

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

It's on every government's policy agenda and it's driven by millennials.

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.



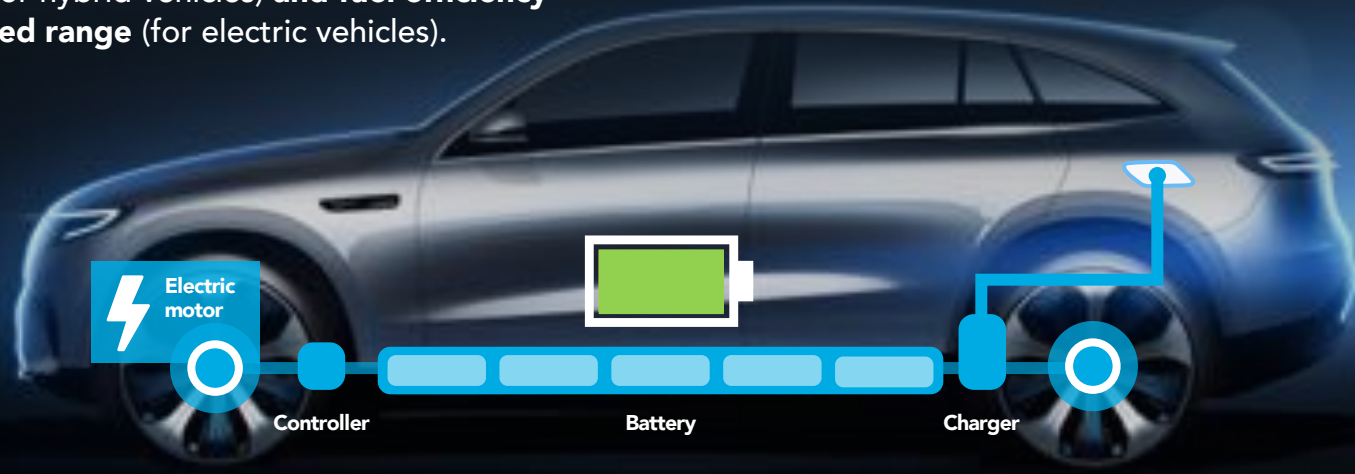
CLUE: It's not one of the battery metals

Neodymium is the magnet metal

NdPr magnets

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

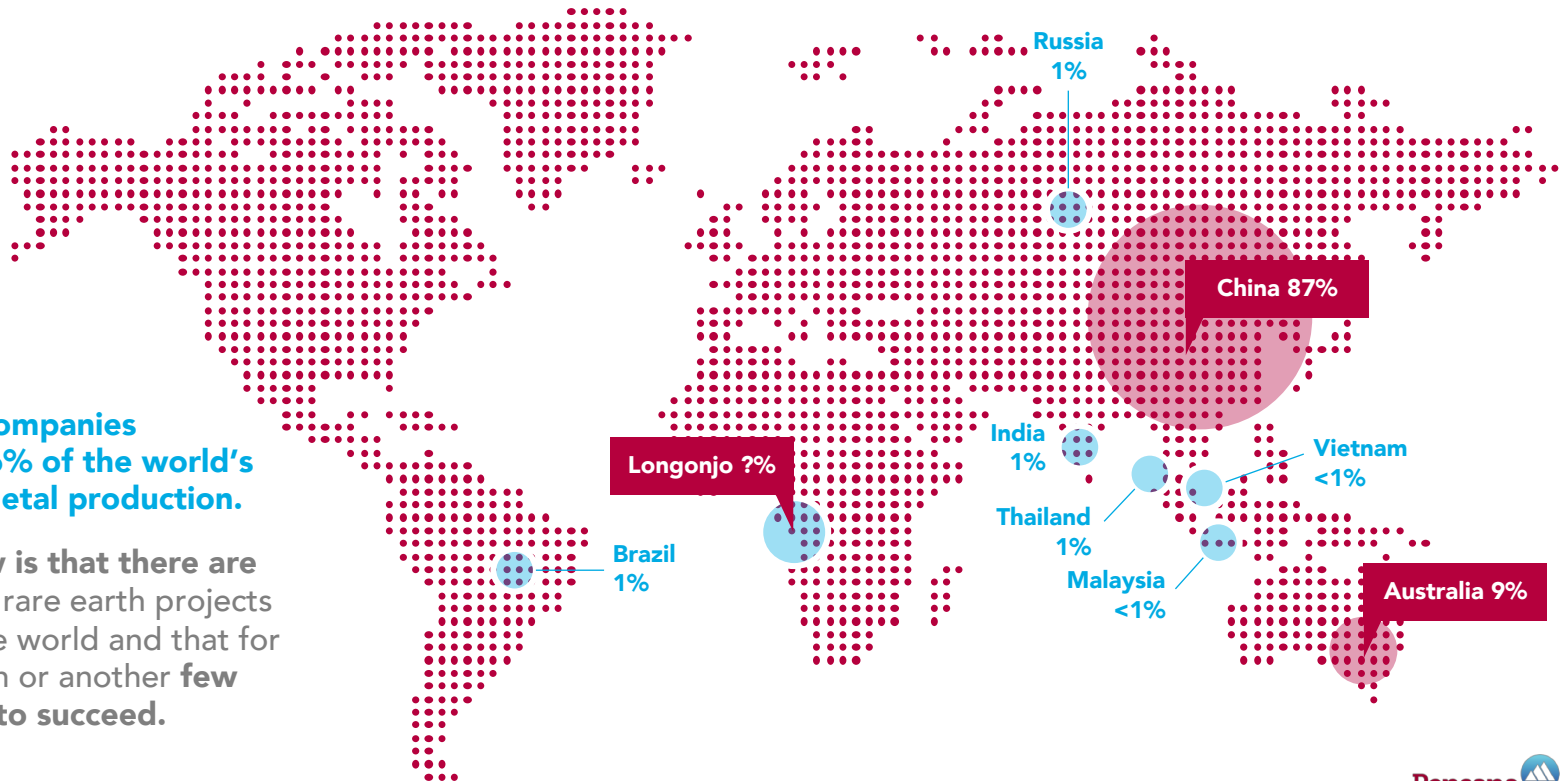
The main benefits for the vehicle owner is fuel efficiency (for hybrid vehicles) and fuel efficiency and extended range (for electric vehicles).



