



**PENSANA**  
RARE  
EARTHS

## Establishing *sustainable* Rare Earth production in Europe



ERMA Rare Earths Magnets and Motors Cluster

Tuesday January 26 2021

EUROPEAN  
RAW MATERIALS  
ALLIANCE

ERMA

# China has a near monopoly in Rare Earths, much of which is sourced unsustainably

Pensana plans to establish sustainable rare earth production at the Saltend Chemicals Park in the Humber UK.

With a nameplate capacity of 4,500 tonnes, Saltend would become one of only two major producers outside China.

Lynas Corporation of Australia, currently the world's largest non-China producer, last year produced around 4,700 tonnes from its facility in Malaysia.

# EVs and Offshore Wind are generating growing demand for magnet metals

The EU is planning a 25-fold increase in offshore wind by 2050 and China is planning a 15-fold increase by 2060.

Roskill, CRU and Adamas all forecast substantial increases to magnet metal prices as demand from EVs and Offshore Wind takes off.

# VW's new range of EVs will consume the equivalent of Pensana's entire production for the next decade



Sources: ID.3 forecast sales from VW. VW Financial Services. Estimated rare earth usage per vehicle private communication  
Adamas Intelligence, Saltend production based on nameplate capacity.

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

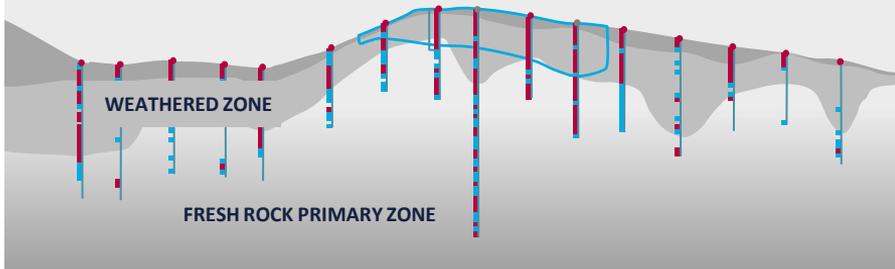


# Longonjo is one of the world's largest Rare Earth deposits with world-class power, port and rail infrastructure



## Thick surface blanket of high-grade NdPr mineralization over 1.5 kilometres wide

JORC Mineral Resource estimate 313 million tonnes  
1.43% REO incl. 0.32% NdPr containing 4,470,000 tonnes  
REO incl. 990,000 tonnes NdPr



## World class infrastructure means lower capital cost and faster development

Recently commissioned US\$1.8 billion rail line links with the US\$2 billion recently upgraded Port of Lobito

Sustainable power comes from ultra-low-cost hydroelectricity



# Saltend Chemicals Park

## Gateway to Europe

**£500m multi-user chemicals cluster located in proposed tax-free Freeport**

Home to major chemicals and renewable energy businesses including BP Petrochemicals, INEOS, Nippon Gohsei and Air Products.

Strategically located on the UK's busiest ports complex and gateway to Europe.

***Plug-and-play infrastructure and shared services***

pxGroup will provide “through the fence” power, utilities and reagent supply, significantly reducing the capital and operating costs.



# Saltend Chemicals Park

A world-class site for world-class businesses



# World-class in size Low in capital cost

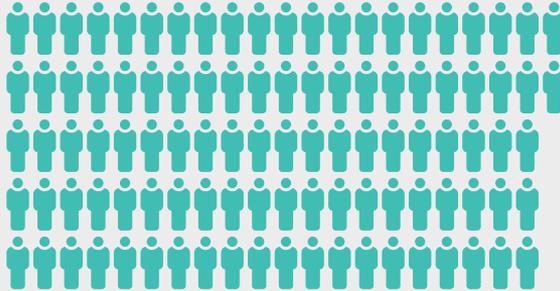
## Nameplate Capacity

**4,500** tonnes per annum  
of high-grade NdPr oxides  
for the magnet metal industries.



## Direct Skilled Employment (24 hour/day operations)

Total  
**102**



## Construction Timeline (subject to funding)

**Construction**  
**12 months**

**Commissioning**  
**4-6 months**

**First production following  
investment decision**  
**12-18 months**

**Benchmark  
Capital Cost:**  
**~US\$125** million



# Adamas Intelligence

## Rare Earth Magnet Market Outlook to 2030 (Q3 2020)



Global market to increase **Five-Fold by 2030** from US\$2.98 billion in 2020 to US\$15.65 billion.



