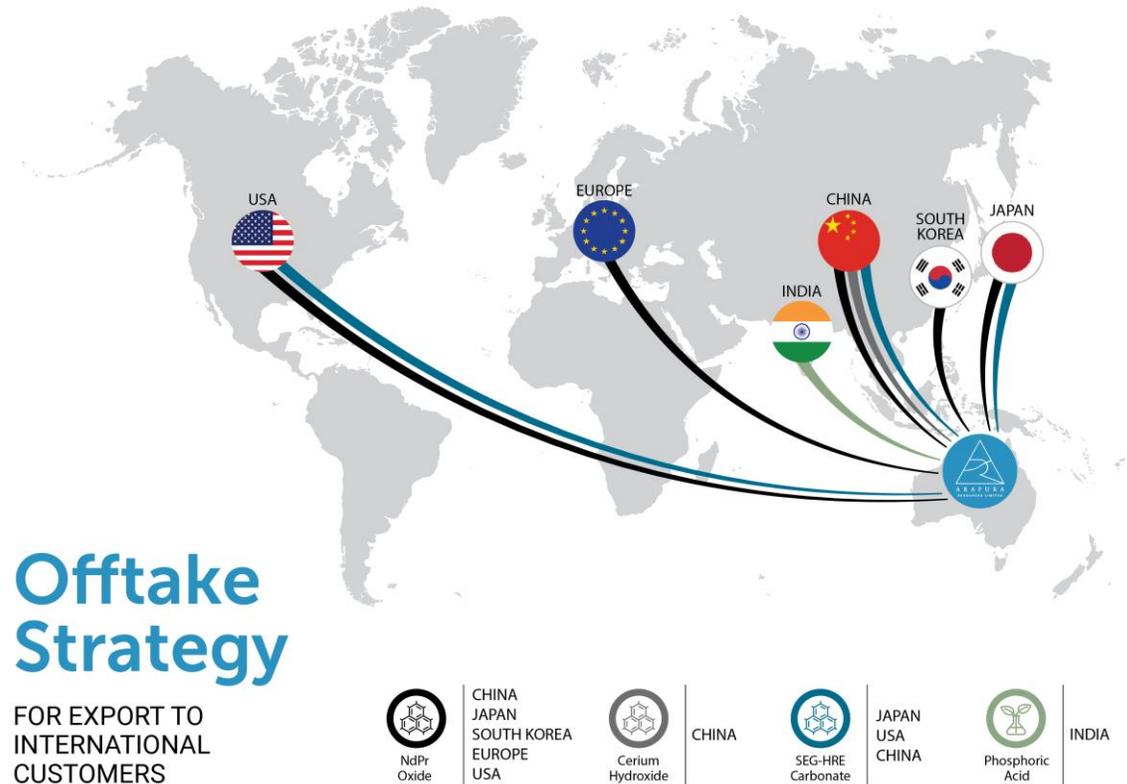
**Nolans offtake strategy** focused on parties **not aligned with the Made in China 2025 strategy**



(ASX:ARU)

# Product Offtake

| Customer / Target Region  | Amount (tonnes p.a.)    | Offtake Status | Proportion of Revenue |
|---|-------------------------|----------------|-----------------------|
| <b>NdPr Oxide – targeting contract with NdFeB magnet companies &amp;/or end users</b> |                         |                |                       |
| JingCi Material Science   | 900                     | MoU            | 96%                   |
| Baotou Tianhe Magnetics   | 900                     | MoU            |                       |
| Japan   | 2,557                   | In progress    |                       |
| South Korea   |                         |                |                       |
| Europe  |                         |                |                       |
| USA   |                         |                |                       |
| <b>SEG-HRE Carbonate – targeting contract with rare earth processors</b>              |                         |                |                       |
| China   | 606 (TREO equivalent)   | In progress    | 1%                    |
| Japan   |                         |                |                       |
| <b>Cerium Hydroxide – targeting contracts with rare earth processors</b>              |                         |                |                       |
| Baotou Xinyuan Rare Earth Hi-tech   | 8,383 (TREO equivalent) | MoU            | 3%                    |