But we have a problem

Chinese companies control 96% 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?

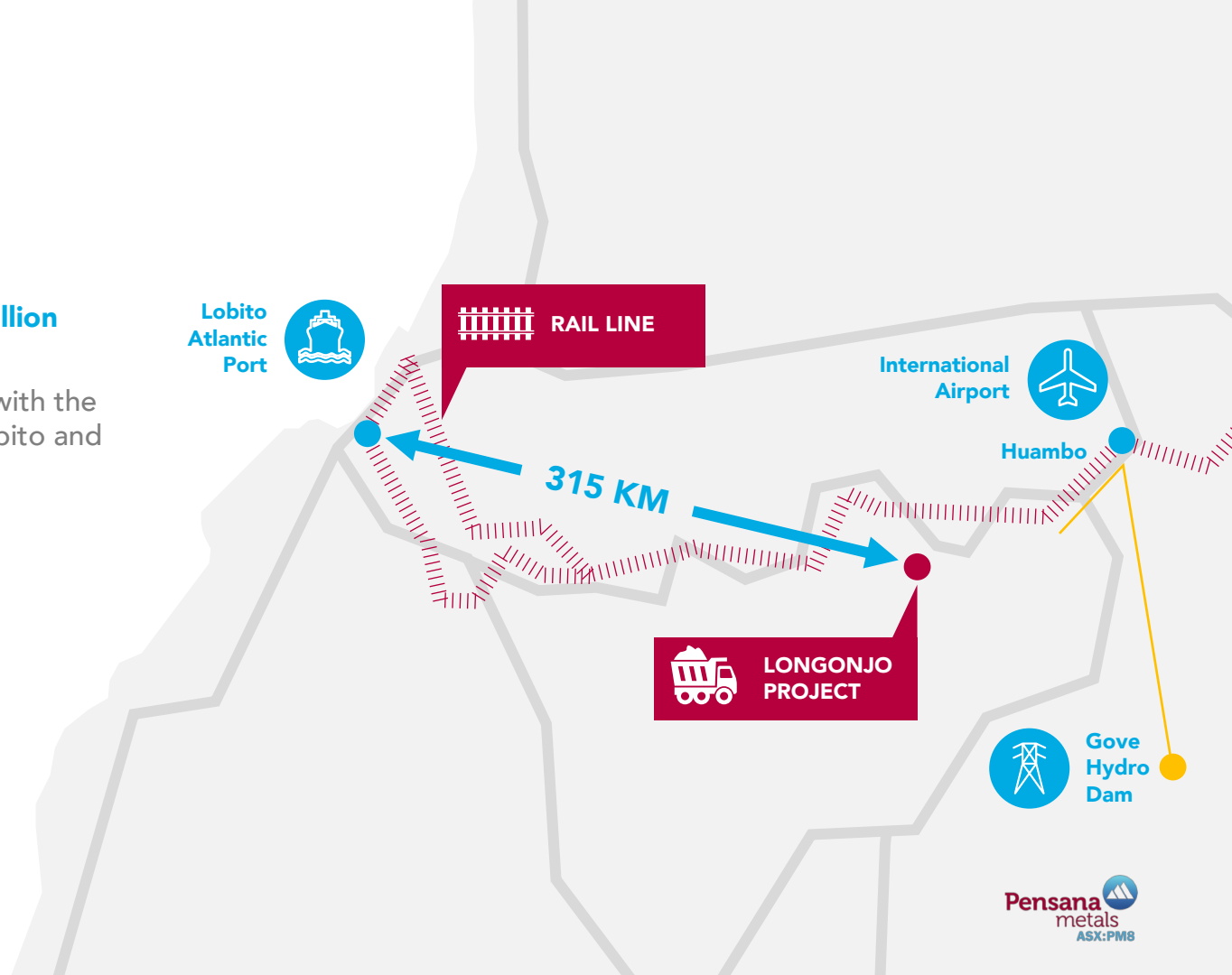
Yes we can...

