

The electrification of motive power is the **biggest energy transformation in history**

But it's not just EVs.

It's also wind turbines, all forms of transport, domestic appliances, military equipment and a growing universe of clean energy applications.

\$300bn

EV boom underway

Which metal is going to be the **biggest** beneficiary?

An EV is essentially two or four axial electric motors powered by a large Li-ion battery. Most of these electric motors need powerful rare earth magnets.



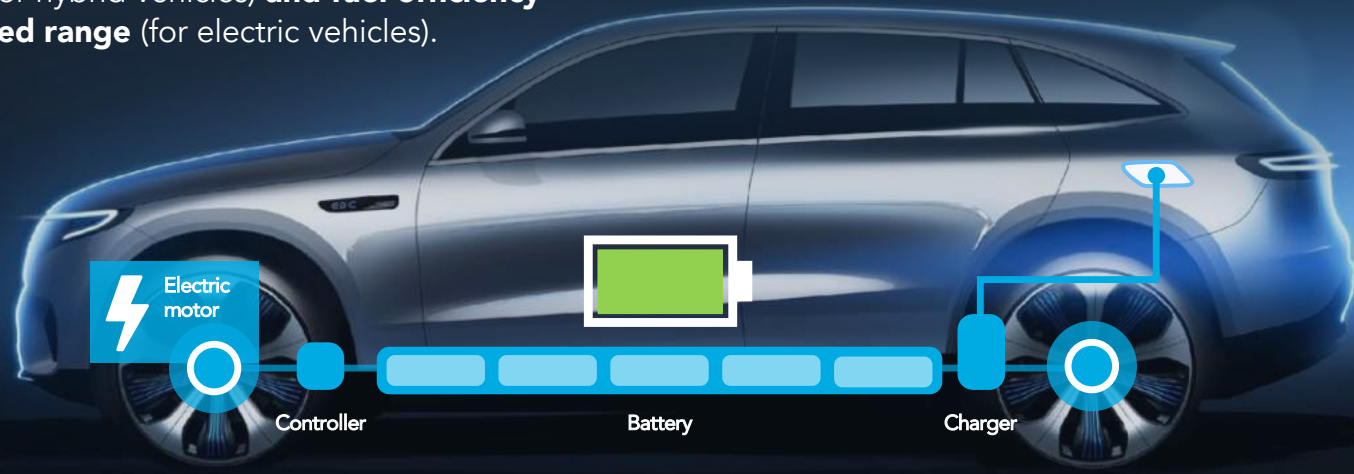
CLUE: It's not one of the battery metals

Neodymium is the magnet metal

NdPr magnets

Their compact size and higher efficiency favour them for most automotive traction applications.