**1** Customer Engagement targeted at NdPr users not aligned with Made in China 2025 strategy

- Japan – NdFeB magnet manufacturers
- Europe & Korea – automotive component makers, OEMs and wind turbine makers
- China – Tier 1 NdFeB magnet manufacturers with significant export markets

**2** U.S. emerging as an offtake opportunity

**3** Product offtake closely linked to project funding

# Project Funding Strategy



# Project Funding Solutions

## The Enablers

- Alignment with offtake and strategic partners that removes some market risk
- Offtake contracts and project finance will need to be engineered to manage downside price risk for low cost / efficient producers
- Piloting at scale to mitigate materials handling and commissioning risk
- Traceability for product and waste management certainty, permitting is robust
- NdPr is a strategic input – leverage this to access funding: ECAs, industry and commercial banks
- Trade war has highlighted the structural supply chain risk for ROW

## The Opportunities

- China new supply more constrained – capital strategically focused downstream and tougher environmental standards
- Supply chain risk will bring greater linkage between OEMs, producers and funding (China and ROW)
- Funding challenges and development complexity will prevent a rush of new ROW NdPr producers

# Project Funding Strategy

- ✓ Arafura looking to secure US\$726m to meet CAPEX requirements for the Nolans project
- ✓ Potential sources of funding include equity, debt, JV and/or project selldown with a strategic investor
- ✓ DFS completion and environmental approval are critical enablers for engagement with funding partners
- ✓ Critical mineral supply and NdPr supply diversification strategies are topical with industry, ECAs and governments
- ✓ Nolans a key critical minerals project identified for potential financing support through Australian Government's Export Finance Australia (EFA) and Northern Australia Infrastructure Facility (NAIF)

## Offtake & Equipment Procurement

- ✓ Offtake long term strategic supply
- ✓ Procurement for high value specialist capital equipment

## Export Credit Agencies

- ✓ Government-backed direct loans and guarantees
- ✓ Leveraged to strategic link with NdFeB magnet supply and capital equipment procurement
- ✓ NAIF mandate – encourage investment and Indigenous engagement in Northern Australia

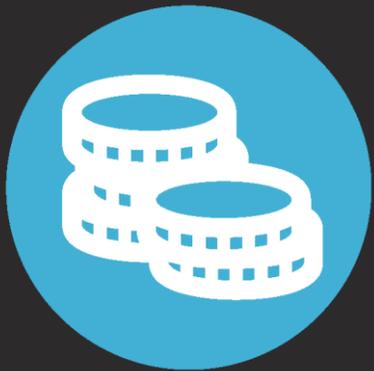
## Commercial Banks

- ✓ Long-life project, high margin and low-cost producer
- ✓ Offtake and Export Credit Agency(s) (ECA) – reduce market exposure and credit risk
- ✓ Improved bankability for conventional lenders

## Equity

- ✓ ECA and bank involvement “halo-effect” – reduced funding risk and less equity dilution
- ✓ Market and technical validation
- ✓ JV / Project selldown opportunities

# Other Funding Sources



## Subordinated debt facilities and other funding sources

- ✓ NAIF and Clean Energy Finance Corporation (CEFC)
- ✓ Mezzanine or cost over-run facility
- ✓ Build-Own-Operate (BOO) and equipment financing
- ✓ Offtake finance – prepayment or working capital

# Current Focus





# 2020 Focus

**1**

**Prioritising project work streams** against cash conservation priorities in light of COVID-19 and uncertain recovery of capital markets.

**2**

**Provision of sample product & advancing terms sheets** with end users for offtake.

**3**

**Escalate engagement** with financiers & financial advisors for project financing.

**4**

**Continued dialogue** with Australian & other governments seeking to establish non-Chinese critical minerals supply chains.



# Appendices

# Experienced Board



**MARK SOUTHEY**  
CHAIRMAN

Mark Southey has previously held senior executive positions with Honeywell and ABB both in Australia and internationally, and more recently was part of the global executive leadership team within WorleyParsons, where he held the position of Group Managing Director for the Minerals, Metals and Chemicals Sector. He is Chair of Arafura Resources' Remuneration and Nomination Committee and is a member of the Audit and Risk Committee.