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

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



Source: Port of Lobito E P



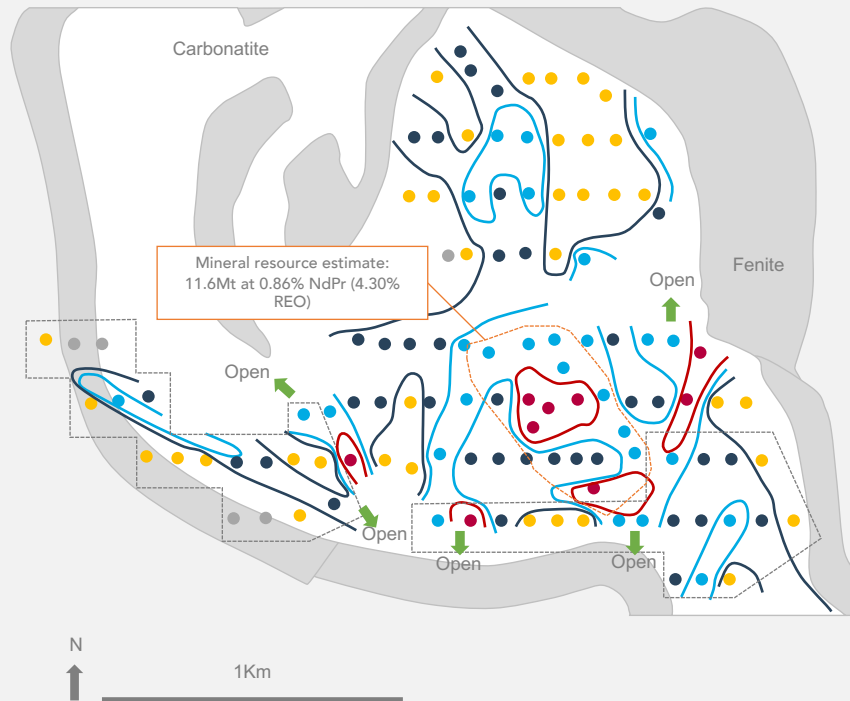
The mineralisation is the deeply weathered surface of a 5km² carbonatite

Metres	REO	NdPr
10	8.50%	1.50% (18% NdPr)*
10	8.03%	1.98% from surface
30	7.72%	1.21% from surface
14	7.33%	1.86%
50	5.63%	1.00% from surface
33	5.42%	0.88% from surface
42	3.98%	0.85% from surface
26	2.57%	0.92% (36% NdPr)*
15	2.88%	1.03%
65	2.61%	0.71% from surface

With some very good grades...
(anything over 0.4% NdPr is excellent!)