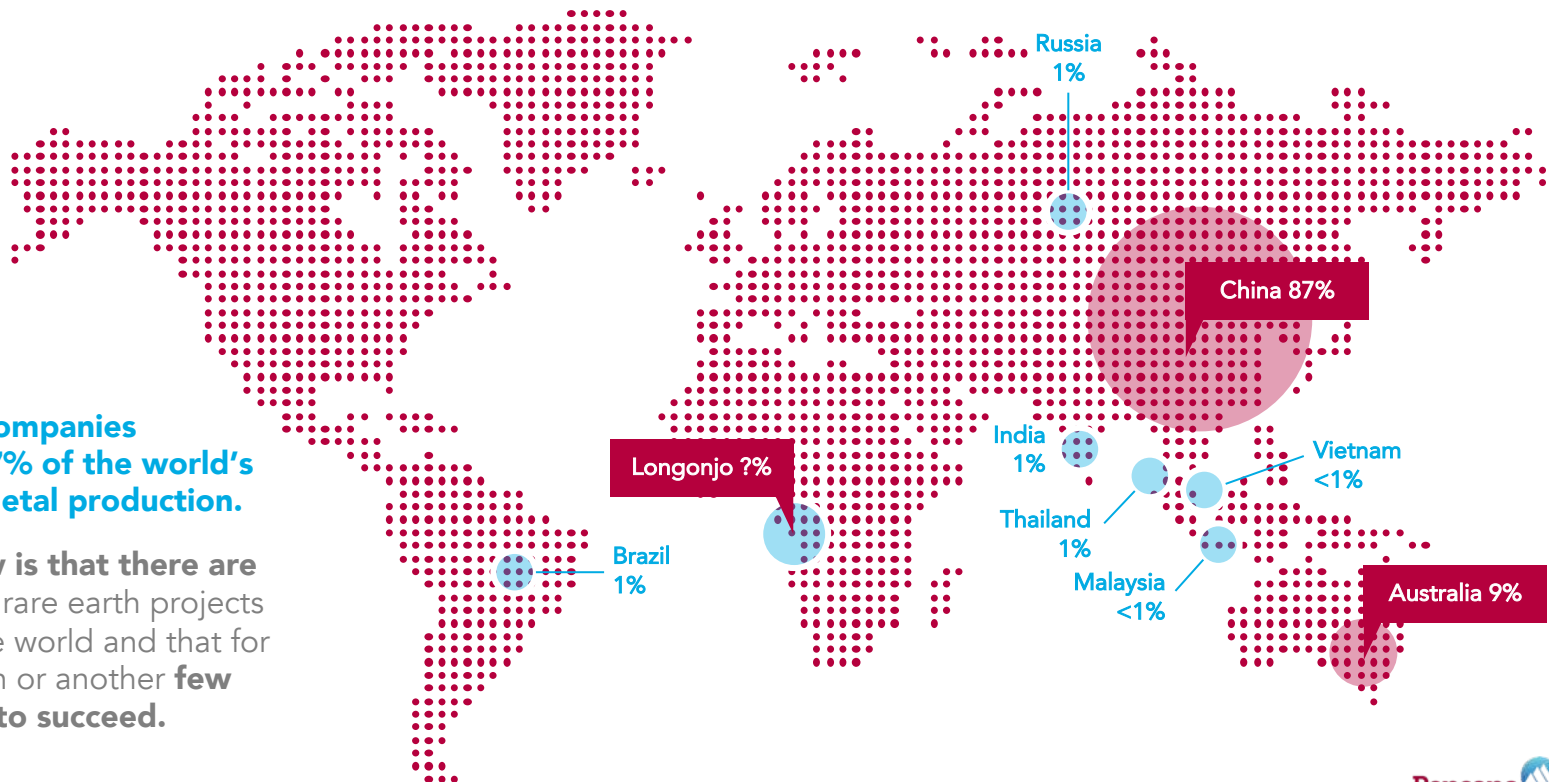
The main benefits for the vehicle owner is fuel efficiency (for hybrid vehicles) **and fuel efficiency and extended range** (for electric vehicles).



But we have a problem

Chinese companies control 87% of the world's magnet metal production.

Their view is that there are the **60-70** rare earth projects around the world and that for one reason or another **few** are likely to succeed.



So we asked them what they wanted



They explained that rare earth processing is very complex and highly capital intensive ...they were not interested in supporting a new project that was going to become a competitor.

However they are under pressure from international EV customers to diversify their supply chain away from China and so **they wanted to know can we supply them with an NdPr concentrate?**