**CHRIS TONKIN**  
NON-EXECUTIVE DIRECTOR

Chris Tonkin has over 35 years' experience as a senior business executive with a broad industry background in business generation, management, and strategy development. He is a member of Arafura Resources' Remuneration and Nomination and is the Chair of the Audit and Risk Committee.



**QUANSHENG ZHANG**  
NON-EXECUTIVE DIRECTOR

Quansheng Zhang holds a Doctoral degree in Engineering and a Masters degree in Geophysical Prospecting. He is based in Nanjing in the Peoples Republic of China and is the General Manager of Hong Kong East China Non-Ferrous Mineral Resources Co Ltd (HKECE). Quansheng has over 30 years of mineral prospecting and exploration experience, and expertise in mineral resource surveys and geophysics.



**CATHY MOISES**  
NON-EXECUTIVE DIRECTOR

Cathy Moises has extensive resource sector experience having worked for several major stockbroking firms including McIntosh (now Merrill Lynch), County Securities (now Citigroup) and Evans and Partners. More recently, she was Head of Research at Patersons Securities. Cathy holds a Bachelor of Science with Honours in Geology from the University of Melbourne and a Diploma of Finance and Investment from the Securities Institute of Australia. She is a member of Arafura's Remuneration and Nomination and Audit and Risk Committees.



**GAVIN LOCKYER**  
MANAGING DIRECTOR

Gavin Lockyer's diverse, global experience has provided management and leadership opportunities in a range of disciplines including; Accounting, Financial & Investment Banking, Major Resource Development & Operations, and Global Bank Treasuries. Over the past 20 years his career has exposed him to business practices in North America, Europe, and Australasia.

# Experienced Management



**RICHARD BRESCIANINI**  
GENERAL MANAGER  
EXPLORATION & BUSINESS  
DEVELOPMENT

Richard has over 30 years' experience in the minerals industry. He worked with BHP Minerals on base and precious metals exploration programs throughout Australasia and North America, contributing to significant economic discoveries at Eloise (copper-gold) and Cannington (silver-lead-zinc). Thereafter he led the Northern Territory Government's Geological Survey as its Director from 2003 to 2007 before joining Arafura.



**PETER SHERRINGTON**  
CHIEF FINANCIAL OFFICER &  
COMPANY SECRETARY

Peter commenced employment with Arafura in 2008 as Commercial Manager and was appointed Chief Financial Officer in July 2013. He has more than 20 years' experience in professional and corporate roles in Perth. Prior to working with Arafura, he held senior finance and commercial positions with several ASX and public unlisted entities. He has also worked in public practice for 10 years in the areas of business services and corporate advisory.



**LLOYD KAISER**  
GENERAL MANAGER  
SALES & MARKETING

Lloyd has more than 10 years' experience in the sales and marketing of industrial minerals into high value sector markets including the nuclear, automotive, and advanced ceramics sectors. Prior to joining Arafura, he held several senior positions in account management, business development and marketing across a diverse range of commodities and chemicals including alumina, coal, industrial minerals, refractories, and ceramics.



**BRIAN FOWLER**  
GENERAL MANAGER  
NT & SUSTAINABILITY

Brian has worked for over 40 years in private sector mineral companies developing a range of commodities, including rare earths, base metals, and gold. Brian is a member of the Northern Territory Mining Board, Management Board of the Northern Territory Minerals Council of Australia, and a member of Work Health & Safety Advisory Council of the Northern Territory.



**STEWART WATKINS**  
GENERAL MANAGER  
PROJECTS

Stewart has 25 years' experience in many facets of the mining industry including operations, engineering consulting, project development and management. Stewart is a Fellow of the AusIMM. This has included a wide range of roles including corporate and business management, business development, project/study management, process design, commissioning and process plant operation.