Source: Recent PM8 ASX Announcements;

*NdPr% of REO grade



Max down hole NdPr

- >2.0%
- 1 - 2.0%
- 0.6 - 1.0%
- 0.2 - 0.6%

Max NdPr contours

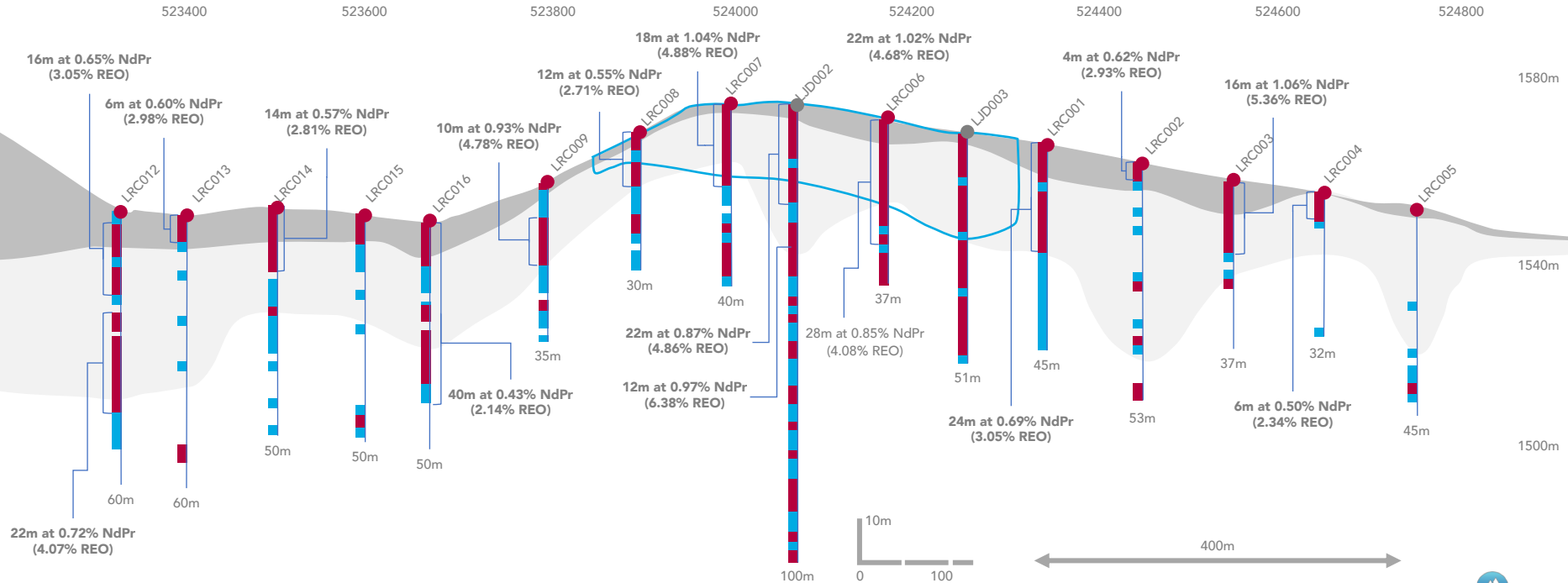
- 2.0%
- 1.0%
- 0.6%

Melbourne Cricket Ground (MCG)



(to scale)