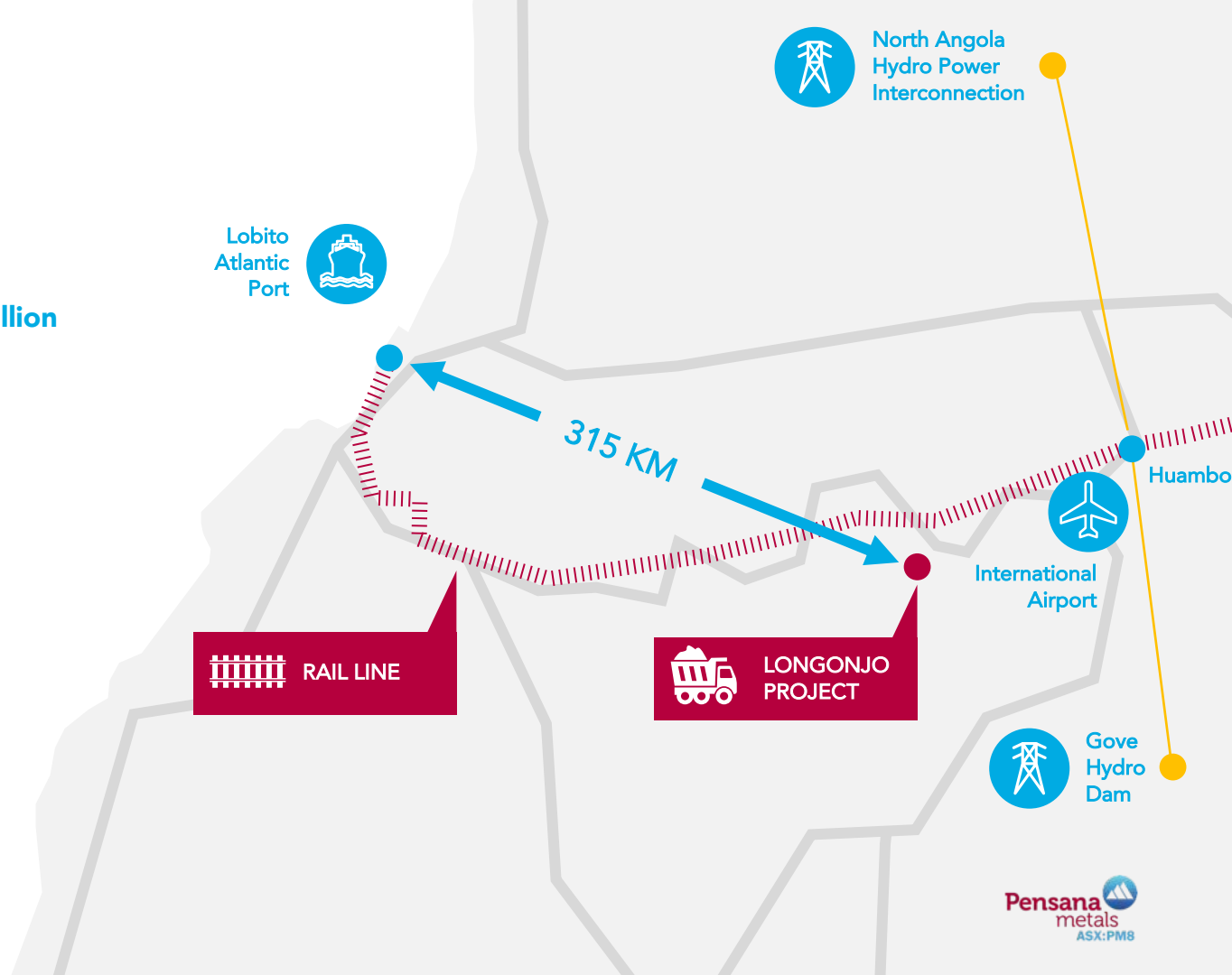
Yes we can...

Longonjo is located adjacent to the Chinese-built US\$1.8 billion Benguela rail line.

This rail line links the project with the Atlantic port of Lobito and onto customers in China.