# Long Life Asset

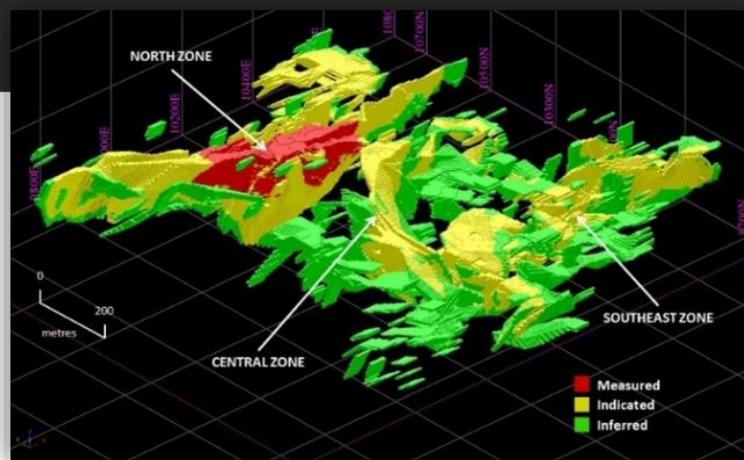
| RESOURCES        | TONNES (m) | RARE EARTHS TREO % | PHOSPHATE P <sub>2</sub> O <sub>5</sub> % | NdPr ENRICHMENT % |
|------------------|------------|--------------------|---|-------------------|
| <b>Measured</b>  | 4.9        | 3.2                | 13  | 26.1              |
| <b>Indicated</b> | 30         | 2.7                | 12  | 26.4              |
| <b>Inferred</b>  | 21         | 2.3                | 10  | 26.5              |
| <b>TOTAL</b>     | <b>56</b>  | <b>2.6</b>         | <b>11</b>                                 | <b>26.4</b>       |

As announced on 7 June 2017. 1% TREO cut-off grade. Numbers may not compute exactly due to rounding. "NdPr enrichment" is the proportion of TREO comprising Nd<sub>2</sub>O<sub>3</sub> and Pr<sub>6</sub>O<sub>11</sub>.

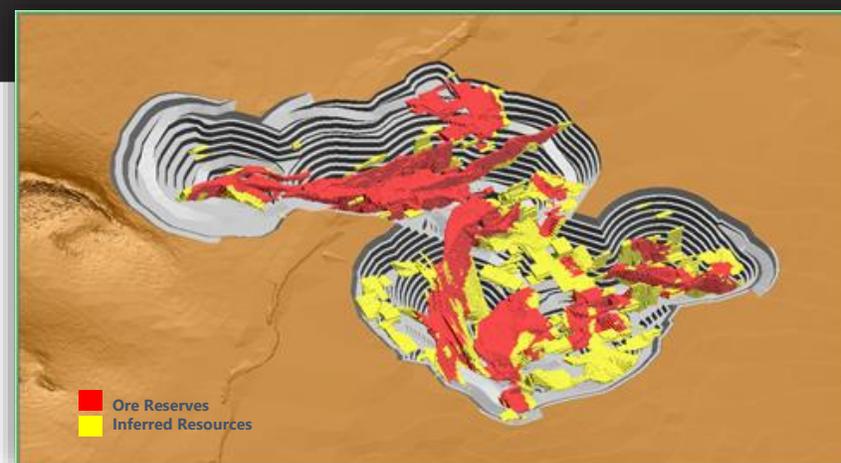
| RESERVES        | TONNES (m)  | RARE EARTHS TREO % | PHOSPHATE P <sub>2</sub> O <sub>5</sub> % | NdPr ENRICHMENT % |
|-----------------|-------------|--------------------|---|-------------------|
| <b>Proved</b>   | 5.0         | 3.0                | 13  | 26.2              |
| <b>Probable</b> | 24.6        | 2.8                | 13  | 26.5              |
| <b>TOTAL</b>    | <b>29.5</b> | <b>2.9</b>         | <b>13</b>                                 | <b>26.4</b>       |