Thick blanket of high-grade NdPr mineralisation extending over 1.5 kilometers



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

WOOD's 2017 Scoping study

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



Source: ASX announcement 6 December 2017

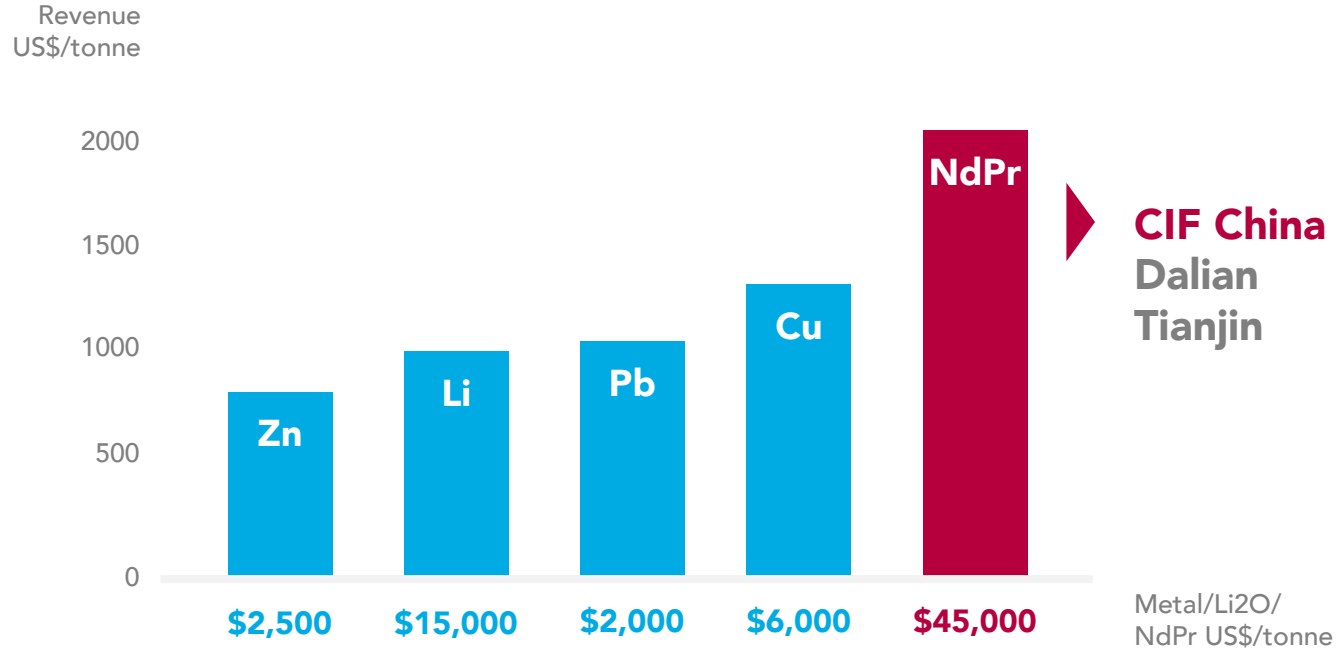


We have asked WOOD

to undertake a study on a **1.5 mtpa flotation operation** producing **95,000 tonnes of NdPr concentrate** for export to China.

Based on the forthcoming upgraded Mineral Resource estimate and the encouraging early metallurgical testwork.

What interests us is the indicative **concentrate** revenue



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



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INSTITUTE OF MULTIPURPOSE UTILIZATION OF MINERAL RESOURCES

wood.

 **srk** consulting

Strong news flow ahead

The new Mineral Resource estimate by SRK is expected to be a very significant upgrade on the maiden **Mineral Resource estimate of 11.6 million tonnes at 4.30% REO including 0.86% NdPr.**

Updates on process route, pre feasibility study by WOOD and preliminary offtake discussions with Chinese customers.

Site visit by Chinese delegation, analysts and European IR consultants next month.

Source: ASX announcement 26 September 2017

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\$18 million

Cash and asset sales
A\$6 million

Major shareholders
Management ~ 12%
Top 50 ~ 58%
Top 100 ~ 74%

Investment Summary



Upgraded Mineral Resource estimate is expected to confirm a large **high-grade blanket of mineralisation** with the potential for very low strip-ratio open pit mining operation.



Scoping study by WOOD highlights the benefits of the Chinese funded infrastructure and the **potential to develop a low capital cost 1.5 mtpa flotation** operation producing 95,000 tpa of NdPr concentrate.



The high NdPr grade, low mining costs, good metallurgy and close proximity to major rail highlights the **potential to generate very strong cash flow margins**.



The **high margin 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.

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Competent Person Statements

We advise in accordance with Australian Stock Exchange Limited Listing Rules 5(6) that the geology and exploration results for the Longonjo NdPr Project contained within this ASX Release is based on information compiled by Mr Dave Hammond who is a member of the Australasian Institute of Mining and Metallurgy. Mr Hammond is a Director of Pensana Metals Ltd. Mr Hammond has sufficient experience relevant to the style of mineralisation and type of deposit under consideration to be qualified as a Competent Person as defined by the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserve” (the JORC Code, 2012 edition). Mr Hammond consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

The information in this release that relates to the Mineral Resource estimate for Longonjo Project is based on information compiled by Mrs. Heather King who is a member of a ‘Recognised Professional Organisation’ (RPO) included in a list posted on the ASX website from time to time, specifically the South African Council for Natural Scientific Professions, and Mrs. King is registered as a Professional Natural Scientist (Pr. Sci. Nat.) Mrs. King was a full-time employee of Amec Foster Wheeler, consulting to Rift Valley Resources. Mrs. Heather King has sufficient experience that is relevant to the style of mineralisation, type of deposit under consideration and to the activity being undertaken 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’. Mrs. King consents to the inclusion in the report of the matters based on his (or her) information in the form and context in which it appears.