Source: Port of Lobito E P



Lobito Atlantic Port



315 KM

RAIL LINE



LONGONJO PROJECT



North Angola Hydro Power Interconnection



International Airport

Huambo



Gove Hydro Dam

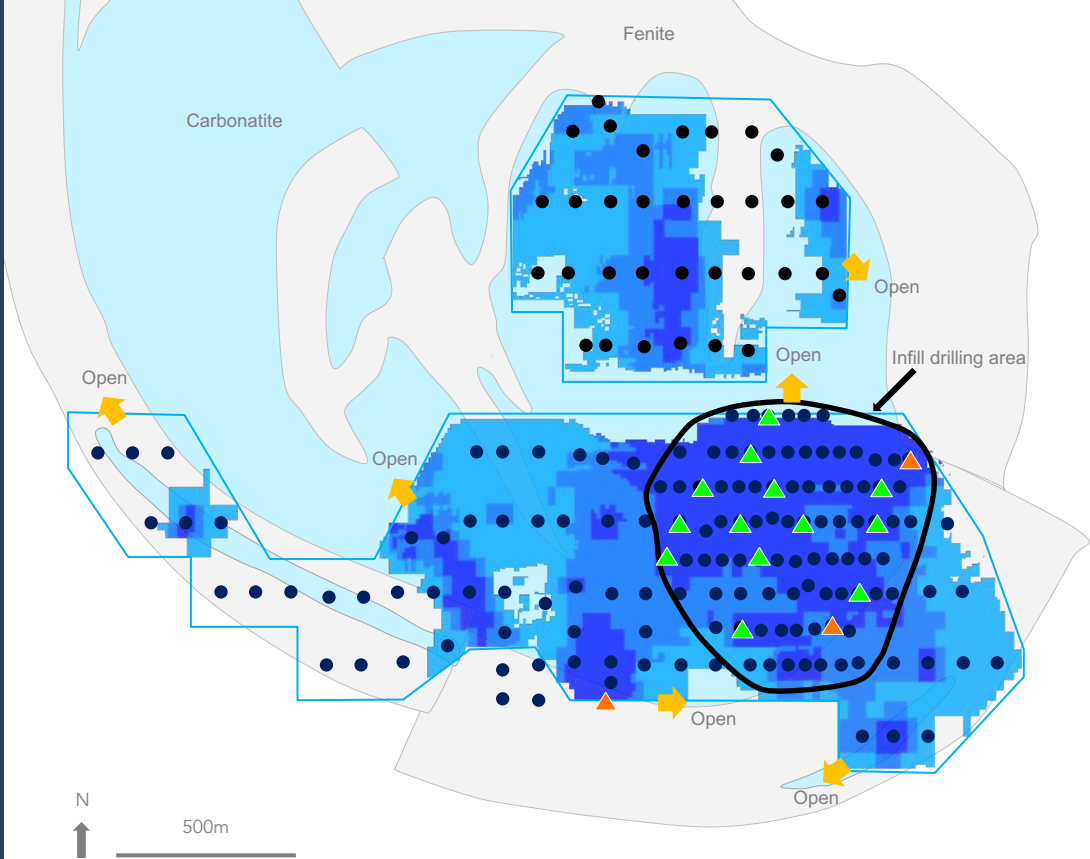
Pensana metals
ASX:PM8

Longonjo ranks as one of the world's largest and highest grade NdPr deposits.

Highly respected international mining industry consultants SRK has reported an Inferred Mineral Resource estimate of:

240 million tonnes at 1.60% REO including 0.35% NdPr for 3,850,000 tonnes of REO including 840,000 tonnes of NdPr

*NdPr = neodymium+praseodymium oxide. REO = total rare earth oxides. A 0.1% NdPr cut is applied. ASX Announcement 19 February 2019, there has been no change to the estimate.