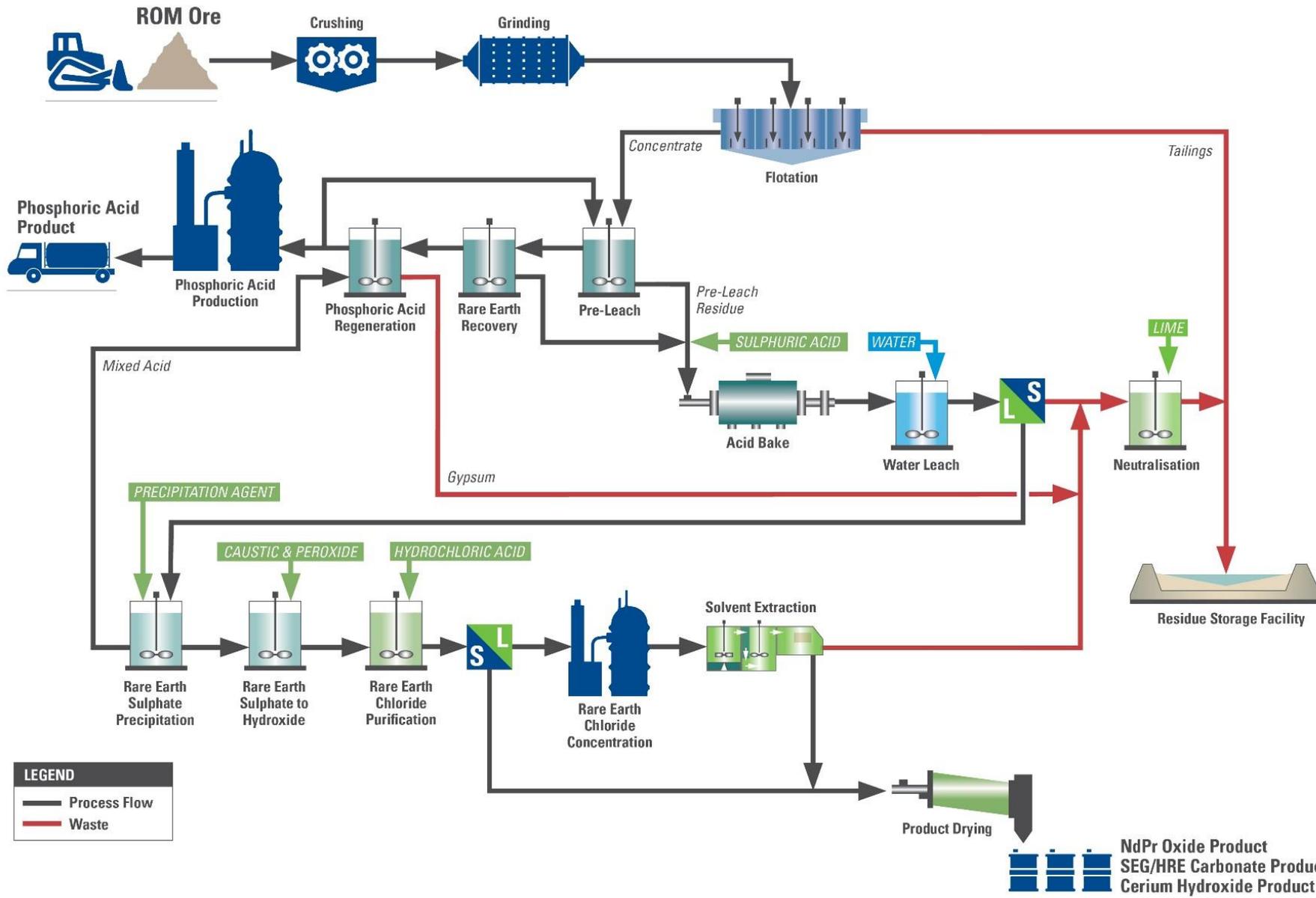
As announced on 16 March 2020. Numbers may not compute exactly due to rounding. "NdPr enrichment" is the proportion of TREO comprising Nd<sub>2</sub>O<sub>3</sub> and Pr<sub>6</sub>O<sub>11</sub>.

## Mineral Resources



## Ore Reserves





# Process Flowsheet Supported by Successful Pilot

# Residue Storage Facility

- ✓ Waste streams generated within the process plant disposed in RSF, a purpose built, long-term, earth fill, lined containment facility.
- ✓ The RSF footprint has been designed for the entire LOM and will be a permanent facility that will be closed and rehabilitated on site without the need for any further residue handling.
- ✓ Each cell – seven to nine years and will then be decommissioned and capped in preparation for rehabilitation.
- ✓ Subsequent cells will be constructed immediately adjacent to the initial structure. In addition to the volume occupied by the residue, each cell can contain the rainfall runoff due to extreme short duration storms and/or prolonged wet periods.

General arrangement of the final RSF design