By 2030 annual shortages will reach 16,000 tonnes roughly equal to **three times Lynas Corp's annual output.**



NdPr oxide price will increase at a **CAGR of 9.9%** through 2030 due to supply side struggling to keep up with rapidly growing demand.



NdPr oxide price to reach **US\$100,000** per tonne by 2030.



### Post 2030

*"It is exceptionally challenging to foresee how the supply side of the rare earth industry will be able to keep up with rapidly growing demand for magnet rare earths under any realistic scenario.*

*The rapid demand growth of the 2020s will soon be dwarfed by the astronomical demand growth of the 2030s."*



# Strong Board and Management team

Board has strong track record in financing and delivering exceptional returns to shareholders



**Paul Atherley**  
Chairman

Mr. Atherley has extensive experience as a senior resources executive. Previously Executive Director of the investment banking arm of HSBC. Has completed a number of successful acquisitions and financings of resource projects in Europe, China, Australia and Asia.



**Tim George**  
Exec Director / CEO

A Minerals Engineer, Tim leverages over 30 years of experience in the mining and engineering sectors, with a broad experience in mining project development throughout Sub-Saharan Africa.



**RT Hon Baroness Northover**  
Non-Exec Director

Baroness Northover was the Prime Minister's Trade Envoy to Angola (2016-2020), Zambia (2017-2020) and a Minister in the Department for International Development ("DFID") 2011-15, including serving as Parliamentary Under Secretary and Africa Minister, 2014-15.



**Sandra Bates**  
Non-Exec Director

Ms Bates is an international lawyer with over 20 years' experience advising listed and private companies in the natural resources sector on complex commercial negotiations and Environmental, Social and Governance (ESG) engagement.



**Neil Maclachlan**  
Non-Exec Director

Mr. Maclachlan has over 35 years' investment banking experience in Europe, South East Asia, and Australia and extensive experience in public company directorships. He currently serves as chairman and a major shareholder in Markham Associates, a private UK partnership, which undertakes financial consultancy and direct investment activities in the junior mining sector in Europe, Australia, and South East Asia.



**Mark Hohnen**  
Non-Exec Director

Mr. Hohnen has experience in the Japanese, Chinese and Korean markets, all of which play a significant role in the production of lithium-ion batteries and the development of electric vehicle technology.

Mr. Hohnen has been involved in the mineral resource sector since the late 1970s.



**We very much welcome the proposal to establish a fully sustainable rare earth oxide magnet metal processing facility in the Humber region. This facility is an important step in the establishment of a permanent magnet supply chain in the UK which could support a range of industries important to building back greener and our Net Zero ambitions.**

Lord Gerry Grimstone,  
UK Minister for Investment



**To meet our Green Deal targets we will need even higher amounts of critical raw materials. China provides 98% of the EU's supply of rare earth elements.**

Thierry Breton  
EU Commissioner



EU carbon border tax in 2023 will be a game-changer, levelling the playing field and lifting prices in Europe for critical raw materials.



Building sustainable rare earth oxide production capacity in Europe to meet the burgeoning demand from EVs and Offshore Wind is critical.



FAIRPHONE, ERMA, CMA, REIA, EU & UK Government all pushing hard for sustainable source of critical raw materials.

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The information in this statement that relates to 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). Rodney Brown 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 report that relates to Geology and Exploration results is based on information compiled and/or reviewed by David Hammond, who is a Member of The Australasian Institute of Mining and Metallurgy. David Hammond is the Chief Operating Officer 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 Australian 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.

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