NdPr %

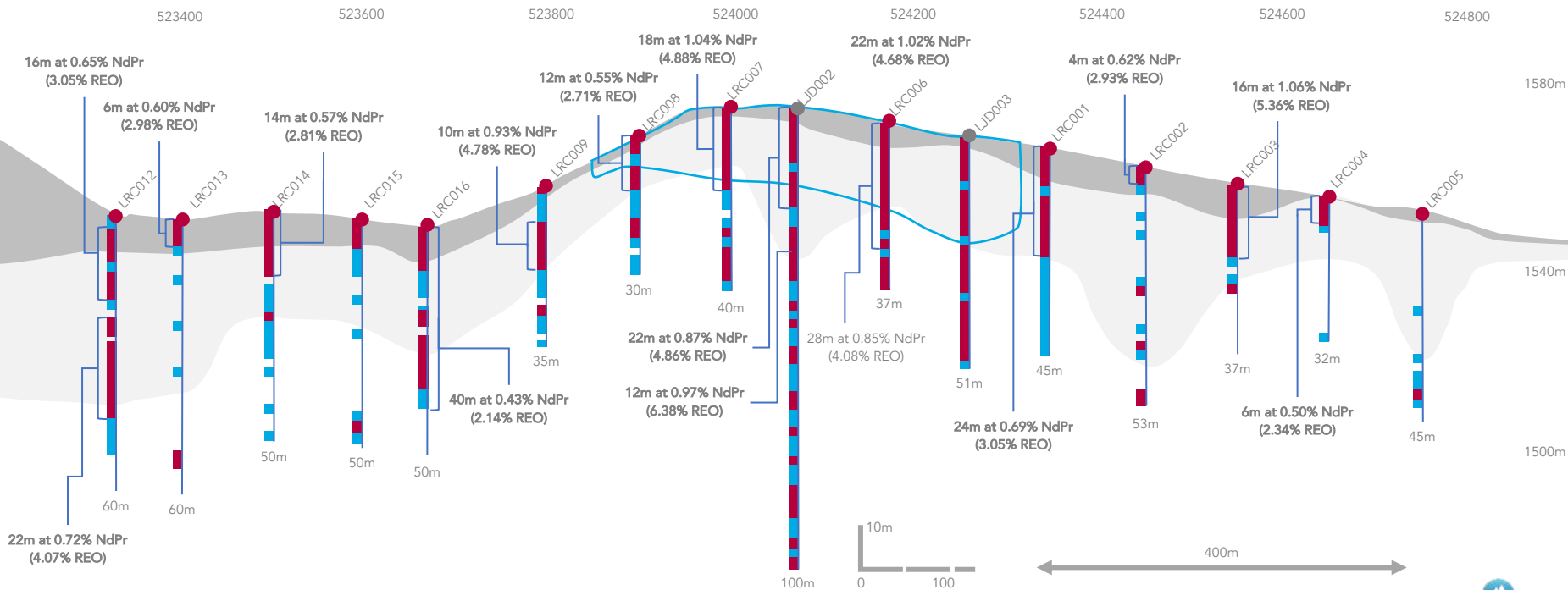
- > 0.8
- 0.6 to 0.8
- 0.4 to 0.6

Completed holes

- Previously reported
- ▲ Diamond (geotech)
- ▲ Diamond (multipurpose)

Plan view of Mineral Resource block model coloured by maximum NdPr grade over simplified geology of the Longonjo Carbonatite. Drill holes are shown as black dots. The limit of the previous Mineral Resource is shown as the black outline.

Thick blanket of **high-grade NdPr** mineralisation extending over 1.5 kilometres

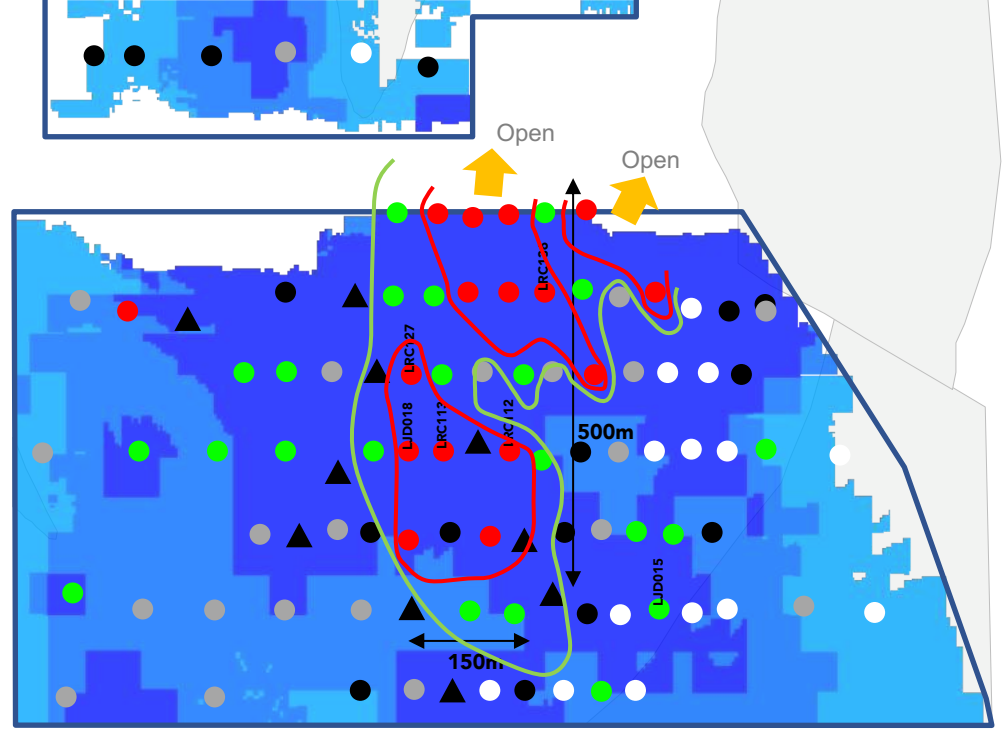


Source ASX announcement: "First drill results extend NdPr mineralisation at Longonjo" of 31 October 2018

Diamond drilling infill programme has reported spectacular intersections and has opened up the fresh rock potential.

The surprise has been **the high grade mineralisation** over a large area in the fresh rock immediately below the weathered zone.

“This fresh rock mineralisation adds a whole new dimension to the project and is something we are now factoring into our development studies.”
Dave Hammond COO



End of hole NdPr % in fresh rock

- | | |
|-------------|-----------------|
| ● > 0.4 | ○ 0 – 0.1 |
| ● 0.2 - 0.4 | ● Weathered eoh |
| ● 0.1 – 0.2 | ▲ 2017 DD hole |

Plan view of Mineral Resource block model coloured by maximum NdPr grade over simplified geology of the Longonjo Carbonatite. Drill holes are shown as black dots. The limit of the previous Mineral Resource is shown as the black outline.

WOOD's 2017 Scoping study

highlighted the benefits of the excellent infrastructure road, rail and hydro.



Source: ASX announcement 6 December 2017

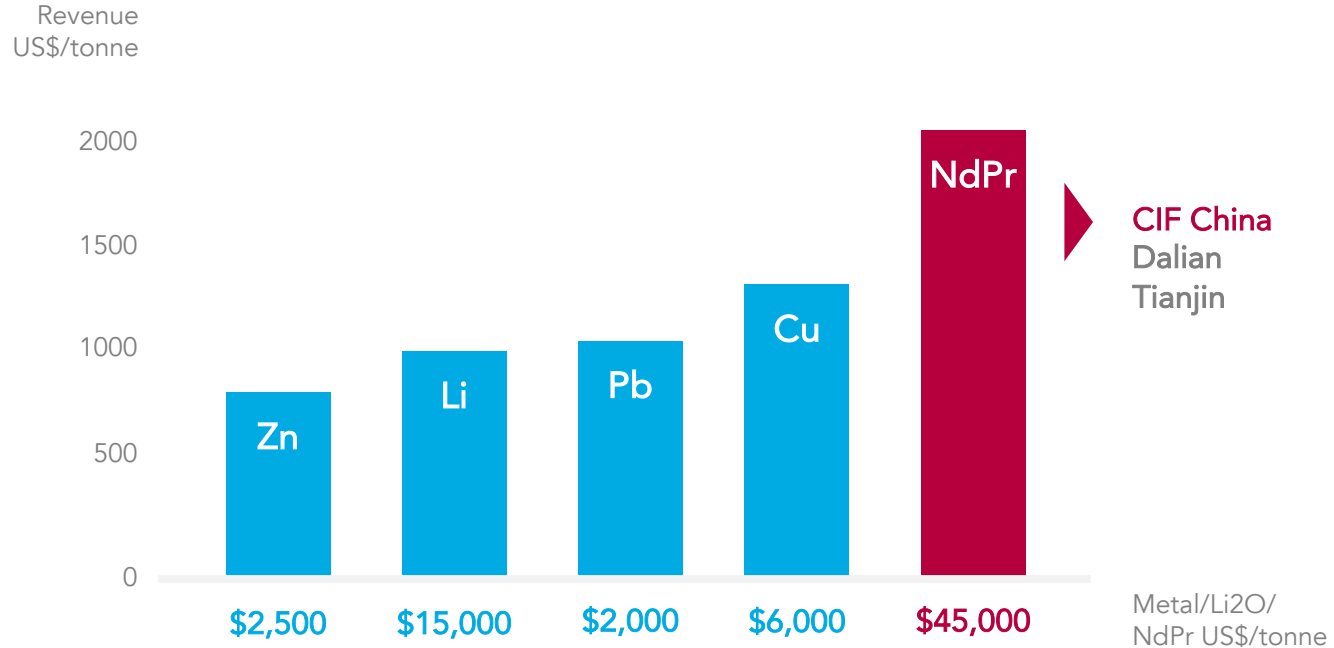


We have asked WOOD

to execute a Pre- Feasibility Study study on a **flotation operation** producing **NdPr** concentrate for export to China.

Taking advantage of the existing infrastructure and looking at an **ultra low Capex** early start-up option.

What interests us is the indicative concentrate revenue



Source: Various ASX announcements, Analysts reports and Conrad Partners Hong Kong



中国地质科学院矿产综合利用研究所
INSTITUTE OF MULTIPURPOSE UTILIZATION OF MINERAL RESOURCES

wood.

 **srk** consulting



London
Stock Exchange

Strong news flow:

Recent upgrade in Mineral Resource estimate makes Longonjo one of the world's largest and highest grade NdPr deposits.

Wood Group appointed to execute a pre feasibility study for September 2019.

Looking at **ultra low Capex early start** opportunity.

In discussion with Chinese customers for concentrate offtake agreements.

Working with advisors to list on the London Stock Exchange by the end of 2019.

Source: ASX announcement 19 February 2019

Pensana
metals
ASX:PM8

Building a great team

Pensana has been operating in the country since 2013 and has established mutually respectful working relationships with the Ministry of Mineral Resources and Petroleum and our state-owned partner Ferrangol.

We are actively engaged with the local communities and administrations of the city of Huambo and the town of Longonjo.



Profile



Paul Atherley
Chairman

Mr Atherley London based senior resources executive. Previously Executive Director HSBC.

Wide media experience commentator BBC, CCTV. Chairman British Chamber of Commerce in China. Vice Chairman of the China Britain Business Council.



David Hammond
Chief Operating Officer

Geologist with over 25 years international experience.

7 years as Technical Director with Peak Resources Ngualla Rare Earth Project, Tanzania.



Mark Hohnen
Non Executive Director

Founding Executive Chairman of Kalahari Resources Plc listed on AIM in 2006 for £15million and subject to a £651million takeover in 2012.



Neil MacLachlan
Non Executive Director

Internationally experienced Investment Banker, Funds Manager and Public Company Director.

Director of Kalahari Minerals Plc and also Extract Resources which was also subject to a takeover, for US\$2.2billion in 2012

Listing

ASX:PM8

Market Capitalisation

A\$32 million

As at 19 July 2019

Cash as at 30 June 2019

A\$4.7 million

Major shareholders

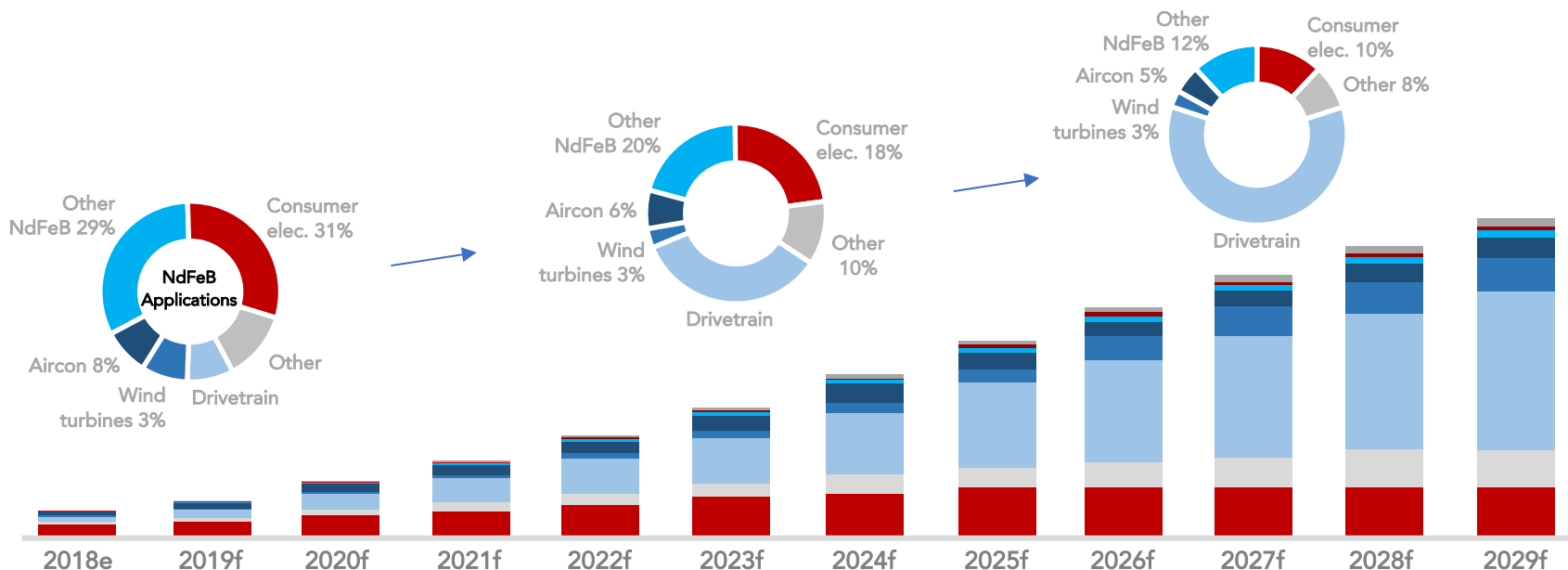
Management ~ 12%

Fidelity 10%

Top 100 ~ 74%

Roskill: NdPr market to double in size and prices to increase by over 50% in the next five years.

Pure battery EVs and LSEVs use more permanent magnets per motor than HEVs (Toyota Prius: 1.5kg NdFeB)



NdFeB demand by NEV type

HEV PHEV EV standard EV performance 48V FCEV 12V LSEV

Investment Summary



Following upgraded Mineral Resource estimate Longonjo now ranks as **one of the world's largest and highest grade NdPr deposits.**



Scoping study by WOOD highlighted the **benefits of the Chinese funded infrastructure.** PFS underway and due in September.



High grade NdPr deposit, with low mining costs, in close proximity to major rail highlights the **potential to develop an ultra low capital cost flotation** operation.



The NdPr concentrate export strategy avoids the excessive capital cost of downstream processing.



Experienced board and management team with strong track record in delivering significant shareholder returns on mining investments at this stage of development.



London
Stock Exchange

Plan to list on the London Stock Exchange to take advantage of strong institutional investor interest in Europe.

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Competent Persons Statement

The information in this report that relates to Geology, Data Quality and Exploration results is based on information compiled and/or reviewed by David Hammond, who is a Member of The Australian Institute of Mining and Metallurgy. David Hammond is the Chief Operating Officer and a Director of the Company. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity which he is undertaking to qualify as a Competent Person in terms of the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves. David Hammond consents to the inclusion in the report of the matters based on his information in the form and contest in which it appears.

The information in this statement that relates to the 2019 Mineral Resource estimates is based on work done by Rodney Brown of SRK Consulting (Australasia) Pty Ltd. Rodney Brown is a member of The Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a Competent Person in terms of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 edition).

The Company confirms that it is not aware of any new information or data that materially affects the information included in the above original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

APPENDIX



**Consultant Metallurgist
Vic Mclaglen and
COO Dave Hammond**
arranging sample for
concentrate analysis
in China.



Key infrastructure is the \$1.8 billion Benguela rail line linking the project to the Port of Lobito

A photograph showing CEO Tim George on the right, wearing a white hard hat and a blue and white striped shirt, holding a water bottle. He is standing on a dirt road next to a man in a white shirt and white hard hat who is being interviewed by several media members. The background shows a dirt road with several white SUVs and a blue van, with mountains in the distance under a cloudy sky.

CEO Tim George
briefing Angola media
during Ministerial site visit.



Chairman Paul Atherley receives strong support
for the Longonjo project from the
Angolan Minister of Mines and the Chinese Embassy in Luanda.